Appendix A

BDAR requirements compliance

Table A-1 Assessment of compliance with BDAR minimum information requirements

BDAR section	BAM ref.	BAM requirement	Page reference(s) in the BDAR
Introduction	Chapters 2 and 3	**Information**	
		Introduction to the biodiversity assessment including:	–
		☒ brief description of the proposal	Section 1.1
		☒ identification of subject land boundary, including: ☒ operational footprint ☒ construction footprint indicating clearing associated with temporary/ancillary construction facilities and infrastructure	Section 1.1.3
		☒ general description of the subject land	Section 1.1.3.6
		☒ sources of information used in the assessment, including reports and spatial data	Section 1.5
		☒ identification and justification for entering the BOS	Section 1.2
		Maps and tables	
		☒ Map of the subject land boundary showing the final proposal footprint, including the construction footprint for any clearing associated with temporary/ancillary construction facilities and infrastructure	Figure 14-1 Figure 14-2 Figure 14-5 Figure 14-14

BDAR section	BAM ref.	BAM requirement	Page reference(s) in the BDAR
Landscape	Sections 3.1 and 3.2, Appendix E	**Information**	
		Identification of site context components and landscape features, including:	–
		☒ general description of subject land topographic and hydrological setting, geology and soils	Section 3.2.1
		☒ per cent native vegetation cover in the assessment area (as described in BAM Section 3.2)	Section 3.3
		☒ IBRA bioregions and subregions (as described in BAM Subsection 3.1.3(2.))	Section 3.2.2
		☒ rivers and streams classified according to stream order (as described in BAM Subsection 3.1.3(3.) and Appendix E)	Section 3.2.3
		☒ wetlands within, adjacent to and downstream of the site (as described in BAM Subsection 3.1.3(3.))	Section 3.2.3
		☒ connectivity of different areas of habitat (as described in BAM Subsection 3.1.3(5–6.))	Section 3.2.4
		☒ karst, caves, crevices, cliffs, rocks and other geological features of significance and for vegetation clearing proposals, soil hazard features (as described in BAM Subsections 3.1.3(7.) and 3.1.3(12.))	Section 3.2.5
		☒ areas of outstanding biodiversity value occurring on the subject land and assessment area (as described in BAM Subsection 3.1.3(8–9.))	Section 3.2.6
		☒ any additional landscape features identified in any SEARs for the proposal	Section 3.2.8
		☒ NSW (Mitchell) landscape on which the subject land occurs	Section 3.2.7
		☒ details of field reconnaissance undertaken to confirm the extent and condition of landscape features and native vegetation cover (as described in Operational Manual Stage 1 Section 2.4)	Section 3.2

BDAR section	BAM ref.	BAM requirement	Page reference(s) in the BDAR
		Maps and tables	
		☒ Site Map ☒ Property boundary ☒ Boundary of subject land ☒ Cadastre of subject land (including labelling of Lot and DP or section plan if relevant) ☒ Landscape features identified in BAM Subsection 3.1.3	Figure 14-1
		☒ Location Map ☒ Digital aerial photography at 1:1,000 scale or finer ☒ Boundary of subject land ☒ Assessment area (i.e. the subject land and either 1500 m buffer area or 500 m buffer for linear development) ☒ Landscape features identified in BAM Subsection 3.1.3 ☒ Additional detail (e.g. local government area boundaries) relevant at this scale	Figure 14-2
		Landscape features identified in BAM Subsection 3.1.3 and to be shown on the Site Map and/or Location Map include:	–
		☒ IBRA bioregions and subregions ☒ Rivers, streams and estuaries ☒ wetlands and important wetlands ☒ connectivity of different areas of habitat ☒ karst, caves, crevices, cliffs, rocks and other geological features of significance and if required, soil hazard features ☒ areas of outstanding biodiversity value occurring on the subject land and assessment area	Figure 14-1 Figure 14-2

BDAR section	BAM ref.	BAM requirement	Page reference(s) in the BDAR
		☒ any additional landscape features identified in any SEARs for the proposal ☒ NSW (Mitchell) landscape on which the subject land occurs	
		Data	
		☐ All report maps as separate jpeg files	To be submitted once BDAR is finalised
		Individual digital shape files of:	–
		☐ subject land boundary	To be submitted once BDAR is finalised
		☐ assessment area (i.e. subject land and 1500 m buffer area) boundary	To be submitted once BDAR is finalised
		☐ cadastral boundary of subject land	To be submitted once BDAR is finalised
		☐ areas of native vegetation cover	To be submitted once BDAR is finalised
		☐ landscape features	To be submitted once BDAR is finalised
Native vegetation	Chapter 4, Appendix A and Appendix H	**Information**	
		☒ Identify native vegetation extent within the subject land, including cleared areas and evidence to support differences between mapped vegetation extent and aerial imagery (as described in BAM Section 4.1(1–3.) and Subsection 4.1.1)	Section 4.1 Figure 14-8
		☒ Provide justification for all parts of the subject land that do not contain native vegetation (as described in BAM Subsection 4.1.2)	Section 4.1.2
		☒ Review of existing information on native vegetation including references to previous vegetation maps of the subject land and assessment area (described in BAM Section 4.1(3.) and Subsection 4.1.1)	Section 2.2.1 Section 4.1

BDAR section	BAM ref.	BAM requirement	Page reference(s) in the BDAR
		☒ Describe the systematic field-based floristic vegetation survey undertaken in accordance with BAM Section 4.2	Section 2.2.3
		☒ Where relevant, describe the use of more appropriate local data, provide reasons that support the use of more appropriate local data and include the written confirmation from the decision-maker that they support the use of more appropriate local data (as described in BAM Subsection 1.4.2 and Appendix A)	Section 5.5
		For each PCT within the subject land, describe:	–
		☒ PCT name and ID	Section 4.2
		☒ vegetation class	Section 4.2
		☒ extent (ha) within subject land	Section 4.2
		☒ evidence used to identify a PCT including any analyses undertaken, references/sources, existing vegetation maps (BAM Section 4.2(1–3.))	Section 4.2
		☒ plant species relied upon for identification of the PCT and relative abundance of each species	Section 4.2 Appendix D
		☒ if relevant, TEC status including evidence used to determine vegetation is the TEC (BAM Subsection 4.2.2(1–2.))	Section 4.2
		☒ estimate of per cent cleared value of PCT (BAM Subsection 4.2.1(5.))	Section 4.2
		Describe the vegetation integrity assessment of the subject land, including:	–
		☒ identification and mapping of vegetation zones (as described in BAM Subsection 4.3.1)	Section 4.4 Figure 14-12
		☒ description of vegetation zones within the subject land (as described in Operational Manual Stage 1 Table 2 and Subsection 3.3.2)	Section 4.4

BDAR section	BAM ref.	BAM requirement	Page reference(s) in the BDAR
		☒ area (ha) of each vegetation zone	Section 4.4
		☒ assessment of patch size (as described in BAM Subsection 4.3.2)	Section 4.4
		☒ survey effort (i.e. number of vegetation integrity survey plots) as described in BAM Subsection 4.3.4(1–2.)	Section 4.4
		☒ use of relevant benchmark data from BioNet Vegetation Classification (as described in BAM Subsection 4.3.3(5.))	Section 4.5.3
		Where use of more appropriate local benchmark data is proposed (as described in BAM Subsection 1.4.2, BAM Subsection 4.3.3(5.) and BAM Appendix A):	–
		☐ identify the PCT or vegetation class for which local benchmark data will be applied ☐ identify published sources of local benchmark data (if benchmarks obtained from published sources) ☐ describe methods of local benchmark data collection (if reference plots used to determine local benchmark data)	Not applicable.
		☐ provide justification for use of local data rather than BioNet Vegetation Classification benchmark values	Not applicable.
		☐ provide written confirmation from the decision-maker that they support the use of local benchmark data	Not applicable.
		Maps and tables	
		☒ Map of native vegetation extent within the subject land at scale not greater than 1:10,000 including identification of all areas of native vegetation including areas that are ground cover only, cleared areas (as described in BAM Section 4.1(1–3.)) and all parts of the subject land that do not contain native vegetation (BAM Subsection 4.1.2)	Figure 14-8
		☒ Map of PCTs within the subject land (as described in BAM Section 4.2(1.))	Figure 14-9

BDAR section	BAM ref.	BAM requirement	Page reference(s) in the BDAR
		☒ Map of vegetation zones within the subject land (as described in BAM Subsection 4.3.1)	Figure 14-12
		☒ Map the location of floristic vegetation survey plots and vegetation integrity survey plots relative to PCT boundaries	Figure 14-7
		☒ Map of TEC distribution on the subject land and table of TEC listing, status and area (ha)	Figure 14-11 Table 4-48
		☒ Map of patch size locations for each native vegetation zone and table of patch size areas (as described in BAM Subsection 4.3.2)	Figure 14-12 Table 4-54
		Table of current vegetation integrity scores for each vegetation zone within the site and including:	–
		☒ composition condition score ☒ structure condition score ☒ function condition score ☒ presence of hollow bearing trees	Section 4.5.2
		Data	
		☐ All report maps as separate jpeg files	To be submitted once BDAR is finalised
		☒ Plot field data (MS Excel format)	Appendix D
		☒ Plot field datasheets	Appendix D
		Digital shape files of:	–
		☐ PCT boundaries within subject land	To be submitted once BDAR is finalised
		☐ TEC boundaries within subject land	To be submitted once BDAR is finalised
		☐ vegetation zone boundaries within subject land	To be submitted once BDAR is finalised
		☐ floristic vegetation survey and vegetation integrity plot locations	To be submitted once BDAR is finalised

BDAR section	BAM ref.	BAM requirement	Page reference(s) in the BDAR
Threatened species	Chapter 5	**Information**	
		Identify ecosystem credit species likely to occur on the subject land, including:	–
		☒ list of ecosystem credit species derived from the BAM-C (as described in BAM Subsection 5.1.1 and Section 5.2(1.))	Section 5.1.3
		☒ justification and supporting evidence for exclusion of any ecosystem credit species based on geographic limitations, habitat constraints or vagrancy (as described in BAM Subsections 5.2.1 and 5.2.2)	Section 2.3.2 Section 2.4.2
		☒ justification for addition of any ecosystem credit species to the list	Not applicable, no ecosystem credit species were added
		Identify species credit species likely to occur on the subject land, including:	–
		☒ list of species credit species derived from the BAM-C (as described in BAM Subsection 5.1.1)	Section 5.1.4
		☒ justification and supporting evidence for exclusions based on geographic limitations, habitat constraints or vagrancy (as described in BAM Subsections 5.2.1 and 5.2.2)	Section 2.3.2 Section 2.4.2 Section 5.1.1
		☒ justification and supporting evidence for exclusions based on degraded habitat constraints and/or microhabitats on which the species depends (as described in BAM Subsection 5.2.2)	Section 5.1.4
		☒ justification for addition of any species credit species to the list	Section 5.1.4 Section 5.2

BDAR section	BAM ref.	BAM requirement	Page reference(s) in the BDAR
		From the list of candidate species credit species, identify:	
		☒ species assumed present within the subject land (if relevant) (as described in BAM Subsection 5.2.4(2.a.)) ☒ species present within the subject land on the basis of being identified on an important habitat map for a species (as described in BAM Subsection 5.2.4(2.d.)) ☒ species for which targeted surveys are to be completed to determine species presence (BAM Subsection 5.2.4(2.b.)) ☒ species for which an expert report is to be used to determine species presence (BAM Subsection 5.2.4(2.c.))	Section 5.1.4 Section 5.2 Section 5.3 Section 5.4 Figure 14-13
		Present the outcomes of species credit species assessments from:	–
		☒ threatened species survey (as described in BAM Section 5.2.4)	Section 5.2 Section 5.3 Figure 14-13
		☒ expert reports (if relevant) including justification for presence of the species and information used to make this determination (as described in BAM Subsection 5.2.4, Section 5.3, Box 3)	Not relevant.
		Where survey has been undertaken include detailed information on:	–
		☒ survey method and effort (as described in BAM Section 5.3)	Section 2.3 Section 2.4 Section 5.3 Figure 14-7

BDAR section	BAM ref.	BAM requirement	Page reference(s) in the BDAR
		☒ justification of survey method and effort (e.g. citation of peer-reviewed literature) if approach differs from the department's taxa-specific survey guides or where no relevant guideline has been published	Section 2.3 Section 2.4 Section 5.3
		☒ timing of survey in relation to requirements in the TBDC or the department's taxa-specific survey guides. Where survey was undertaken outside these guides include justification for the timing of surveys	Section 5.3
		☒ survey personnel and relevant experience	Declarations ii
		☒ describe any limitations to surveys and how these were addressed/overcome	Section 2.6
		Where an expert report has been used in place of survey (as described in BAM Section 5.3, Box 3), include:	–
		☒ justification of the use of an expert report ☒ identify the expert, provide evidence of their expert credentials and departmental approval of expert status ☒ all requirements of Box 3 have been addressed in the expert report	Not relevant.
		Where use of local data is proposed (BAM Subsection 1.4.2):	–
		☒ identify relevant species ☒ identify data to be amended ☒ identify source of information for local data, e.g. published literature, additional survey data, etc. ☒ justify use of local data in preference to VIS Classification or TBDC data	Not relevant.
		☒ provide written confirmation from the decision-maker that they support the use of local data	Not relevant.

BDAR section	BAM ref.	BAM requirement	Page reference(s) in the BDAR
		Species polygon completed for species credit species present within the subject land (assumed present or determined on the basis of survey, expert report or important habitat map) ensuring that:	–
		☒ the unit of measure for each species is documented	Section 5.6
		for species assessed by area:	–
		☒ the polygon includes the extent of suitable habitat for the target species within the subject land (as described in BAM Subsection 5.2.5)	Section 5.6 Figure 14-13
		☒ a description of, and evidence-based justification for, the habitat constraints, features or microhabitats used to map the species polygon including reference to information in the TBDC for that species and any buffers applied	Section 5.2 Section 5.6
		for species assessed by counts of individuals:	–
		☒ the number of individual plants present on the subject land (as described in BAM Subsection 5.2.5(3.))	Section 5.2 Section 5.6
		☒ the method used to derive this number (i.e. threatened species survey or expert report) and evidence-based justification for the approach taken	Section 2.3 Section 5.2 Section 5.6
		☒ the polygon includes all individuals located on the subject land with a buffer of 30 m around the individuals or groups of individuals on the subject land	Section 2.3 Section 5.2 Section 5.6 Figure 14-13
		☒ Identify the biodiversity risk weighting for each species credit species identified as present within the subject land (as described in BAM Section 5.4)	Section 5.6

BDAR section	BAM ref.	BAM requirement	Page reference(s) in the BDAR
		Maps and tables	
		☒ Table showing ecosystem credit species in accordance with BAM Subsection 5.1.1, and identifying:	
		☒ the ecosystem credit species removed from the list	Table 5-4
		☒ the sensitivity to gain class of each species	Table 5-4
		☒ Table detailing species credit species in accordance with BAM Section 5.2 and identifying:	Table 5-5 and Table 5-6
		☒ the species credit species removed from the list of species because the species is considered vagrant, out of geographic range or the habitat or microhabitat features are not present	Table 5-1 Table 5-2 Table 5-3 Table 5-5 and Table 5-6
		☒ the candidate species credit species not recorded on the subject land as determined by targeted survey, expert report or important habitat map	Table 5-7 to Table 5-16
		☒ Table detailing species credit species recorded or assumed as present within the subject land, habitat constraints or microhabitats associated with the species, counts of individuals (flora)/extent of suitable habitat (flora and fauna) (as described in BAM Subsection 5.2.6) and biodiversity risk weighting (BAM Section 5.4)	Table 5-27 Table 5-28
		☒ Map indicating the GPS coordinates of all individuals of each species recorded within the subject land and the species polygon for each species (as described in BAM Subsection 5.2.5)	Figure 14-13
		Data	
		☐ Digital shape files of suitable habitat identified for survey for each candidate species credit species	To be submitted once BDAR is finalised
		☐ Survey locations including GPS coordinates of any plots, transects, grids	To be submitted once BDAR is finalised
		☐ Digital shape files of each species polygon including GPS coordinates of located individuals	To be submitted once BDAR is finalised

BDAR section	BAM ref.	BAM requirement	Page reference(s) in the BDAR
		☐ Species polygon map in jpeg format	To be submitted once BDAR is finalised
		☒ Expert reports and any supporting data used to support conclusions of the expert report	Not applicable
		☐ Field datasheets detailing survey information including prevailing conditions, date, time, equipment used, etc.	To be submitted once BDAR is finalised
Prescribed impacts	Chapter 6	**Information**	
		Identify potential prescribed biodiversity impacts on threatened entities, including:	–
		☒ karst, caves, crevices, cliffs, rocks and other geological features of significance (as described in BAM Subsection 6.1.1) ☒ occurrences of human-made structures and non-native vegetation (as described in BAM Subsection 6.1.2) ☒ corridors or other areas of connectivity linking habitat for threatened entities (as described in BAM Subsection 6.1.3) ☒ waterbodies or any hydrological processes that sustain threatened entities (as described in BAM Subsection 6.1.4)	Chapter 5.7
		☒ protected animals that may use the proposed wind farm development site as a flyway or migration route (as described in BAM Subsection 6.1.5)	Not applicable.
		☒ where the proposed development may result in vehicle strike on threatened fauna or on animals that are part of a threatened ecological community (as described in BAM Subsection 6.1.6)	Chapter 5.7
		☒ Identify a list of threatened entities that may be dependent upon or may use habitat features associated with any of the prescribed impacts	Chapter 5.7
		☒ Describe the importance of habitat features to the species including, where relevant, impacts on life cycle or movement patterns (e.g. Subsection 6.1.3)	Chapter 5.7

BDAR section	BAM ref.	BAM requirement	Page reference(s) in the BDAR
		Where the proposed development is for a wind farm:	–
		☒ identify a candidate list of protected animals that may use the development site as a flyway or migration route, including: resident threatened aerial species, resident raptor species and nomadic and migratory species that are likely to fly over the proposal area (as described in BAM Subsection 6.1.5)	Not applicable.
		☒ provide details of targeted survey for candidate species of wind farm developments undertaken in accordance with BAM Subsection 6.1.5(2–3.)	Not applicable.
		☒ predict the habitual flight paths for nomadic and migratory species likely to fly over the subject land and map the likely habitat for resident threatened aerial and raptor species (BAM Subsection 6.1.5(4.))	Not applicable.
		Where the proposal may result in vehicle strike:	–
		☒ identify a list of threatened fauna or protected fauna species that are part of a TEC and at risk of vehicle strike due to the proposal	Chapter 5.7
		Maps and tables	
		☒ Map showing location of any prescribed impact features (i.e. karst, caves, crevices, cliffs, rocks, human-made structures, etc.)	Figure 14-1 Figure 14-2
		☒ Map showing location of potential vehicle strike locations	Figure 14-1
		☒ Maps of habitual flight paths for nomadic and migratory species likely to fly over the site and maps of likely habitat for threatened aerial species resident on the site (for wind farm developments only)	Not applicable.
		Data	
		☐ Digital shape files of prescribed impact feature locations	To be submitted once BDAR is finalised
		☐ Prescribed impact features map in jpeg format	To be submitted once BDAR is finalised

BDAR section	BAM ref.	BAM requirement	Page reference(s) in the BDAR
Avoid and minimise impacts	Chapter 7	**Information**	
		Demonstration of efforts to avoid and minimise impacts on biodiversity values (including prescribed impacts) associated with the proposal location in accordance with Chapter 7, including an analysis of alternative:	–
		☒ modes or technologies that would avoid or minimise impacts on biodiversity values and justification for selecting the proposed mode or technology	Section 7.1
		☒ routes that would avoid or minimise impacts on biodiversity values and justification for selecting the proposed route	Section 7.1
		☒ alternative locations that would avoid or minimise impacts on biodiversity values and justification for selecting the proposed location	Section 7.1
		☒ alternative sites within a property on which the proposal is located that would avoid or minimise impacts on biodiversity values and justification for selecting the proposed site	Section 7.1
		☒ Describe efforts to avoid and minimise impacts (including prescribed impacts) to biodiversity values through proposal design (as described in BAM Sections 7.1 and 7.2)	Section 7.1 Section 7.2 Section 7.4
		☒ Identification of any other site constraints that the proponent has considered in determining the location and design of the proposal (as described in BAM Subsection 7.2.1(3.))	Section 7.1
		☒ Detail measures or options considered but not implemented because they are not feasible and/or practical (e.g. due to site constraints)	Section 7.1 Section 7.2 Section 7.4

BDAR section	BAM ref.	BAM requirement	Page reference(s) in the BDAR
		Maps and tables	
		☒ Table of measures to be implemented to avoid and minimise the impacts of the proposal, including action, outcome, timing and responsibility	Section 7.4 Table 7-3
		☐ Map of alternative footprints considered to avoid or minimise impacts on biodiversity values; and of the final proposal footprint, including construction and operation	Figure 14-5
		☐ Maps demonstrating indirect impact zones where applicable	Figure 14-14
		Data	
		Digital shape files of:	–
		☐ alternative and final proposal footprint	To be submitted once BDAR is finalised
		☐ direct and indirect impact zones	To be submitted once BDAR is finalised
		☐ Maps in jpeg format	To be submitted once BDAR is finalised
Assessment of impacts	Chapter 8, Sections 8.1 and 8.2	**Information**	
		☒ Determine the impacts on native vegetation and threatened species habitat, including a description of direct impacts of clearing of native vegetation, threatened ecological communities and threatened species habitat (as described in BAM Section 8.1)	Section 8.1
		Assessment of indirect impacts on vegetation and threatened species and their habitat including (as described in BAM Section 8.2):	–
		☒ description of the nature, extent, frequency, duration and timing of indirect impacts of the proposal	Section 8.1.2 Table 8-37

BDAR section	BAM ref.	BAM requirement	Page reference(s) in the BDAR
		☒ documenting the consequences to vegetation and threatened species and their habitat including evidence-based justifications	Section 8.1.2 Table 8-37
		☒ reporting any limitations or assumptions, etc. made during the assessment	Section 8.1.2 Table 8-37
		☒ identification of the threatened entities and their habitat likely to be affected	Section 8.1.2 Table 8-37
		Assessment of prescribed biodiversity impacts (as described in BAM Section 8.3) including:	–
		assessment of the nature, extent frequency, duration and timing of impacts on the habitat of threatened species or ecological communities associated with:	–
		☒ karst, caves, crevices, cliffs, rocks and other features of geological significance	Section 8.3
		☒ human-made structures	Section 8.3
		☒ non-native vegetation	Section 8.3
		☒ connectivity of different areas of habitat of threatened species that facilitates the movement of those species across their range	Section 8.3
		☒ movement of threatened species that maintains their life cycle	Section 8.3
		☒ water quality, waterbodies and hydrological processes that sustain threatened species and threatened ecological communities	Section 8.3
		☒ assessment of the impacts of wind turbine strikes on protected animals	Not applicable
		☒ assessment of the impacts of vehicle strikes on threatened species of animals or on animals that are part of a TEC	Section 8.3
		☒ evaluate the consequences of prescribed impacts	Section 8.3

BDAR section	BAM ref.	BAM requirement	Page reference(s) in the BDAR
		☒ describe impacts that are uncertain	Section 8.5
		☒ document limitations to data, assumptions and predictions	Section 2.6
		Maps and tables	
		☒ Table showing change in vegetation integrity score for each vegetation zone as a result of identified impacts	Table 8-9 to Table 8-21
		Data	
		N/A	–
Mitigation and management of impacts	Chapter 8, Sections 8.4 and 8.5	**Information**	
		Identification of measures to mitigate or manage impacts in accordance with the recommendations in BAM Sections 8.4 and 8.5 including:	–
		☒ techniques, timing, frequency and responsibility ☒ identify measures for which there is risk of failure ☒ evaluate the risk and consequence of any residual impacts	Section 8.4 Table 8-40
		☒ document any adaptive management strategy proposed	Section 8.5
		Identification of measures for mitigating impacts related to:	–
		☒ displacement of resident fauna (as described in BAM Subsection 8.4.1(2.)) ☒ indirect impacts on native vegetation and habitat (as described in BAM Subsection 8.4.1(3.)) ☒ mitigating prescribed biodiversity impacts (as described in BAM Subsection 8.4.2)	Section 8.4 Table 8-40

BDAR section	BAM ref.	BAM requirement	Page reference(s) in the BDAR
		☒ Details of the adaptive management strategy proposed to monitor and respond to impacts on biodiversity values that are uncertain (BAM Section 8.5)	Section 8.5
		Maps and tables	
		☒ Table of measures to be implemented before, during and after construction to mitigate and manage impacts of the proposal, including action, outcome, timing and responsibility	Table 8-40
		Data	
		N/A	–
Impact summary	Chapter 9	**Information**	
		Identification and assessment of impacts on TECs and threatened species that are at risk of a serious and irreversible impacts (SAII, in accordance with BAM Section 9.1) including:	–
		☒ addressing all criteria in Subsection 9.1.1 for each TEC listed as at risk of an SAII present on the subject land	Section 9.1
		☒ for each TEC, report the extent of the TEC in NSW	Section 0
		☒ addressing all criteria in Subsection 9.1.2 for each threatened species at risk of an SAII present on the subject land	Section 9.1.2 to Section 9.1.2.3
		☒ for each threatened species, report the population size in NSW	Section 9.1.2 to Section 9.1.2.3
		☒ documenting assumptions made and/or limitations to information ☒ documenting all sources of data, information, references used or consulted ☒ clearly justifying why any criteria could not be addressed	Section 9.1
		☒ Identification of impacts requiring offset in accordance with BAM Section 9.2	Section 10.1.1.2

BDAR section	BAM ref.	BAM requirement	Page reference(s) in the BDAR
		☒ Identification of impacts not requiring offset in accordance with BAM Subsection 9.2.1(3.)	Section 10.1.1.1
		☒ Identification of areas not requiring assessment in accordance with BAM Section 9.3	Section 10.2
		Maps and tables	
		☒ Map showing the extent of TECs at risk of an SAII within the subject land	Figure 14-15
		☒ Map showing location of threatened species at risk of an SAII within the subject land	Figure 14-15
		Map showing location of:	–
		☒ impacts requiring offset	Figure 14-16
		☒ impacts not requiring offset	Figure 14-16
		☒ areas not requiring assessment	Figure 14-16
		Data	
		Digital shape files of:	–
		☐ extent of TECs at risk of an SAII within the subject land	To be submitted once BDAR is finalised
		☐ location of threatened species at risk of an SAII within the subject land	To be submitted once BDAR is finalised
		☐ boundary of impacts requiring offset	To be submitted once BDAR is finalised
		☐ boundary of impacts not requiring offset	To be submitted once BDAR is finalised
		☐ boundary of areas not requiring assessment	To be submitted once BDAR is finalised
		☐ Maps in jpeg format	To be submitted once BDAR is finalised

BDAR section	BAM ref.	BAM requirement	Page reference(s) in the BDAR
Impact summary	Chapter 10	**Information**	
		Ecosystem credits and species credits that measure the impact of the development on biodiversity values, including:	–
		☒ future vegetation integrity score for each vegetation zone within the subject land (Equation 25 and Equation 26 in BAM Appendix H) ☒ change in vegetation integrity score (BAM Subsection 8.1.1) ☒ number of required ecosystem credits for the direct impacts of the proposal on each vegetation zone within the subject land (BAM Subsection 10.1.2)	Section 8.1.1.1 Section 10
		☒ biodiversity risk weighting for each	Section 10
		☒ number of required species credits for each candidate threatened species that is directly impacted on by the proposal (BAM Subsection 10.1.3)	Section 10 and Section 11 Section 11.3
		Maps and tables	
		☒ Table of PCTs requiring offset and the number of ecosystem credits required	Section 10 and Section 11
		☒ Table of threatened species requiring offset and the number of species credits required	Section 10 and Section 11
		Data	
		☐ Submitted proposal in the BAM Calculator	To be submitted once BDAR is finalised

BDAR section	BAM ref.	BAM requirement	Page reference(s) in the BDAR
Biodiversity credit report	Chapter 11	**Information**	
		☒ Description of credit classes for ecosystem credits and species credits at the development or clearing site or land to be biodiversity certified (BAM Section 10.2)	Chapter 11 Appendix E
		☒ BAM credit report in pdf format	Appendix E
		Maps and tables	
		☒ Table of credit class and matching credit profile	Appendix E
		Data	
		☒ BAM credit report in pdf format	Appendix E

Appendix B

Determination of excluded impacts

B1 Determination of excluded impacts

In accordance with section 6.8 (3) of the BC Act, the BAM excludes the assessment of impacts on category 1-exempt land (within the meaning of Part 5A of the *Local Land Services Act 2013* (LLS Act)), other than any impacts prescribed by the regulations under section 6.3.

The LLS Act publishes maps (the 'native vegetation regulatory map) that show areas of the State to which Part 5A of the LLS Act applies, which are designated as Category 1 – exempt land. However, the native vegetation regulatory map is currently incomplete, and Category 1 – exempt land has not yet been mapped within NSW.

Section 60F of the LLS Act provides transitional requirements which identify how the relevant categorisation of land is to be determined pursuant to section 60H of the LLS Act in the absence of a native vegetation regulatory map.

WSP have developed a desktop land characterisation methodology that builds on previous land categorisation assessments and with reference to the Native vegetation regulatory map (NVR): method statement (OEH 2017). A detailed analysis of the background and methodology used by WSP to identify category 1-exempt land within the subject land for this BDAR is provided in Section 4.1.2.

The methodology outlined in the BDAR was determined through consultation with the NSW Department of Planning and Environment (DPE) Biodiversity Conservation Division (BCD). Details of the consultation undertaken between WSP and BCD to date are outlined in Table B.1, below.

Table B.1 Details of consultation regarding category 1-exempt land

Date of correspondence	Type	Details
02/09/2022	Letter	Letter from WSP to BCD outlining proposed methodology for determining category 1-exempt land within the subject land.
26/09/2022	Letter	Letter from BCD to WSP responding to proposed methodology and outlining additional comments and recommendations for change.
13/10/2022	Letter	Letter from WSP to BCD outlining how BCD's recommendations were incorporated into the methodology and identifying points for further discussion.
11/11/2022	Letter	Letter from WSP to BCD outlining how the parts of the project alignment can be considered to be Category 1 – exempt land, as per the NSW Land Management Framework and the *Local Land Services Act 2013* and requesting a determination from the Environment Agency Head to confirm that the land can be classified as exempt land.
30/11/2022	Meeting	Meeting undertaken with WSP, BCD, DPE and Energy Co which discussed the current status of the category 1 exemption application and next steps for inclusion of category 1 land within WSP BDAR.

WSP has included mapping of category 1-exempt land in this draft BDAR as per the final consultation dated 30 November 2022, however updates may be required in following revisions, pending additional response from BCD.

Copies of the consultation documents outlined are provided in this Appendix.

B1.1 Letter from WSP 2 September 2022

Our ref: PS117658_ECO-LTR-001 Rev1 Cat 1 Land East

By email
Samantha.Wynn@environment.nsw.gov.au

1 September 2022

Samantha Wynn
Senior Team Leader Planning
North West Branch
Biodiversity and Conservation Division
Department of Planning, Industry and Environment
48-52 Wingewarra Street, Dubbo NSW 2830

Dear Sam

CWO SNI - Category 1 Exempt Land and Targeted flora spring survey methodology

1. Introduction

This letter has been prepared by WSP Australia Pty Ltd on behalf of Energy Corporation of NSW (Energy Co) for the proposed Central-West Orana Renewable Energy Zone (CWO REZ) transmission infrastructure Project (the Project).

WSP Australia Pty Ltd is currently preparing to undertake biodiversity surveys and a Biodiversity Development Assessment Report (BDAR) for the Project in accordance with NSW Biodiversity Assessment Method 2017 (BAM). As part of the early desktop planning, large areas of the project alignment were identified as containing existing intensive agriculture dominated by exotic grassland and crops.

These exotic dominated grassland areas are considered likely to be Category 1 – exempt land, as per the NSW Land Management Framework and the *Local Land Services Act 2013* and Category 1 – exempt land is excluded from assessment of biodiversity under the BAM.

Following early engagement with the BCD, it was agreed to provide the proposed methodology for identification of Category 1 – exempt land for BCD review. In determining the methodology for identification of Category 1 – exempt land within the Project alignment, WSP have relied upon the Revised Land Categorisation Process (ARTC, 2019) as previously agreed with OEH (now BCD) and with reference to the Native vegetation regulatory map: method statement (OEH 2017).

This letter also outlines the proposed methodology for undertaking spring targeted flora surveys

Further, a determination is therefore requested from the Environment Agency Head to confirm that the land can be classified as exempt land.

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2. The Project

The project would comprise the following key features:

- a new switching station at Wollar, to connect the project to TransGrid's existing Wollar Substation and onto the National Electricity Market (NEM)
- primary network infrastructure, comprising twin double circuit 500 kV transmission lines and associated infrastructure
- energy hubs at Merotherie and Elong Elong, to connect energy generation and storage projects within the Central-West Orana REZ to the new primary network infrastructure.
- secondary network infrastructure, comprising new single and double circuit 330 kV single lines to connect energy generation and storage projects within the Central-West Orana REZ to the energy hubs
- switching stations along the secondary network infrastructure, to transfer the energy generated from the energy generation projects onto the secondary network infrastructure
- establishment and upgrade of access tracks and public roads, and other ancillary works such as laydown and staging areas, earthwork material sites with crushing and screening plants, concrete batching plants, brake/winch sites, site offices and workforce accommodation camps
- utility adjustments required for construction of the new network infrastructure.

EnergyCo is investigating a possible southern extension of the study corridor transmission network from Elong Elong to Mumbil which would allow for connections to potential generation and storage projects in this area and the NEM. The extension would be subject to a separate application for planning approval.

It is expected that construction of the project would commence in the second half of 2024 and take approximately three years to complete, with operations commencing in mid-2027.

3. Background to Category 1 – Exempt land

3.1 Overview

Under the NSW Land Management Framework, the categorisation of land determines the native vegetation management options available to landholders. Rural land in NSW is categorised into three main categories:

- **Category 1** – exempt land is land where native vegetation can be cleared without approval from Local Land Services.
- **Category 2** – land is divided into:
  - Category 2 – regulated land is Category 2 land that is not Vulnerable or Sensitive regulated land. You may need authorisation from Local Land Services to clear native vegetation from rural zoned land in this category.
  - Category 2 – vulnerable regulated land is land where clearing of native vegetation may not be permitted under the Land Management (Native Vegetation) Code 2018, and a limited range of allowable activities are permitted.
  - Category 2 – sensitive regulated land is land where clearing is not permitted under the Land Management Code (Native Vegetation) Code 2018, and a limited range of allowable activities is permitted.

- **Excluded land** – is land where the Land Management (Native Vegetation) Code 2018 and allowable activities do not apply.

3.2 Land category criteria

Each land category is determined by various criteria as outlined in the *Local Land Services Act 2013* (LLS Act). Category 1 – exempt land is defined in 60H of the LLS Act as the below:

1. Land is to be designated as Category 1 – exempt land if the Environment Agency Head reasonably believes that:
   a) the land was cleared of native vegetation as at 1 January 1990, or
   b) the land was lawfully cleared of native vegetation between 1 January 1990 and the commencement of this Part.
2. Land is to be designated as Category 1 – exempt land if the Environment Agency Head reasonably believes that:
   a) the land contains low conservation value grasslands, or
   b) the land contains native vegetation that was identified as regrowth in a property vegetation plan referred to in section 9 (2) (b) of the *Native Vegetation Act 2003*, or
   c) the land is of a kind prescribed by the regulations as Category 1 – exempt land.
3. Land is to be designated as Category 1 – exempt land if the land is biodiversity certified under Part 8 of the *Biodiversity Conservation Act 2016* or under any Act repealed by that Act.
4. However:
   a) land described in subsection (1) or (2) is not to be designated as Category 1 – exempt land if section 60I (2) requires the land to be designated as category 2-regulated land, and
   b) land described in subsection (1) (a) is not to be designated as Category 1 – exempt land if the land was unlawfully cleared of native vegetation after 1 January 1990, and
   c) land described in subsection (2) (a) is not to be designated as Category 1 – exempt land if the land was unlawfully cleared of native vegetation after 1 January 1990.
5. The regulations may make provision for the purposes of determining whether grasslands are low conservation value grasslands for the purposes of this Division.

3.3 Determination of mapped category of land

The matters relating to determination of mapped category of land are outlined in 60J of the LLS Act. Section 60J of the LLS Act is reproduced below:

1. This section makes provision relating to the mapping of land under this Division as category 1-exempt land or Category 2 – regulated land.
2. Native vegetation that comprises grasslands or other non-woody vegetation is taken to have been cleared if the native vegetation was significantly disturbed or modified. The regulations may make provision for the purposes of determining whether native vegetation has been significantly disturbed or modified for the purposes of this Division.
3. Determinations may be made by the Environment Agency Head that land was unlawfully cleared of native vegetation only if compliance or enforcement action of a kind prescribed by regulations was taken in relation to the clearing.
4. Determinations may be made by the Environment Agency Head that land was cleared of native vegetation as at 1 January 1990 or between that date and the commencement of this Part only on the basis of the best available aerial photographs or satellite imagery before and after the relevant date, and any evidence provided by the landholder under section 60K (8).

5. Determinations made (or taken on appeal to have been made) by the Environment Agency Head as to whether land was or was not unlawfully cleared of native vegetation does not affect any decision made with respect to compliance or enforcement action taken under this or any other Act in relation to the clearing.

4. Proposed assessment methodology for identifying Category 1 exempt land

The LLS Act publishes maps (the 'native vegetation regulatory map') that show areas of the State to which Part 5A of the LLS Act applies, which are designated as Category 1 – exempt land. However, the native vegetation regulatory map is currently incomplete, and Category 1 – exempt land has not yet been mapped within NSW.

Section 60F of the LLS Act provides transitional requirements which identify how the relevant categorisation of land is to be determined pursuant to section 60H of the LLS Act in the absence of a native vegetation regulatory map.

WSP has developed a desktop land characterisation methodology that builds on previous land categorisation assessments and with reference to the Native vegetation regulatory map (NVR): method statement (OEH 2017).

In defining the area of Category 1 – exempt land, an initial analysis of the following spatial datasets will be undertaken:

- Land use: NSW Land Use 2017 v1.2, published June 2020.
- Woody vegetation: NSW Woody Vegetation Extent 2011, published 2015.
- NVR: Transitional Native Vegetation Regulatory Map, version 3.0, published 26 March 2021.
- Zoning: EPI LEP LZN Land Zoning, current at 23 April 2021.
- Travelling Stock Routes, LPI, supplied by ARTC 30 October 2020.
- State Vegetation Type Map (SVTM).
- Aerial photos (to determine areas that were/are obviously under cultivation or improved pasture or otherwise disturbed).

Each of these datasets will be used to determine whether native vegetation has been significantly disturbed or modified (and therefore cleared) in accordance with 60J of the LLS Act.

The steps in identifying Category 1 – exempt land include the following;

1. An initial inclusion of all land use classifications 3, 4 and most of 5 as mapped by the Land use: NSW Land Use 2017 v1.2, published June 2020 (consistent with figure 7 of the NVR method statement) (OEH 2017).
2. The land use classification is then overlayed with the Transitional Native Vegetation Regulatory Map, version 3.0, published 26 March 2021 and any areas of the subject site mapped as Category 2 lands were excluded.
3. This is followed by the exclusion of areas of extant remnant vegetation as published within the Woody vegetation: NSW Woody Vegetation Extent 2011, (OEH, 2015), and areas of SVTM mapped native derived grassland potentially corresponding with a Critically Endangered Ecological Community (CEEC) will be included within the Category 2 lands.
4. Finally, additional analysis of historical aerial imagery is used to further classify areas as cleared/highly disturbed, resulting from significant disturbance associated with cultivation and/or improved pasture.

A summary of this process is provided in Figure 4.1.

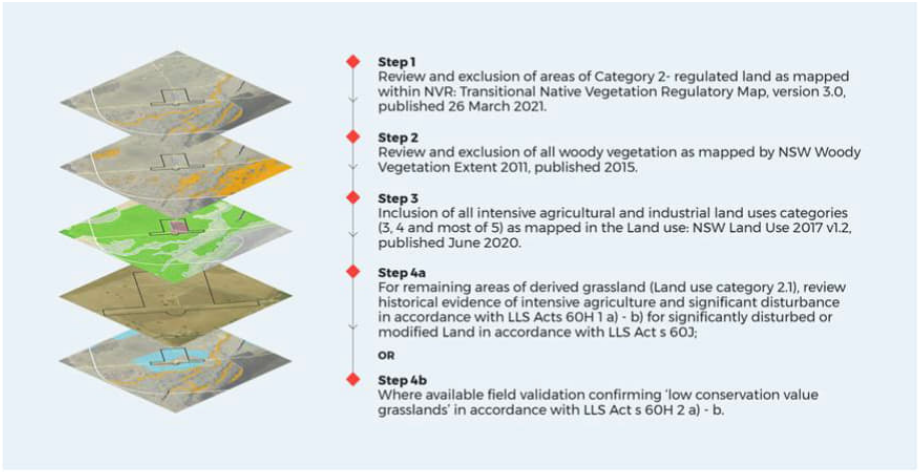

Figure 4.1 Approach to identifying Category 1 - exempt land

Combining the datasets listed above, WSP will develop an indication of where the areas of existing native vegetation are present and identify the areas that were/are obviously under cultivation or improved pasture reflecting the Category 1 – exempt land.

4.1 Significantly disturbed or modified vegetation

Native vegetation that comprises grasslands or other non-woody vegetation is taken to have been significantly disturbed or modified (and therefore cleared) if it meets the definitions outlined in Section 114 of the Local Land Services Regulation 2014.

Table 4.1 provides an assessment of the Project alignment against the criteria for determining whether native vegetation has been significantly disturbed or modified as outlined in Section 114 of the Local Land Services Regulation 2014.

Table 4.1 Assessment of significantly disturbed or modified vegetation

REQUIREMENT	ASSESSMENT OF THE SITE
There has been a detectable variation (from information obtained from aerial or satellite imagery) in the structure or composition, or both, of non-woody vegetation, and	Review of the datasets is likely to indicate that there has been a detectable variation in the structure or composition, or both, of non-woody vegetation. The areas that were/are obviously under cultivation or improved pasture are easily identified from the aerial photos and as identified in the NVR land use classification of 3.2 Modified pastures, 3.3 Cropping, 4.2 Grazing irrigated pastures and 4.3 Irrigated cropping.
That variation is consistent with management of pasture or crops for agricultural purposes, and	Management of the land for agricultural purposes is one of the key criteria for mapping land as Category 1 – exempt land. The Land use: NSW Land Use 2017 v1.2, published June 2020 and aerial photos classification of areas of 3 or 4 associated with intensive agriculture for improved pasture and/or cultivation.
That variation has been sustained for at least 12 months on more than one occasion before the	The Land use: NSW Land Use 2017 v1.2, published June 2020 classification of areas of the site as 3 or 4 associated with intensive agriculture and historical aerial photos further supports the analysis of sustained agricultural disturbance for at least 12 months on more.

commencement of Part 5A of the Act, and	
That variation has not been caused only by grazing on the land, and	It is evident from the historical aerial photos that cropping and or mechanical cultivation has occurred and the variation has not been caused only by grazing. Furthermore, the Land use: NSW Land Use 2017 v1.2, published June 2020 classification of 3 or 4 associated with intensive agriculture and or Modified pastures has included consideration of seasonal cover disturbance, beyond the impacts of grazing.
That variation occurred (from information obtained from aerial or satellite imagery) between 1 January 1990 and the date of commencement of Part 5A of the Act.	The areas that were/are obviously under cultivation or improved pasture are easily identified from the aerial photos.

4.2 Analysis of aerial photography

As outlined in 60H of the LLS Act, land is to be designated as Category 1 – exempt land if the Environment Agency Head reasonably believes that the land was cleared of native vegetation as at 1 January 1990.

The matters relating to determination of the mapped category of land are outlined in 60J of the LLS Act. They state that determinations may be made by the Environment Agency Head that land was cleared of native vegetation as at 1 January 1990 or between that date and the commencement of this Part, only on the basis of the best available aerial photographs or satellite imagery before and after the relevant date, and any evidence provided by the landholder under section 60K (8).

5. Targeted spring survey methodology

5.1 Extent of survey area

The survey area for spring survey will comprise all land potentially impacted by the project (subject to the application of Category 1 exemptions described above) comprising:

- Land that will be cleared of native vegetation for the construction of towers, substation sites, access routes and ancillary construction sites (including construction compounds and temporary access tracks).
- Land that will be subject to vegetation management for the purposes of asset protection and easements where partial clearing of vegetation may occur.

Taking account of these considerations the field survey area will typically comprise a 220 metre corridor associated with the linear infrastructure, and sites for the energy hubs and switching stations being delivered as part of the project.

5.2 Survey methodology

Targeted threatened flora surveys are planned with a phased approach:

- Surveys are designed to maximise the likelihood of detection of targeted threatened plant species by grouping those species considered likely to be reliably detected through survey according to optimal months of survey defined by BAMC and their specific associated habitat.
- Field survey techniques are assigned to areas of associated habitat based on number of associated candidate species, likelihood to support candidate species, condition and presence of associated microhabitats.

The field survey techniques proposed will build on *Surveying threatened plants and their habitats; NSW guide for the BAM* (Department for Planning Industry and Environment 2020) preferred method of surveying large areas using a systematic grid based sampling methodology.

The guideline recognises that the survey design presented in the guideline (incorporating the parallel field traverse survey method) is impractical for large scale projects, This is the case for the Project, which spans a linear distance of over 250 kilometres (.

The two-phase grid-based systematic survey methods has been developed for large areas of suitable potential threatened species habitat that generally exceed 50 hectares in area. The method involves phase-one establishing a grid spaced at 100 square metres that is nested within a one-square-kilometre grid. Surveys are then conducted at each survey location (100 metre grid intersect or greater if open woodland structure occurred), where a 40-metre diameter search area is undertaken (1256-square-metre circular area). If a target threatened species is located, finer-scale grid surveys (phase-two) is used to locate population extent, which allows a species polygon to be defined. This subsequent phase ensures a greater intensity of survey effort in locations where the target threatened species occurs (Department for Planning Industry and Environment 2020). Survey locations using the two-phase grid-based systematic are pre-loaded onto a handheld GPS to enable a systematic approach to the survey effort (refer to Photo 5-1).

Given the linear nature of most of the proposal study area, a modified two-phase grid-based systematic survey method is also proposed in areas of the alignment with refined corridor. This involved parallel linear 100 metre survey transects effort with a 40-metre diameter search area is undertaken (1256-square-metre circular area) at 100 metre interval location along the alignment study area (refer to Photo 5-1). If a target threatened species was located, a finer-scale grid survey (phase-two) would be undertaken to locate population extent and allow a species polygon to be defined.

Photo 5-1 *Example of two-phase grid-based systematic survey methods using a pre-loaded handheld GPS (orange dots = 40 metre diameter search, white dots = preloaded 100 metre grid points)*

Photo 5-2 *Example of modified systematic two-phase grid-based systematic survey combined with parallel field transverses within corridor.*

The proposed adoption of the modified two-phase grid-based and transect systematic survey is considered more suitable for the extensive linear nature of the proposal than a systematic plot-based approach for the following reasons:

- it more comprehensively samples the disturbance area within each vegetation association; and
- the relatively homogeneous nature of the PCT and condition for large sections provide relatively consistent habitat potential.

The adequacy of the systematic parallel transect method compared to the systematic plot-based approach was previously assessed as sampling up to 10 times greater area than the two-phase grid-based systematic survey and was endorsed by BCD in the approved Project EnergyConnect (NSW - Western Section) (WSP 2021) and Project EnergyConnect (NSW - Eastern Section) (WSP 2021).

5.3 Target flora species

The results of likelihood of occurrence assessments identified that 21 threatened flora species have a moderate or higher likelihood of occurrence within the project study area (see Appendix A for further detail). Seven of these threatened flora species have already been recorded during targeted survey in September 2021 or have Bionet records that fall within the project study area (Table 5.1).

Table 5.1 Threatened flora species recorded within the project disturbance area

SPECIES NAME	COMMON NAME	BC ACT[1]	EPBC ACT[2]	SAII[3]
Acacia ausfeldii	Ausfeld's Wattle	V	–	No
Diuris tricolor	Pine Donkey Orchid	V	–	No
Eucalyptus cannonii	Capertee Stringybark	V	–	No
Pomaderris queenslandica	Scant Pomaderris	E	–	No
Prasophyllum petalum	Tarengo Leek Orchid	E	E	No
Swainsona sericea	Silky Swainson-pea	V	–	No
Zieria ingramii	Keith's Zieria	E	E	No

1. BC Act – BC Act status: V=Vulnerable, E=Endangered, under the *Biodiversity Conservation Act* (BC Act)
2. EPBC Act – EPBC Act status: V=Vulnerable, E=Endangered, under the Commonwealth *Environment Protection and Biodiversity Conservation Act* (EPBC Act).
3. SAII = Serious and Irreversible Impact

The proposed spring surveys will target multiple flora species concurrently within the species-specific flowering period as defined by the TBDC and in accordance with BAM. Where possible reference populations will be inspected to confirm species flowering during the recommended BAMC survey period.

6. Conclusion

6.1 Exclusion of Category 1 land

In accordance with section 6.8 (3) of the BC Act, when applying the BAM, the assessor is to exclude the assessment of impacts of any clearing of native vegetation and loss of habitat on Category 1 – exempt land.

The project is therefore required to identify and map Category 1 - exempt land in the absence of a published NVR map in accordance with Section 60F of the LLS Act.

Desktop assessment of the project alignment has identified sufficient evidence to suggest that the areas significantly disturbed or modified (and therefore cleared) area likely to form Category 1 – exempt land. In particular, areas mapped as land use classifications 3, 4 and most of 5 by the Land use: NSW Land Use 2017 v1.2, published June 2020 are either under regular rotational cropping or have been subject to pasture improvement, or are disturbed industrial land, land with residential or farm infrastructure, mining land, or sections of disturbed transport corridor.

A proposed desktop methodology to confirm Category 1 – exempt land, prior to targeted surveys is presented for BCD approval. With approval of this assessment methodology, a formal application of Category 1 – exempt land will be provided and any final agreed areas, will be excluded from further assessment within the BDAR.

6.2 Spring survey methodology

A methodology for proposed targeted flora surveys is also presented for review and approval. We would appreciate the opportunity to meet and discuss this application and potential timing for any determination.

Yours sincerely

Alex Cockerill
Ecology National Team Executive

List of attachments

Attachment A Threatened flora in the locality of the project, likelihood of occurrence

B1.2 Letter from BCD 26 September 2022

Department of Planning and Environment

Our ref: DOC22/841107

Sarah Baker
Principal Advisor – Planning & Environment
Alexandra Venice Consulting
sarah.baker@avc.com.au

Dear Sarah

CWO Renewable Network Infrastructure Project – Land Categorisation Method

Thank you for your e-mail dated 2 September 2022 to the Biodiversity, Conservation and Science Directorate (BCS) of the Department of Planning and Environment inviting comments on the proposed Land Categorisation Method for the Central West Orana Renewable Network Infrastructure project.

BCS has reviewed the proposed Land Categorisation Method, our recommendations are provided in **Attachment A** and detailed comments are provided in **Attachment B**.

Some matters raised in this response may be addressed during detailed surveys undertaken across the subject site i.e. confirming the presence/absence of Box Gum Woodland and other Category 2 Regulated Land Criteria from areas which may otherwise be designated as Category 1 – Exempt Land.

BCS would be happy to liaise with the assessor for the project to determine a method of assessment and floristic data collection which would be adequate to confirm the presence/absence of Category 2 - Regulated Land criteria.

If you have any questions about this advice, please do not hesitate to contact Michelle Howarth, Senior Conservation Planning Officer, via michelle.howarth@environment.nsw.gov.au or (02) 6883 5339.

Yours sincerely

Ben Ellis
A/Senior Team Leader Planning North West
Biodiversity, Conservation and Science Directorate

26 September 2022

Attachment A

BCS's recommendations

CWO Renewable Network Infrastructure Project – Land Categorisation Method

Recommendations

1.1. Where there is conflicting data, a precautionary approach be adopted and Category 2 Land be assigned

2.1. Review the datasets referenced in this response and revise the current Category 2 designation for scattered trees

3.1 Undertake a floristic assessment to confirm the absence of Category 2 - Regulated Land from within areas which would otherwise be designated as Category 1 - Exempt land.

3.2 Where there is uncertainty, where data is conflicting or where land may meet the criteria for both Category 1 Land and Category 2 Land, these areas should be as Category 2 - Regulated land as a precautionary approach.

Attachment B

BCS's detailed comments

CWO Renewable Network Infrastructure Project – Land Categorisation Method

1. Where there is conflicting data Category 2 Land should be assigned

BCS note that there are a number of polygons in the spatial data provided that have been assigned to Category 1. However, the attribute table indicates that there is 'conflicting data' for some areas. Where there is conflicting data a precautionary approach should be adopted and Category 2 should be assigned.

Recommendations

1.1. Where there is conflicting data, a precautionary approach be adopted and Category 2 Land be assigned

2. Some scattered trees within the footprint are considered likely to be candidates for Category 2 designation

BCS notes the proposed Land Categorisation Assessment references use of the *NSW Woody Vegetation Extent 2011* dataset. It should be noted that BCS recommends use of the more recent and comprehensive *NSW Native Vegetation Extent 5m raster v1.2* dataset (available via the SEED portal) as an additional tool in identifying woody vegetation within the footprint.

In addition to the Department's datasets relating to woody vegetation extent, the following information may be used in demonstrating the likely land category of woody vegetation:

- State-wide Landcover and Tree Survey (SLATS) clearing for NSW – used to identify detectable clearing events since January 1990 (available via the SEED Portal)
- site-based information and records, including current and historical photographs of the subject land and current and historical high resolution aerial photography displayed at an appropriate scale
- documentation demonstrating authorised clearing and/or development.

Recommendation

2.1. Review the datasets referenced in this response and revise the current Category 2 designation for scattered trees

3. Changes to the mapped extent of Category 1 land may be required following detailed studies undertaken within subject site

Section 60F *Local Land Services Act 2013* (LLS Act) provides the transitional arrangements that are in place until a comprehensive Native Vegetation Regulatory Map with all the land categories displayed is published. During the 'transitional period' assessors can make a reasonable approximation of land categorisation for unpublished layers.

Where a reasonable approximation is required, it is recommended that:

- assessors first identify whether land meets criteria for Category 2 - Regulated land, prior to Category 1 - Exempt land.
    - In some circumstances, land may meet multiple map criteria i.e. criteria for Category 2 - Regulated land, AND Category 1 - Exempt land

- In most circumstances' Category 2 - Regulated land criteria will determine the categorisation of the land, rather than Category 1 - Exempt land criteria.

As an example, if the land was lawfully cleared in mid-1990 (Category 1 - Exempt land), but contains native vegetation grown with the assistance of public funds in 2000 (Category 2 - Regulated land) the land should be designated as Category 2 - Regulated land.

Section 60I of the LLS Act and cl.113 of the *Local Land Services Regulation (2014)* (LLS Reg) defines the criteria in which land can be classified as Category 2 - Regulated land, this includes land which:

- was not cleared of native vegetation as at 1 January 1990;
- was unlawfully cleared of native vegetation after 1 January 1990 and 25 August 2017;
- contains native vegetation that was grown or preserved with the assistance of public funds (other than funds for forestry purposes);
- contains grasslands that are not low conservation grasslands (or low conservation value grassland beneath the canopy or drip line of woody vegetation satisfying the criteria for Category 2);
- is (or was previously) subject to a private native forestry plan approved under Part 5B of the LLS Act
- is subject to a private land conservation agreement;
- is a 'set aside' under a Land Management (Native Vegetation) Code;
- is an offset under a property vegetation plan or a set aside under the former native vegetation laws;
- is subject to an approved conservation measure that was the basis for other land being biocertified;
- is required to be set aside for nature conservation, revegetation or as an offset under an EP&A Act consent or approval
- is identified as coastal wetlands or littoral rainforest;
- is identified as koala habitat;
- is a declared Ramsar wetland; or
- is mapped as containing Critically Endangered species of plants or a Critically Endangered Ecological Community (CEEC)
- is a Travelling Stock Route (outside of the Western Division)

From review of the proposed Land Categorisation Assessment, BCS have concerns that some areas which have the potential to contain the CEEC *White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland* (Box Gum Woodland/Box Gum Grassland) may have first been designated as Category 1 Land, prior to any field verification being conducted that the CEEC is absent.

An example extract from the proposed land categorisation mapping has been provided below where areas of native vegetation mapped as PCT 434 (potentially consistent with Box Gum Woodland/Box Gum Grassland) abruptly ends at the interface between proposed Category 2 Regulated Land and land which could otherwise be inferred to be consistent with Category 1 Exempt Land (See Figure 1).

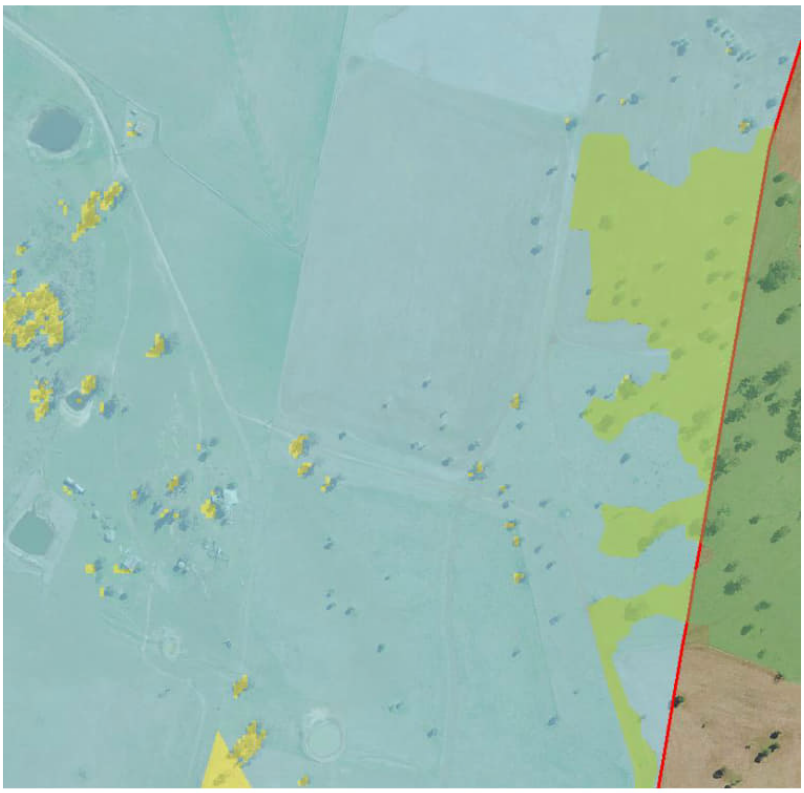

Figure 1 Proposed Land Categorisation Mapping Extract[1]

The Proposed Land Categorisation Assessment should consider the potential for areas within the subject site to contain:

- Box Gum Woodland/Box Gum Grassland; and
- areas which are consistent with other criteria listed above i.e. habitat for a Critically Endangered species of plant or native grasslands

In areas which have the potential to contain CEECs, native grasslands or habitat for a Critically Endangered species of plant, the land categorisation assessment should be supported by evidence from a site-based floristic assessment to demonstrate presence or absence from within areas of land which would otherwise be designated as Category 1 – Exempt land.

BCS would be happy to liaise with the assessor for the project to determine a method of site-based floristic assessment and data collection which would be adequate to confirm the presence/absence of Category 2 - Regulated land criteria.

Recommendations

3.1 Undertake a floristic assessment to confirm the absence of Category 2 - Regulated land from within areas which would otherwise be designated as Category 1 - Exempt land.

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[1] Legend
- Green: PCT 434 (NSW State Vegetation Type Map)
- Blue: Proposed Land Categorisation – Category 1 Land
- Yellow: Proposed Land Categorisation – Category 2 Land

3.2 Where there is uncertainty, where data is conflicting or where land may meet the criteria for both Category 1 Land and Category 2 Land, these areas should be as Category 2 - Regulated land as a precautionary approach.

B1.3 Letter from WSP 13 October 2022

Our ref: PS130593_ECO-LTR-001 Cat 1 Land & Survey Methodology Response

By email
Ben.Ellis@environment.nsw.gov.au

13 October 2022

Ben Ellis
Acting Senior Team Leader Planning
North West Branch
Biodiversity, Conservation and Science Directorate
Department of Planning, Industry and Environment
48-52 Wingewarra Street, Dubbo NSW 2830

Dear Ben

CWO SNI - Category 1 Exempt Land and survey methodology

Thank you for your two letters of advice on behalf of the Biodiversity, Conservation and Science Directorate (BCS) as follows:

1. Land Categorisation Method – 26th September 2022

2. Proposed Spring Survey Method – 28th September 2022

This letter outlines how we have incorporated your advice and identifies where further discussion might be required in order to resolve the final approach for the project.

1. Category 1 exempt land

Consideration of the recommendations provided by BCS and our responses are provided below.

1.1. Where there is conflicting data, a precautionary approach be adopted and Category 2 Land be assigned

Response: If there is conflicting data, WSP agrees a precautionary response will be applied and Category 2 Land will be assigned.

2.1. Review the datasets referenced in this response and revise the current Category 2 designation for scattered trees

Response: WSP will update the datasets as requested and revise the proposed Category 2 mapping.

3.1 Undertake a floristic assessment to confirm the absence of Category 2 - Regulated Land from within areas which would otherwise be designated as Category 1 - Exempt land.

Response: WSP does not agree that floristic assessments are needed in areas that meet the criteria for Category 1 land mapping. Significant effort would need to be invested in assessing poor quality lands when this effort is better spent within the more certain better quality (and conservatively identified)

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Category 2 lands. It is not the role of the project to invest additional resources into providing more certainty to a defined process over and above that which is required by the legislation and methodology.

3.2 Where there is uncertainty, where data is conflicting or where land may meet the criteria for both Category 1 Land and Category 2 Land, these areas should be as Category 2 - Regulated land as a precautionary approach.

Response: If there is conflicting data, WSP agrees a precautionary response will be applied and Category 2 Land will be assigned.

2. Targeted spring survey methodology

Key comments from BCS are replicated below, with our response to each provided thereafter.

It is considered that the proposed method will be insufficient to comprehensively survey and spatially cover the extent of potential impact resulting from the project i.e. a 220-meter linear impact area located within a one kilometre wide indicative development corridor. BCS would be happy to consult with the accredited assessor for the project to determine a level of survey and spatial coverage which would be considered appropriate for the scale of the project.

Response: There may be some confusion as to how we presented the information here. A minimum 220-wide corridor focussed on the planned infrastructure will be surveyed in accordance with the guidelines as outlined. Where impacts are likely to be larger the study area will be widened to accommodate the larger area. We are happy to discuss and clarify further as required.

The grouping of species proposed to be searched for in unison must be undertaken in compliance with the flora survey guidelines. To ensure detectability is not compromised it is recommended that multi-species searches be restricted to a maximum of five species in the same stratum (i.e. search for five ground species, five mid-layer species or five canopy species) per traverse. Multi-species surveys could also be grouped further, by genus, similar growth form, or species with other similar characteristics where they are likely to occupy the same stratum. Refer to Section 5 of Surveying threatened plants and their habitats NSW survey guide for the Biodiversity Assessment Method (BAM) for further details.

Response: The study area for the project is extremely large (which theoretically the BAM was not designed for) and does not allow for multiple visits for species in different stratum. It is unrealistic to expect that return visits should be required for say ground layer species vs shrub layers species vs tree canopy species when the target survey methodology means that detailed surveys occur at all layers of stratum and any good botanist will notice different types of target species at all layers.

Attachment A of the proposed Spring Survey Method details the likelihood of occurrence for candidate species. Where species has been considered to have a low likelihood of occurrence, the justification which has been provided is considered to be inadequate. Statements such as 'habitat within the project study area is considered marginal' is not adequate justification to exclude candidate species. Excluding candidate species based on the presence/absence of nearby records is not in conformance with the BAM. Refer to Section 4.4 of the BAM Ops Manual Stage 1 for further details.

Response: Further justification for species potential will be provided in the BDAR and can be provided earlier if requested.

3. Conclusion

We have generally accepted your advice however key items not yet resolved are:

- The advice to undertake a floristic assessment to confirm the absence of Category 2 - Regulated Land from within areas which would otherwise be designated as Category 1 - Exempt land.
- The advice to undertake multiple visits for species in different stratum.

We look forward to resolving these outstanding issues with you shortly.

Yours sincerely

Toby Lambert
Technical Executive - Ecology,
Ecology Team Leader - NSW

B1.4 Letter from WSP 11 November 2022

Our ref: PS130593_ECO-LTR-001 Cat 1 Landac

By email
Ben.Ellis@environment.nsw.gov.au

11 November 2022

Ben Ellis
A/Senior Team Leader Planning North West
Biodiversity, Conservation and Science Directorat

Dear Ben

CWO SNI - Category 1 Exempt Land Application

1. Introduction

This letter has been prepared by WSP Australia Pty Ltd on behalf of Energy Corporation of NSW (Energy Co) for the proposed Central-West Orana Renewable Energy Zone (CWO REZ) transmission infrastructure Project (the Project).

WSP Australia Pty Ltd is currently preparing to undertake biodiversity surveys and a Biodiversity Development Assessment Report (BDAR) for the Project in accordance with NSW Biodiversity Assessment Method 2017 (BAM). As part of the early desktop planning, large areas of the project alignment were identified as containing existing intensive agriculture dominated by exotic grassland and crops.

These exotic dominated grassland areas are considered likely to be Category 1 – exempt land, as per the NSW Land Management Framework and the *Local Land Services Act 2013* and Category 1 – exempt land is excluded from assessment of biodiversity under the BAM.

In determining the methodology for identification of Category 1 – exempt land within the Project alignment, WSP provided an initial methodology to BCS for review and have incorporated BCS recommendations dated 26 September 2022.

The proposed Land Categorisation Method has also relied upon the Revised Land Categorisation Process (ARTC, 2019) as previously agreed with OEH (now BCD) and with reference to the Native vegetation regulatory map: method statement (OEH 2017).

This letter outlines in detail how the parts of the project alignment can be considered to be Category 1 - exempt land, as per the NSW Land Management Framework and the *Local Land Services Act 2013*. Further, a determination is therefore requested from the Environment Agency Head to confirm that the land can be classified as exempt land

2. The Project

The project would comprise the following key features:

- a new switching station at Wollar, to connect the project to Transgrid's existing Wollar Substation and onto the National Electricity Market (NEM)

- primary network infrastructure, comprising twin double circuit 500 kV transmission lines and associated infrastructure
- energy hubs at Merotherie and Elong Elong, to connect energy generation and storage projects within the Central-West Orana REZ to the new primary network infrastructure.
- secondary network infrastructure, comprising new single and double circuit 330 kV single lines to connect energy generation and storage projects within the Central-West Orana REZ to the energy hubs
- switching stations along the secondary network infrastructure, to transfer the energy generated from the energy generation projects onto the secondary network infrastructure
- establishment and upgrade of access tracks and public roads, and other ancillary works such as laydown and staging areas, earthwork material sites with crushing and screening plants, concrete batching plants, brake/winch sites, site offices and workforce accommodation camps
- utility adjustments required for construction of the new network infrastructure.

EnergyCo is investigating a possible southern extension of the study corridor transmission network from Elong Elong to Mumbil which would allow for connections to potential generation and storage projects in this area and the NEM. The extension would be subject to a separate application for planning approval.

It is expected that construction of the project would commence in the second half of 2024 and take approximately three years to complete, with operations commencing in mid-2027.

3. Background to Category 1 – Exempt land

3.1 Overview

Under the NSW Land Management Framework, the categorisation of land determines the native vegetation management options available to landholders. Rural land in NSW is categorised into three main categories:

- **Category 1** – exempt land is land where native vegetation can be cleared without approval from Local Land Services.
- **Category 2** – land is divided into:
  - Category 2 – regulated land is Category 2 land that is not Vulnerable or Sensitive regulated land. You may need authorisation from Local Land Services to clear native vegetation from rural zoned land in this category.
  - Category 2 – vulnerable regulated land is land where clearing of native vegetation may not be permitted under the Land Management (Native Vegetation) Code 2018, and a limited range of allowable activities are permitted.
  - Category 2 – sensitive regulated land is land where clearing is not permitted under the Land Management Code (Native Vegetation) Code 2018, and a limited range of allowable activities is permitted.
- **Excluded land** – is land where the Land Management (Native Vegetation) Code 2018 and allowable activities do not apply.

3.2 Land category criteria

Each land category is determined by various criteria as outlined in the *Local Land Services Act 2013* (LLS Act). Category 1 – exempt land is defined in 60H of the LLS Act as the below:

1. Land is to be designated as Category 1 – exempt land if the Environment Agency Head reasonably believes that:

   a) the land was cleared of native vegetation as at 1 January 1990, or
   b) the land was lawfully cleared of native vegetation between 1 January 1990 and the commencement of this Part.

2. Land is to be designated as Category 1 – exempt land if the Environment Agency Head reasonably believes that:

   a) the land contains low conservation value grasslands, or
   b) the land contains native vegetation that was identified as regrowth in a property vegetation plan referred to in section 9 (2) (b) of the *Native Vegetation Act 2003*, or
   c) the land is of a kind prescribed by the regulations as Category 1 – exempt land.

3. Land is to be designated as Category 1 – exempt land if the land is biodiversity certified under Part 8 of the *Biodiversity Conservation Act 2016* or under any Act repealed by that Act.
4. However:

   a) land described in subsection (1) or (2) is not to be designated as Category 1 – exempt land if section 60I (2) requires the land to be designated as category 2-regulated land, and
   b) land described in subsection (1) (a) is not to be designated as Category 1 – exempt land if the land was unlawfully cleared of native vegetation after 1 January 1990, and
   c) land described in subsection (2) (a) is not to be designated as Category 1 – exempt land if the land was unlawfully cleared of native vegetation after 1 January 1990.

5. The regulations may make provision for the purposes of determining whether grasslands are low conservation value grasslands for the purposes of this Division.

3.3 Determination of mapped category of land

The matters relating to determination of mapped category of land are outlined in 60J of the LLS Act. Section 60J of the LLS Act is reproduced below:

1. This section makes provision relating to the mapping of land under this Division as category 1-exempt land or Category 2 – regulated land.

2. Native vegetation that comprises grasslands or other non-woody vegetation is taken to have been cleared if the native vegetation was significantly disturbed or modified. The regulations may make provision for the purposes of determining whether native vegetation has been significantly disturbed or modified for the purposes of this Division.

3. Determinations may be made by the Environment Agency Head that land was unlawfully cleared of native vegetation only if compliance or enforcement action of a kind prescribed by regulations was taken in relation to the clearing.

4. Determinations may be made by the Environment Agency Head that land was cleared of native vegetation as at 1 January 1990 or between that date and the commencement of this Part only on the basis of the best available aerial photographs or satellite imagery before and after the relevant date, and any evidence provided by the landholder under section 60K (8).

5. Determinations made (or taken on appeal to have been made) by the Environment Agency Head as to whether land was or was not unlawfully cleared of native vegetation does not affect any decision made with respect to compliance or enforcement action taken under this or any other Act in relation to the clearing.

4. Assessment methodology for identifying Category 1 exempt land

The LLS Act publishes maps (the 'native vegetation regulatory map') that show areas of the State to which Part 5A of the LLS Act applies, which are designated as Category 1 – exempt land. However, the native vegetation regulatory map is currently incomplete, and Category 1 – exempt land has not yet been mapped within NSW.

Section 60F of the LLS Act provides transitional requirements which identify how the relevant categorisation of land is to be determined pursuant to section 60H of the LLS Act in the absence of a native vegetation regulatory map.

WSP has developed a desktop land characterisation methodology that builds on advice and consultation with BCS and previous land categorisation assessments and with reference to the Native vegetation regulatory map (NVR): method statement (OEH 2017).

In defining the area of Category 1 – exempt land, an initial analysis of the following spatial datasets will be undertaken:

- Land use: NSW Land Use 2017 v1.2, published June 2020.
- NSW Native Vegetation Extent 5m raster v1.2 dataset
- State-wide Landcover and Tree Survey (SLATS) clearing for NSW
- NVR: Transitional Native Vegetation Regulatory Map, version 3.0, published 26 March 2021.
- Zoning: EPI LEP LZN Land Zoning, current at 23 April 2021.
- Travelling Stock Routes, LPI, supplied by ARTC 30 October 2020.
- State Vegetation Type Map (SVTM).
- Aerial photos (to determine areas that were/are obviously under cultivation or improved pasture or otherwise disturbed).
- information and records, including current and historical photographs of the subject land and current and historical high resolution
- In areas of conflicting data, or potential derived native grasslands characteristic of a CEEC, a site-based verification undertaken to confirm Category 1 or precautionary approach adopted and Category 2 assigned.

Each of these datasets will be used to determine whether native vegetation has been significantly disturbed or modified (and therefore cleared) in accordance with 60J of the LLS Act.

The steps in identifying Category 1 – exempt land include the following;

1. An initial inclusion of all land use classifications 3, 4 and most of 5 as mapped by the Land use: NSW Land Use 2017 v1.2, published June 2020 (consistent with figure 7 of the NVR method statement) (OEH 2017).

2. The land use classification is then overlayed with the Transitional Native Vegetation Regulatory Map, version 3.0, published 26 March 2021 and any areas of the subject site mapped as Category 2 lands were excluded.

- This is followed by the exclusion of areas of extant remnant vegetation as published within the Woody vegetation: NSW Woody Vegetation Extent 2011, (OEH, 2015), NSW Native Vegetation Extent 5m raster v1.2 dataset, State-wide Landcover and Tree Survey (SLATS) clearing for NSW and areas of SVTM mapped native derived grassland potentially corresponding with a Critically Endangered Ecological Community (CEEC) will be included within the Category 2 lands.

3. Additional analysis of historical aerial imagery is used to further classify areas as cleared/highly disturbed, resulting from significant disturbance associated with cultivation and/or improved pasture.

4. Finally, in areas of conflicting data, or potential derived native grasslands characteristic of a CEEC, a site-based verification undertaken to confirm 'Low conservation grasslands' and Category 1

A summary of this process is provided in Figure 4.1.

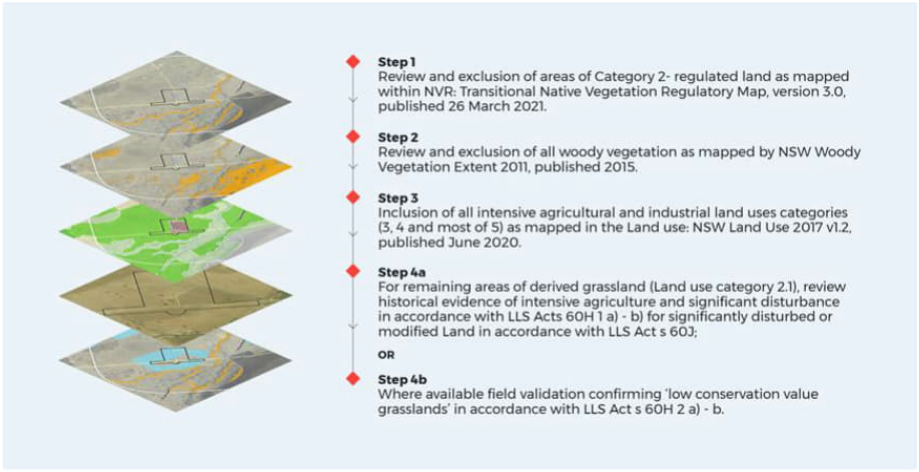

Figure 4.1 Approach to identifying Category 1 - exempt land

Combining the datasets listed above, WSP will develop an indication of where the areas of existing native vegetation are present and identify the areas that were/are obviously under cultivation or improved pasture reflecting the Category 1 – exempt land.

4.1 Significantly disturbed or modified vegetation

Native vegetation that comprises grasslands or other non-woody vegetation is taken to have been significantly disturbed or modified (and therefore cleared) if it meets the definitions outlined in Section 114 of the Local Land Services Regulation 2014.

Table 4.1 provides an assessment of the Project alignment against the criteria for determining whether native vegetation has been significantly disturbed or modified as outlined in Section 114 of the Local Land Services Regulation 2014.

Table 4.1 Assessment of significantly disturbed or modified vegetation

REQUIREMENT	ASSESSMENT OF THE SITE
There has been a detectable variation (from information obtained from aerial or satellite imagery) in the structure or composition, or both, of non-woody vegetation, and	Review of the datasets is likely to indicate that there has been a detectable variation in the structure or composition, or both, of non-woody vegetation. The areas that were/are obviously under cultivation or improved pasture are easily identified from the aerial photos, field surveys and as identified in the NVR land use classification of 3.2 Modified pastures, 3.3 Cropping, 4.2 Grazing irrigated pastures and 4.3 Irrigated cropping.
That variation is consistent with management of pasture or crops for agricultural purposes, and	Management of the land for agricultural purposes is one of the key criteria for mapping land as Category 1 – exempt land. The Land use: NSW Land Use 2017 v1.2, published June 2020 and aerial photos classification of areas of 3 or 4 associated with intensive agriculture for improved pasture and/or cultivation.

That variation has been sustained for at least 12 months on more than one occasion before the commencement of Part 5A of the Act, and	The Land use: NSW Land Use 2017 v1.2, published June 2020 classification of areas of the site as 3 or 4 associated with intensive agriculture and historical aerial photos further supports the analysis of sustained agricultural disturbance for at least 12 months on more.
That variation has not been caused only by grazing on the land, and	It is evident from the historical aerial photos that cropping and or mechanical cultivation has occurred and the variation has not been caused only by grazing. Furthermore, the Land use: NSW Land Use 2017 v1.2, published June 2020 classification of 3 or 4 associated with intensive agriculture and or Modified pastures has included consideration of seasonal cover disturbance, beyond the impacts of grazing.
That variation occurred (from information obtained from aerial or satellite imagery) between 1 January 1990 and the date of commencement of Part 5A of the Act.	The areas that were/are obviously under cultivation or improved pasture are easily identified from the aerial photos.

4.2 Analysis of aerial photography

As outlined in 60H of the LLS Act, land is to be designated as Category 1 – exempt land if the Environment Agency Head reasonably believes that the land was cleared of native vegetation as at 1 January 1990.

The matters relating to determination of the mapped category of land are outlined in 60J of the LLS Act. They state that determinations may be made by the Environment Agency Head that land was cleared of native vegetation as at 1 January 1990 or between that date and the commencement of this Part, only on the basis of the best available aerial photographs or satellite imagery before and after the relevant date, and any evidence provided by the landholder under section 60K (8).

5. Conclusion

5.1 Exclusion of Category 1 land

In accordance with section 6.8 (3) of the BC Act, when applying the BAM, the assessor is to exclude the assessment of impacts of any clearing of native vegetation and loss of habitat on Category 1 – exempt land.

The project is therefore required to identify and map Category 1 - exempt land in the absence of a published NVR map in accordance with Section 60F of the LLS Act.

Desktop assessment supported by field verification of the project alignment has identified sufficient evidence to suggest that the areas significantly disturbed or modified (and therefore cleared) area likely to form Category 1 – exempt land. In particular, areas mapped as land use classifications 3, 4 and most of 5 by the Land use: NSW Land Use 2017 v1.2, published June 2020 are either under regular rotational cropping or have been subject to pasture improvement, or are disturbed industrial land, land with residential or farm infrastructure, mining land, or sections of disturbed transport corridor.

Additionally, field verification and survey has confirmed areas within this assessment with potentially conflicting data to be Category 1 – exempt land.

With approval of this assessment and application of Category 1 – exempt land, the BDAR will exclude these areas of Category 1 – exempt land, from further assessment.

We would appreciate the opportunity to meet and discuss this application and potential timing for any determination.

Yours sincerely

Alex Cockerill
Ecology National Team Executive

List of attachments

Attachment A Spatial datasets used in Category 1 – exempt land assessment

B1.5 WSP Meeting minutes 30 November 2022

Meeting notes

Project name	Central West Orana REZ transmission
Project number	PS181898
Date	Wednesday, 30 November 2022
Time	10am
Venue	Online
Subject	Biodiversity survey and assessment methods – meeting with BCS
Client	Energy Corporation of NSW
Attendees	Brin Cullinane (Energy Co), Renee Shepherd (BCS), Ben Ellis (BCS), Anthony Ko (DPE), Paul Greenhalgh (WSP), Alex Cockerill (WSP)
Apologies	Sarah Barker
Distribution	As above plus: -

Matters arising		**Action**
1.0	**Use of data from other projects**	
	AC: project BDAR would like to use data from other projects in the same study area for land for which we do not have access. Most relevant is Moolarben which has survey data from the 2005 approval plus ongoing monitoring data. Noted that data was not collected in accordance with BAM and beyond the five year statute. Proposing that for threatened fauna, 5 years can be extended so that other project data can be used rather than assumed presence. **BE**: acknowledge that other project data can be used to inform an approach but the way in which the monitoring data is gathered is the limiting factor. **AC**: proposing to use data that has been approved by BCS in the past in place of assumed presence as assumed presence would be overly conservative **RS**: are you proposing to use this data in the BDAR and then acquire survey data later subject to access? **AC**: can't commit to this as we don't know when / if we will get access. Prefer to 'use of other data approach' but will do surveys if we get access.	WSP/ENCo to submit a proposal for use of data, for BCD consideration.

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	BE: are there experts available to produce expert reports for relevant species? **AC**: for the majority of species, the experts do not exist **AC**: focusing approach on flora. Acknowledge that for fauna, the 5 yr extension is an issue. **RS**: not in a position to give a definitive answer today but will consider a formal proposal. Key concern with >5yr data is eg where land was grazed at time of survey but has since revegetated (and habitats formed). **AC**: can the project BDAR reference other biodiversity assessment reports that have excluded species for justification for exclusion of these species from the project BDAR. **BE**: if these biodiversity assessment reports were not prepared under current survey / assessment methods it is like comparing apples with oranges. Would need to go through each species, review the assessment report, pull out the justification for the exclusion, compare to existing assessment framework for current habitat knowledge. Present information to BCS for review.	
2.0	**Category 1 exemption application**	
	AC: WSP has submitted application for exemption (by letter) but awaiting BCD response. In the meantime WSP drafting the BDAR on the basis that nominated areas will be agreed. **AC**: are there agreed CAT 1 layers for the project area that could be made available? **BE**: no, because we do not have agreed BGW mapping for native vegetation mapping **RS**: Currently in transitional period so BGW can't be included in Cat 1. There is no existing Cat 1 published mapping that can be relied on to exclude BGW.	
3.0	**PCTs (consistency between projects)**	
	AC: note that other projects in the same area as EnCo project are using DNG PCT approach which is not consistent with guidance. **BE:** BCS reviewing these projects and will not accept DNG PCT approach.	
4.0	**Spring survey method and coverage**	
	AC: Spring survey now complete – BDAR will be finished before next spring period so no more survey proposed. **AC**: Where areas are inaccessible, can we exclude species where intensive survey (e.g. 2-3 transects instead of 1). BE: In principal ok with that approach in some instances but will be a case by case basis. RS: If in doubt be conservative.	

MEETING NOTES

5.0	**Other**	
	PG: requested clarification on CAT 1 response. **BE**: mid-Jan 2023. **BE:** Sarah sent through PDF documents, can a spatial layer be provided **AC:** actions are to prepare a memo for the proposed approach to using additional project data and previously considered species exclusions, aim to provide pre-Christmas	BCS to provide feedback on Cat 1 application ENCo / WSP to submit spatial data

Next meeting

An invitation will be issued if an additional meeting is required.

Appendix C

Matters of national environmental significance

C1 Introduction

The *Matters of National Environmental Significance Significant Impact Guidelines 1.1 EPBC Act* (Significant Impact Guidelines) is designed to inform proponents who propose to undertake an action (development), to decide whether they should submit a referral to the Department of Climate Change, Energy, the Environment and Water (DCCEEW). The purpose of the significant impact assessments is to inform an EPBC Referral to the Commonwealth Minister of Environment to assess the project's eligibility as a controlled action under the EPBC Act. Under the EPBC Act an action will require approval from the Minister if the action has, will have, or is likely to have, a significant impact on an MNES.

Tests of significance have been conducted for threatened species, populations and communities that were recorded in the subject land during field surveys or were identified as having a moderate or higher potential to occur in the subject land area based on the presence of habitat. Those EPBC Act listed species specifically noted in the SEARs have also been assessed. For threatened biodiversity listed under the EPBC Act, significance assessments have been completed following the Significant Impact Guidelines. The Significant Impact Guidelines state that a 'significant impact' is an impact which is important, notable, or of consequence, having regard to its context or intensity. Whether or not an action is likely to have a significant impact depends upon the sensitivity, value, and quality of the environment that is affected, and upon the intensity, duration, magnitude and geographic extent of the impacts. Importantly, for a significant impact to be likely, it is not necessary for a significant impact to have a greater than 50 per cent chance of happening; it is sufficient if a significant impact on the environment is a real or not remote chance or possibility. If there is scientific uncertainty about the impacts of an action and potential impacts are serious or irreversible, the precautionary principle is applicable.

The Significant Impact Guidelines provide definitions for specific terms used throughout the significant impact assessment criteria contained in the Significant Impact Guidelines as follows:

- population of a species
- important population
- habitat critical to the survival of a species or ecological community
- important habitat for migratory species
- ecologically significant proportion (migratory species)
- population of a migratory species
- invasive species.

These definitions are key considerations when conducting a significant impact assessment for threatened and migratory species listed under the EPBC Act. The definition for each is presented below.

C1.1 Population of a species

A 'population of a species' is defined under the EPBC Act as an occurrence of the species in a particular area. In relation to critically endangered, endangered or vulnerable threatened species, occurrences include but are not limited to:

- a geographically distinct regional population, or collection of local populations, or
- a population, or collection of local populations, that occurs within a particular bioregion.

C1.2 Important population

An '*important population*' is defined by the Significant Impact Guidelines as" a population that is necessary for a species' long-term survival and recovery. This may include populations identified as such in recovery plans, and/or that are:

- key source populations either for breeding or dispersal
- populations that are necessary for maintaining genetic diversity, and/or
- populations that are near the limit of the species range."

C1.3 Habitat critical to the survival of a species or ecological community

'*Habitat critical to the survival of a species*' is defined by the Significant Impact Guidelines as habitat critical to the survival of a species or ecological community' refers to areas that are necessary:

- for activities such as foraging, breeding, roosting, or dispersal
- for the long-term maintenance of the species or ecological community (including the maintenance of species essential to the survival of the species or ecological community, such as pollinators)
- to maintain genetic diversity and long-term evolutionary development, or
- for the reintroduction of populations or recovery of the species or ecological community.

Such habitat may be, but is not limited to:

- habitat identified in a recovery plan for the species or ecological community as habitat critical for that species or ecological community; and/or
- habitat listed on the Register of Critical Habitat maintained by the minister under the EPBC Act.

Critical habitat can be further explained as an identified area of viable habitat that contains habitat attributes that are essential for the conservation of a threatened species. These areas are typically under a regime of special protection and management to ensure the critical habitat remains a stronghold for the species to ensure its long-term survival and viability in the wild. Critical habitat may also include an area of land not currently occupied by the species but can act as a sanctuary by possessing the necessary whole of life cycle habitat attributes to facilitate the recovery of a declining population of the species.

C1.4 Important habitat for migratory species

An area of 'important habitat' for a migratory species is:

- habitat utilised by a migratory species occasionally or periodically within a region that supports an ecologically significant proportion of the population of the species, and/or
- habitat that is of critical importance to the species at particular life-cycle stages, and/or
- habitat utilised by a migratory species which is at the limit of the species range, and/or
- habitat within an area where the species is declining.

C1.5 Ecologically significant proportion (migratory species)

Listed migratory species cover a broad range of species with different life cycles and population sizes. Therefore, what is an 'ecologically significant proportion' of the population varies with the species (each circumstance will need to be evaluated). Some factors that should be considered include the species' population status, genetic distinctiveness and species-specific behavioural patterns (for example, site fidelity and dispersal rates).

C1.6 Population of a migratory species

'Population', in relation to migratory species, means the entire population or any geographically separate part of the population of any species or lower taxon of wild animals, a significant proportion of whose members cyclically and predictably cross one or more national jurisdictional boundaries including Australia.

C1.7 Invasive species

An *'invasive species'* is an introduced species, including an introduced (translocated) native species, which out-competes native species for space and resources or which is a predator of native species. Introducing an invasive species into an area may result in that species becoming established. An invasive species may harm listed threatened species or ecological communities by direct competition, modification of habitat or predation.

C2 Summary of project impacts

C2.1 Summary of project description

EnergyCo is proposing the construction and operation of new high voltage electricity transmission infrastructure and new energy hubs and switching stations required to connect new renewable energy generation and storage projects within the Central-West Orana REZ to the existing electricity network (the project).

The project would enable at least three gigawatts of new network capacity to be unlocked by the mid-2020s and enable renewable energy generators within the Central-West Orana REZ who are successful in their bids to access the new transmission infrastructure to export electricity to the rest of the network. Importantly, the development of renewable energy generation projects in the Central-West Orana REZ is the sole responsibility of private generators and subject to separate planning and environmental approvals.

The project requires approval from the NSW Minister for Planning under Division 5.2, Part 5 of the Environmental Planning and Assessment Act 1979 (the EP&A Act). The project has been declared as Critical State significant infrastructure under Section 5.13 of the EP&A Act.

The project is part of the NSW government's first Renewable Energy Zone (REZ) in the Central-West Orana region. CWOREZ encompasses approximately 20,000 square kilometres centred by Dubbo and Dunedoo, on the land of the Wiradjuri, Wailwan and Kamilaroi people.

Location

The project is located in central-west NSW within the Warrumbungle, Mid-Western Regional, Dubbo and Upper Hunter Local Government Areas. It extends north to south from Coolah to Wollar and east to west from Cassilis to Goolma. The location of the project is shown in Figure 14.1 Site Map and Figure 14.2 Location Map in the BDAR.

Key components

The key components of the project include:

- a new switching station (the New Wollar Switching Station), located at Wollar to connect the project to the existing 500 kV electricity network
- around 90 kilometres of twin double circuit 500 kV transmission lines and associated infrastructure to connect energy hubs to the New Wollar Switching Station
- energy hubs at Merotherie and Elong Elong (including potential battery storage at the Merotherie Energy Hub) to connect renewable energy generation and storage projects within the Central-West Orana REZ to the 500 kV network infrastructure
- around 170 kilometres of single circuit, double circuit and twin double circuit 330 kV transmission lines, to connect renewable energy generation and storage projects within the Central-West Orana REZ to the energy hubs
- thirteen switching stations along the 330 kV network infrastructure at Cassilis, Coolah, Leadville, Merotherie, Tallawang, Dunedoo, Cobbora and Goolma, to transfer the energy generated from the renewable energy generation and storage projects within the Central-West Orana REZ onto the project's 330 kV network infrastructure
- underground fibre optic communication cables along the 330 kV transmission lines between the energy hubs and between the energy hubs and switching stations
- microwave repeater sites at locations along the alignment to provide a communications link between the project and the existing electricity transmission and distribution network

- establishment of new, and upgrade of existing access tracks for transmission lines, energy hubs, switching stations and other ancillary works areas within the construction area (such as temporary waterway crossings, laydown and staging areas, earthwork material sites with crushing, grinding and screening plants, concrete batching plants, brake/winch sites, site offices and workforce accommodation camps)
- utility adjustments required for the construction of the transmission network infrastructure, including adjustments to existing Transgrid and Essential Energy transmission infrastructure. This includes adjustments to Transgrid's 500 kV transmission lines 5A3 (Bayswater to Mount Piper) and 5A5 (Wollar to Mount Piper) to provide a connection to the NEM, including new transmission line towers along the Transgrid network along the frontage of the New Wollar Switching Station.

Construction staging

The project would be developed in stages as various renewable energy projects are brought on line as follows:

- CFG connection to Spicers Creek wind farm stage: Stretching from the proposed Elong Elong Energy Hub to Spicers Creek Wind Farm.
- CFG connection to Tallawang stage: Stretching from a 330 kV switching station on the RNI1 stage to a 330 kV switching station at Tallawang.
- RNI1 stage: Stretching from the proposed Elong Elong Energy Hub at Cobbora to the proposed Merotherie Energy Hub at Merotherie, then southeast to the new switching station at Wollar, and east to the start of the Valley of the Winds stage and the Liverpool Range stage at Bungaba.
- Stubbo stage: Stretching from the RNI1 stage at Merotherie to 330 kV switching station at Stubbo.
- Valley of the Winds stage: Stretching from the RNI1 stage at Bungaba north along two arms, a western arm to a 330 kV switching station Leadville and an eastern arm to a 330 kV switching station at Coolah.

Disturbance area

The disturbance area is the area that would be directly impacted by construction and operation of the project. The construction area is the area that would be used for the construction of the project (a 220 metre wide corridor). The parts of the construction area that would be disturbed during construction of the project are referred to as the disturbance area. The disturbance area is identified based on realistic project component locations and areas however it is indicative at this stage. The area would be confirmed during finalisation of design and construction methodology and would be developed as part of the consideration of avoidance and impact minimisation.

Disturbance area has the same meaning as ‘Development site’ as defined in the BAM.

The disturbance area would have varying degrees of physical disturbance along the transmission line alignment to reflect construction and operational requirements and these have been applied to the biodiversity assessment. For the purpose of the BDAR, disturbance area has been divided into the following areas consisting of:

- Disturbance area A – assumed for complete removal of vegetation. This includes the disturbance area A (centreline) category as outlined below.
- Disturbance area B – assumed to have no ground disturbance except in circumstances associated with the operational requirements for vegetation maintenance to meet the vegetation clearance heights. The assumed partial vegetation clearing is restricted to clearance of vegetation with growth height potential of 2 metres or above.
- Disturbance area HZ – a hazard tree zone where there would be impacts to selected trees that are within the risk category height range 20-30 m and have poor structural stability posing a risk of falling.

The width of the disturbance areas A, B and HZ areas for transmission line components vary for the 330 kV and 500 kV transmission lines based on their vegetation clearing requirements and construction methodologies. Figure 1.1 (of the BDAR) and Figure 1.2 (of the BDAR) identify the allocation of each area for each line type.

Subject land

As outlined in the BAM, the subject land is the land subject to a development, activity, clearing, biodiversity certification or a biodiversity stewardship project. It excludes the assessment area which surrounds the subject land (i.e. the area of land in a buffer zone around the subject land).

The location of the subject land is shown in Figure 14.3 (of the BDAR). The subject land contains all areas impacted by construction and operation. Specifically, the subject land incorporates Disturbance areas A and B.

C2.2 Summary of measures to avoid and minimise

Project development

The project has undergone a process of the development and evaluation of alternative transmission corridor options from feasibility to early design development. Chapter 2 of the EIS discusses this process in detail.

In 2020, the NSW Government engaged Transgrid, as NSW's jurisdictional transmission planner at the time, to carry out early development work to guide the planning of new transmission infrastructure for the Central-West Orana REZ. In December 2020, Transgrid released a preliminary study corridor for the project that ran northwest from the existing network near Merriwa, passing south of Dunedoo before connecting to the existing network east of Wellington. The preliminary study corridor developed by Transgrid also included an option to extend the new HV transmission infrastructure for the Central-West Orana REZ south of Wellington towards Lake Burrendong, including an upgrade of the existing substation at Wollar.

Between December 2020 and September 2021, Transgrid carried out community and stakeholder engagement on the preliminary study corridor for the transmission route, which included letters sent out to landowners, community information sessions, community events, social media posts and print advertisements, meetings with landowners, community members, Aboriginal stakeholders, local councils and other stakeholders, and establishment of a dedicated phone number, email address and website to provide project information.

In November 2021, the Central-West Orana REZ was formally declared by the Minister for Energy and Environment and EnergyCo was appointed as the Infrastructure Planner to lead the delivery of REZs in NSW. At this time, EnergyCo assumed responsibility for planning and design of the transmission corridor and engaging local communities and stakeholders to inform the development of new transmission network infrastructure within the REZ.

Project development by EnergyCo

EnergyCo's approach to transmission corridor planning has combined technical and environmental considerations and feedback from discussions with landowners and the wider community with an objective to avoid and minimise impacts to the community and environment as much as possible through detailed transmission corridor planning. For the purposes of corridor planning, constraints have been categorised into three tiers:

- Tier 1: Areas where locating transmission lines, substations and switching stations would result in a low likelihood of obtaining access, combined with the potential impacts to the environment, community and stakeholders at these locations, presenting a high risk for obtaining planning approval. Examples of potential tier 1 locations include town centres, areas of concentrated residential settlement, areas of high environmental value such as national parks, national heritage places and sensitive AHIMS sites.
- Tier 2: Areas to be avoided wherever possible because of the added complexity of obtaining site access, obtaining planning approval and the potential impact on community and stakeholder interests at these locations. Examples include areas containing listed threatened species and ecological communities, significant AHIMS sites, and high value agricultural land.
- Tier 3: Areas where impacts should be minimised and / or mitigated. In addition to the tier 2 constraints, examples include areas of key fish habitat, AHIMS sites, agricultural land and private properties.

Corridor planning has also considered opportunities to avoid impacts by routing the corridor through previously disturbed land such as mining areas and existing transmission easements as well as coordinating transmission connections to renewable energy generation and storage projects.

- EnergyCo's first step in corridor planning was to identify preferable locations for the energy hubs, having regard to:
- proximity of energy hubs to renewable energy generators being planned or developed
- proximity of energy hubs to the existing road network
- availability of sufficient land to accommodate the space requirements for energy hubs
- ability to secure land through negotiated agreement
- environmental constraints
- other site constraints that might affect constructability such as topography, slope and geotechnical conditions.

Following confirmation of the location of the energy hubs, corridor options to connect the energy hub locations were developed having regard to the constraints identified earlier.

As part of project development, EnergyCo has considered the potential to place the HV transmission lines underground. Construction of an underground transmission option for the project would directly impact a larger amount of land via ground disturbance, associated with the need to excavate a trench, or multiple parallel trenches where more than one HV transmission line is required, over the entire length of the alignment. This has the potential for significant disturbance to agricultural activities, biodiversity and heritage as well as increasing project costs by approximately three times compared to overhead transmission lines.

In addition, the following environmental and engineering constraints would be associated with undergrounding of project infrastructure:

- should damage or a fault occur to the transmission network infrastructure, large sections of excavation may be required to identify the fault, resulting in longer repair times and interruptions to energy supply
- the transition from overhead to underground cables requires termination points which are large structures that require sensitive siting
- there may be areas of unsuitable geology along the transmission easement that would increase the cost of construction as a result of the construction methodology for trenching and excavation works.

Based on the above factors, locating HV transmission lines underground is not considered to be a viable option.

Revised study corridor by EnergyCo

In February 2022, EnergyCo announced a revised study corridor for the REZ Transmission project which reduced impacts on sensitive land uses in the region and delivered greater capacity to meet future energy needs. Community feedback received by Transgrid was considered in developing the revised project study corridor. In particular, the eastern section of the preliminary study corridor was redesigned to locate the corridor on existing disturbed land such as mining areas, existing transmission lines and wind and solar development, to avoid high-quality agricultural land.

EnergyCo invited the community and stakeholders to provide feedback on the revised study corridor for the project in February and March 2022. A community feedback report was released in June 2022 which outlined the consultation outcomes and next steps.

C2.3 Summary of project impacts

Threatened ecological communities

A summary of project impacts on threatened ecological are presented in Table C.1.

Table C.1 Summary of project impacts on EPBC Act listed TECs

TEC name	EPBC Act status	Associated vegetation zones within the subject land	Impact within subject land (ha)	Impact in Disturbance Area A	Impact in Disturbance Area B	Impact in Disturbance Area HZ
Central Hunter Valley eucalypt forest and woodland	CE	1176 (Thinned)	1.95 ha	0.53 ha	1.39 ha	0.03 ha
Grey Box (*Eucalyptus microcarpa*) Grassy Woodlands and Derived Native Grasslands of South-eastern Australia	E	81 (Moderate/Good, Thinned)	5.98 ha	2.43 ha	3.45 ha	0.10 ha
White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland	CE	266 (Moderate/Good, Thinned) 277 (Moderate_Good) 281 (Moderate_Good, Thinned) 483 (Moderate_Good, Thinned) 599 (Moderate_Good, Thinned) 618 (Moderate_Good, Thinned	287.45 ha	110.34 ha	175.09 ha	2.02 ha

Threatened species

A summary of impacts to ecosystem credit threatened species are presented in Table C.1 with species credit impacts summarised in Table C.2.

Table C.2 Summary of project impacts on ecosystem credit MNES threatened species

Common name	Scientific name	Listing status		Subregion					Dual credit species	Sources	Species retained for further assessment?	Reason for exclusion from further assessment	Vegetation zone ID species retained within, including PCT ID	Sensitivity to gain class
		BC Act	EPBC Act	IS	KER	LR	PIL	TV						
Regent Honeyeater (foraging)	*Anthochaera phrygia*	CE	CE; M	✓	✓	✓	✓	✓	Yes	☒ BAM-C ☐ TBDC ☐ Previous survey ☐ Current survey	Partial (when a species is retained within one vegetation zone but not another)	The species has been excluded from DNG only as it lacks any mid-storey to canopy vegetation and favoured feed trees	The species has been retained in all applicable vegetation zones and PCT's except for DNG	High
Gang-gang Cockatoo (foraging)	*Callocephalon fimbriatum*	V	E	✓	✓	-	-	-	Yes	☒ BAM-C ☐ TBDC ☐ Previous survey ☐ Current survey	Yes	Species retained	The species has been retained in all applicable vegetation zones in all PCT's	Moderate
Glossy Black-Cockatoo (foraging)	*Calyptorhynchus lathami*	V	V	✓	✓	✓	✓	✓	Yes	☒ BAM-C ☐ TBDC ☒ Previous survey ☒ Current survey	Partial (when a species is retained within one vegetation zone but not another)	The species has been excluded from DNG only as it lacks presence of Allocasuarina and Casuarina species	The species has been retained in all applicable vegetation zones and PCT's except for DNG	High
Brown Treecreeper (eastern subspecies)	*Climacteris picumnus victoriae*	V	V	✓	✓	✓	✓	✓	No	☒ BAM-C ☐ TBDC ☐ Previous survey ☐ Current survey	Yes	Species retained	The species has been retained in all applicable vegetation zones in all PCT's	High
Spotted-tailed Quoll	*Dasyurus maculatus*	V	E	✓	✓	✓	✓	✓		☒ BAM-C ☐ TBDC ☐ Previous survey ☐ Current survey	Yes	Species retained	The species has been retained in all applicable vegetation zones in all PCT's	High
Painted Honeyeater	*Grantiella picta*	V	V	✓	✓	✓	✓	✓	No	☒ BAM-C ☐ TBDC ☒ Previous survey ☐ Current survey	Partial (when a species is retained within one vegetation zone but not another)	The species has been excluded from DNG only. Habitat constraint of mistletoes present at a density of greater than five per hectare not met within DNG	The species has been retained in all applicable vegetation zones and PCT's except for DNG	Moderate
White-throated Needletail	*Hirundapus caudacutus*	-	V	✓	✓	✓	✓	✓	No	☒ BAM-C ☐ TBDC ☐ Previous survey ☐ Current survey	Yes	Species retained	The species has been retained in all applicable vegetation zones and PCT's	High
Swift Parrot (foraging)	*Lathamus discolor*	E	CE; M	✓	✓	✓	✓	✓	Yes	☒ BAM-C ☐ TBDC ☐ Previous survey ☐ Current survey	Yes	Species retained	The species has been retained in all applicable vegetation zones and PCT's	Moderate
Malleefowl	*Leipoa ocellata*	E	V	-	-	-	-	✓	No	☒ BAM-C ☐ TBDC ☐ Previous survey ☐ Current survey	Yes	Species retained	The species has been retained in all applicable vegetation zones and PCT's	High

Common name	Scientific name	Listing status		Subregion					Dual credit species	Sources	Species retained for further assessment?	Reason for exclusion from further assessment	Vegetation zone ID species retained within, including PCT ID	Sensitivity to gain class
		BC Act	EPBC Act	IS	KER	LR	PIL	TV						
Major Mitchell's Cockatoo	*Lophocroa leadbeateri*	V	E	✓	-	✓	✓	✓	Yes	☒ BAM-C ☐ TBDC ☐ Previous survey ☐ Current survey	No	The species has been excluded as it is most likely a vagrant to the subject land. The core distribution of the species in eastern Australia incorporates the arid and semi-arid inland, from south-western Queensland south to north-west Victoria. In NSW they are found regularly as far east as Bourke and Griffith with some infrequent records further east. A confirmed record is present on BioNet in the township of Mudgee approximately 45 km to the south of the subject land. Based on the species core distribution this record is most likely a vagrant to the locality.	N/A	Moderate
Hooded Robin (south-eastern form)	*Melanodryas cucullata cucullata*	V	E	✓	✓	✓	✓	✓	No	☒ BAM-C ☐ TBDC ☐ Previous survey ☐ Current survey	Yes	Species retained	The species has been retained in all applicable vegetation zones and PCT's	Moderate
Yellow-bellied Glider	*Petaurus australis*	V	V	✓	✓	✓	✓	-	No	☒ BAM-C ☐ TBDC ☐ Previous survey ☐ Current survey	Yes	Species retained	The species has been retained in all applicable vegetation zones and PCT's	High
Superb Parrot	*Polytelis swainsonii*	V	V	✓	-	✓	✓	✓	Yes	☒ BAM-C ☐ TBDC ☐ Previous survey ☐ Current survey	Yes	Species retained	The species has been retained in all applicable vegetation zones and PCT's	Moderate
New Holland Mouse	*Pseudomys novaehollandiae*	-	V	✓	✓	-	✓	-	No	☒ BAM-C ☐ TBDC ☐ Previous survey ☐ Current survey	Partial (when a species is retained within one vegetation zone but not another)	Species excluded from Inland Slopes due to geographic limitation, 'occurring north of Canowindra and west of Cumnock'.	The species has been retained in all applicable vegetation zones and PCT's	High
Grey-headed Flying-fox (foraging)	*Pteropus poliocephalus*	V	V	✓	✓	✓	✓	✓	Yes	☒ BAM-C ☐ TBDC ☐ Previous survey ☐ Current survey	Partial (when a species is retained within one vegetation zone but not another)	The species has been excluded from DNG only as it lacks any mid-storey to canopy vegetation ruling out suitable foraging habitat.	The species has been retained in all applicable vegetation zones and PCT's except for DNG	High
Diamond Firetail	*Stagonopleura guttata*	V	V	✓	✓	✓	✓	✓	No	☒ BAM-C ☐ TBDC ☐ Previous survey ☐ Current survey	Yes	Species retained	The species has been retained in all applicable vegetation zones and PCT's	Moderate

C2.4 Summary of mitigation measures

Mitigation measure	Method/technique
B1. Sensitive areas to be avoided during detailed design and micro siting of transmission line infrastructure	Sensitive areas (incl. species polygons, buffered threatened species locations (including off site features adjacent to the subject land) & TEC areas) to be identified on sensitive area plans using spatial data. Refining the design to avoid and minimise impacts on sensitive areas and prioritise areas with a VI <17 as per section 9 of the BAM (2020)
B2. Develop and implement guidelines and procedures for operation and maintenance of the project as part of the OEMP or EMS	These guidelines and procedures will cover the following: — vegetation clearing and maintenance commitments in the BDAR and EIS avoiding access and disturbance in biodiversity exclusion zones identified during the construction — avoiding access and disturbance in areas of high biodiversity conservation significance; and — avoiding maintenance of vegetation that does not need to be maintained during operation.
B3. Micro-siting of associated works and access tracks	Locating of site offices, compounds, ancillary facilities and access tracks in areas of low biodiversity value. Access tracks should utilise existing tracks, where feasible and waterway crossings should be located at narrow width locations. All micro-siting should select topography to minimise requirements for any significant earth works (i.e. cut and fill).
B4. Connectivity corridors	20-metre-wide connectivity corridors are to be established near tower locations that occur in woodland vegetation. Exact location will be nominated as part of a Connectivity Strategy.
B5. Installation of nest boxes or other hollow creation methods as part of a Supplementary Hollow and Nest Strategy.	Nest boxes provide an alternative roosting and/or nesting habitat for threatened fauna displaced during clearing in accordance with a Supplementary Hollow and Nest Strategy.
B6. Under transmission glider poles	To facilitate the movement of glider species. The location of glider poles will be nominated as part of a Connectivity Strategy.
B7. Controls of weed and pathogen transport from the site to adjacent vegetation	Implementation of Energy Co biosecurity protocols. This may include the cleaning of vehicles (incl. floor pans), boots and clothing to kill pathogens and remove weed seed &/or plant bodies.
B8. Demarcation of vegetation clearing areas and habitats.	This will include marking of hollow-bearing trees, nests, burrows and other habitat features within or in close proximity to the clearing areas. Installation of ‘no go area’ fencing to clearly mark the extent of clearing.
B9. Installation of tree protection measures	In accordance with AS 4970-2009 – Protection of Trees in Development Sites.
B10. Sediment and erosion controls	A Sediment and Erosion Control Plan is to be prepared, detailing the location and types of controls required to reduce potential impacts from erosion, sedimentation and enriched run-off on waterways and adjoining habitats.

Mitigation measure	Method/technique
B11. Pre-clearing surveys.	Pre-clearing surveys are to be completed prior to clearing at each location by a suitability qualified ecologist. This may include scanning trees habitats for hollows, nests, dreys and burrows and recording evidence of use. All habitat features recorded should be marked onsite. Clearing contractors should be notified of these locations.
B12. Ecology inductions, toolbox talks, targeted training.	All relevant project personnel, including relevant sub-contractors are to be trained on biodiversity management protocols and requirements for the project, through inductions, toolbox talks and targeted training, and provided with sensitive area maps (showing clearing boundaries and exclusion zones) and updates as required.
B13. Retention of understorey vegetation in riparian areas.	Understorey vegetation is to be protected within vegetated riparian zones (within the definition of *Water Management Act 2000*). Vegetation clearing will be limited to the tree stratum only, with trunk bases being retained in-situ.
B14. Rehabilitation of riparian areas	Activities within vegetated riparian zones would be managed to minimise impacts to aquatic environments. Riparian areas subject to disturbance would be progressively stabilised and rehabilitated.
B15. Installation of bird diverters	Located within 1 km (at a minimum) of wetland/riverine habitats to reduce impacts on aerial fauna species from collision with transmission lines and infrastructure. The exact position and diverter model is to be finalised during design refinement.
B16. Exact clearing extent provided for offset requirements	The predicted clearing of native vegetation by the project would be monitored against the recorded clearing. A revised BAM-C calculation on the project's final project disturbance post construction would be completed and any additional credit liability identified would be met as part of the biodiversity offset requirements within the biodiversity offset package.
B17. Minimise direct impacts to threatened species or ecological communities	A species unexpected finds protocol would be implemented if threatened ecological communities or flora and fauna species, not assessed in the biodiversity assessment, are identified in the disturbance area.

C2.5 Summary of offset requirements

Details on the residual impacts to MNES are outlined in Sections 10 and 11 of the BDAR. A summary of ecosystem credits required to offset the residual impacts associated with the project are presented in Table C.3 with species credit requirements summarised in Table C.4.

Table C.3 Project impacts that require an offset – ecosystem credits

Plant Community Type	Credits required
1176-Slaty Box – Grey Gum shrubby woodland on footslopes of the upper Hunter Valley, Sydney Basin Bioregion	20
1177-Slaty Gum woodland of the slopes of the southern Brigalow Belt South Bioregion	887
1610-White Box – Black Cypress Pine shrubby woodland of the Western Slopes	1276
1661-Narrow-leaved Ironbark – Black Pine – Sifton Bush heathy open forest on sandstone ranges of the upper Hunter and Sydney Basin	475
1674-Red Ironbark – Brown Bloodwood – Black Pine heathy open forest on sandstone ranges of the Sydney Basin	104
1696-Blakely's Red Gum – Rough-barked Apple shrubby woodland of central and upper Hunter	33
202-Fuzzy Box woodland on colluvium and alluvial flats in the Brigalow Belt South Bioregion (including Pilliga) and Nandewar Bioregion	60
266-White Box grassy woodland in the upper slopes sub-region of the NSW South Western Slopes Bioregion	526
277-Blakely's Red Gum – Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion	1133
281-Rough-Barked Apple – red gum – Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion	7050
42-River Red Gum/River Oak riparian woodland wetland in the Hunter Valley	24
440-Red Stringybark – Narrow-leaved Ironbark – Black Cypress Pine – hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion	1469
461-Tumbledown Gum woodland on hills in the northern NSW South Western Slopes Bioregion and southern Brigalow Belt South Bioregion	800
468-Narrow-leaved Ironbark – Black Cypress Pine +/- Blakely's Red Gum shrubby open forest on sandstone low hills in the southern Brigalow Belt South Bioregion (including Goonoo)	3
477-Inland Scribbly Gum – Red Stringybark – Black Cypress Pine – Red Ironbark open forest on sandstone hills in the southern Brigalow Belt South Bioregion and northern NSW South Western Slopes Bioregion	330
478-Red Ironbark – Black Cypress Pine – stringybark +/- Narrow-leaved Wattle shrubby open forest on sandstone in the Gulgong – Mendooran region, southern Brigalow Belt South Bioregion	124
479-Narrow-leaved Ironbark – Black Cypress Pine – stringybark +/- Grey Gum +/- Narrow-leaved Wattle shrubby open forest on sandstone hills in the southern Brigalow Belt South Bioregion and Sydney Basin Bioregion	1802
481-Rough-barked Apple – Blakely's Red Gum – Narrow-leaved Stringybark +/- Grey Gum sandstone riparian grass fern open forest on in the southern Brigalow Belt South Bioregion and Upper Hunter region	549

Plant Community Type	Credits required
483-Grey Box x White Box grassy open woodland on basalt hills in the Merriwa region, upper Hunter Valley	3050
599-Blakely's Red Gum – Yellow Box grassy tall woodland on flats and hills in the Brigalow Belt South Bioregion and Nandewar Bioregion	261
618-White Box x Grey Box – red gum – Rough-barked Apple grassy woodland on rich soils on hills in the upper Hunter Valley	1290
81-Western Grey Box – cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion	168
Total	**21434**

Table C.4 Project impacts that require an offset – species credits

Species name	Credits required
Acacia ausfeldii / Ausfeld's Wattle	217
Androcalva procumbens / Androcalva procumbens	475
Anthochaera phrygia / Regent Honeyeater	3288
Aprasia parapulchella / Pink-tailed Legless Lizard	475
Calyptorhynchus lathami / Glossy Black-Cockatoo	740
Cercartetus nanus / Eastern Pygmy-possum	3861
Chalinolobus dwyeri / Large-eared Pied Bat	4851
Commersonia rosea / Commersonia rosea	63
Delma impar / Striped Legless Lizard	676
Dichanthium setosum / Bluegrass	2290
Digitaria porrecta / Finger Panic Grass	27
Eucalyptus camaldulensis - endangered population / Eucalyptus camaldulensis population in the Hunter catchment	26
Eucalyptus cannonii / Capertee Stringybark	20
Euphrasia arguta / Euphrasia arguta	343
Homoranthus darwinioides / Fairy Bells	201
Hoplocephalus bitorquatus / Pale-headed Snake	2522
Hoplocephalus bungaroides / Broad-headed Snake	208
Leucochrysum albicans subsp. tricolor / Hoary Sunray	10
Monotaxis macrophylla / Large-leafed Monotaxis	1137
Ninox connivens / Barking Owl	518
Ozothamnus tesselatus / Ozothamnus tesselatus	31

Species name	Credits required
Petaurus norfolcensis / Squirrel Glider	9929
Petrogale penicillata / Brush-tailed Rock-wallaby	852
Phascolarctos cinereus / Koala	15685
Polytelis swainsonii / Superb Parrot	52
Pomaderris cotoneaster / Cotoneaster Pomaderris	500
Pomaderris queenslandica / Scant Pomaderris	17
Swainsona recta / Small Purple-pea	84
Swainsona sericea / Silky Swainson-pea	497
Thesium australe / Austral Toadflax	20
Tylophora linearis / Tylophora linearis	752
Tyto novaehollandiae / Masked Owl	566
Vespadelus troughtoni / Eastern Cave Bat	1156
Total	**52089**

C3 Assessment of significance

C3.1 Threatened ecological communities subject to assessment

Three threatened ecological communities listed under the EPBC Act were recorded during field surveys within the project study area. These include:

- Central Hunter Valley eucalypt forest and woodland – Critically Endangered
- Grey Box (*Eucalyptus microcarpa*) Grassy Woodlands and Derived Native Grasslands of South-eastern Australia - Endangered
- White Box – Yellow Box – Blakely's Red Gum Grassy Woodland and Derived Native Grassland – Critically Endangered.

One additional threatened ecological community: Coolibah - black box woodlands of the darling riverine plains and the brigalow belt south bioregions – Endangered under the EPBC Act, was requested for consideration of significant impact based on preliminary documentation provided. However, as this community was not recorded within the subject land during surveys, this community is not considered applicable to this assessment.

Details of the scope, timing and methodology of the targeted surveys used for EPBC Act listed threatened ecological communities and how they are consistent with (or justification for divergence from) published Australian Government guidelines and policy statements is provided in section 4.3.2 of the BDAR.

Central Hunter Valley eucalypt forest and woodland

Central Hunter Valley eucalypt forest and woodland is listed as a Critically Endangered ecological community under the EPBC Act.

Description

The Central Hunter Valley eucalypt forest and woodland ecological community is an open forest or woodland—typically with a tree canopy dominated by eucalypt species; an open to sparse mid-layer of shrubs; and a ground layer of native grasses, forbs and small shrubs. The canopy of the ecological community is dominated by one or more of the following four eucalypt species: *Eucalyptus crebra* (narrow-leaved ironbark), *Corymbia maculata* (syn. *E. maculata*) (spotted gum), *E. dawsonii* (slaty gum) and *E. moluccana* (grey box). Under certain circumstances a fifth species, *Allocasuarina luehmannii* (buloke), may be part of the mix of dominants, in sites previously dominated by one or more of the above four eucalypt species. Derived native grasslands and shrublands are not included in the nationally protected ecological community.

The Central Hunter Valley eucalypt forest and woodland ecological community typically occurs on lower hillslopes and low ridges, or valley floors in undulating country; on soils derived from finer grained sedimentary rocks. Soils typically have a high clay content and are medium in fertility, relative to nearby deep alluvial loam soils—which are more fertile—and to the skeletal soils of the bordering escarpment landscape—which is made up of less fertile, coarser–grained and sandier soils. The community does not occur on alluvial flats, river terraces, windblown sands, Triassic sediments, or escarpments (Department of Environment 2015, Department of the Environment and Energy 2016).

Distribution

Central Hunter Valley eucalypt forest and woodland occurs in the Hunter Valley Region (including the Goulburn Valley)—the Hunter River catchment in north east New South Wales. Much of it occurs in, or close to, the Central Hunter Valley, mainly in Muswellbrook, Singleton and Cessnock Local Government Areas (Department of the Environment and Energy 2016).

Relevant Commonwealth guidelines and policy statements including listing advice, conservation advice and recovery plan

A summary of the relevant Commonwealth guidelines and policy statements available for this community is as follows:

- Approved conservation advice: Approved Conservation Advice (including listing advice) for the Central Hunter Valley eucalypt forest and woodland ecological community (Department of Environment 2015)
- There is no listing advice available for this community. Listing assessment information may be available in the Approved Conservation Advice
- There is no adopted or made Recovery Plan for this ecological community
- Admin guideline: Central Hunter Valley eucalypt forest and woodland: a nationally protected ecological community (Department of the Environment and Energy 2016)
- No Threat Abatement Plan has been identified as being relevant for this ecological community.

Specific impacts

The following vegetation types recorded within the project study area were considered consistent with the EPBC Act Central Hunter Valley eucalypt forest and woodland listing:

- PCT 1176 Slaty Box – Grey Gum shrubby woodland on footslopes of the upper Hunter Valley, Sydney Basin Bioregion (Thinned)

Based on these assessments, the project is estimated to impact upon of 1.95 ha of the Central Hunter Valley eucalypt forest and woodland.

Significant impact criteria

An action is likely to have a significant impact on a critically endangered or endangered ecological community if there is a real chance or possibility that it will:

REDUCE THE EXTENT OF AN ECOLOGICAL COMMUNITY

The occurrence of the Central Hunter Valley eucalypt forest and woodland ecological community TEC within the subject land is at the western edge of the distribution for the TEC. The community occurs as small, scattered remnants within the locality. The project would result in a reduction of the extent of the Central Hunter Valley eucalypt forest and woodland. Approximately 1.95 ha of this community would be impacted by the project. The current extent of the ecological community is estimated to be 37 000 ha (Department of Environment 2015). Based on this estimate, the proposed development would result in clearing of 0.005% of the extent of the community. These potential impacts are considered to reduce the extent of the community within the locality.

FRAGMENT OR INCREASE FRAGMENTATION OF AN ECOLOGICAL COMMUNITY, FOR EXAMPLE BY CLEARING VEGETATION FOR ROADS OR TRANSMISSION LINES.

The project involves the installation of transmission line infrastructure and would require the removal and/or disturbance to 1.95 ha of Central Hunter Valley eucalypt forest and woodland. Within the subject land, Central Hunter Valley eucalypt forest and woodland generally occurs within a fragmented landscape, by other impacts such as agriculture, but the bisection of patches for linear clearing will marginally increase fragmentation of the community within the subject land and region.

ADVERSELY AFFECT HABITAT CRITICAL TO THE SURVIVAL OF AN ECOLOGICAL COMMUNITY

The Approved Conservation Advice (including listing advice) for the Central Hunter Valley eucalypt forest and woodland ecological community (Department of Environment 2015) outlines that:

“Areas that meet the minimum (Moderate quality condition class) Condition thresholds, or are within the buffer zone, are considered critical to the survival of the Central Hunter Valley eucalypt forest and woodland ecological community. Additional areas such as adjoining native vegetation and areas that meet the description of the ecological community but

not the Condition thresholds are also important to the survival of the ecological community and should be taken into consideration as part of the surrounding environment and landscape context."

The patch of PCT 1176 within the subject land meets the minimum Condition thresholds for one of the Moderate quality condition classes of the TEC. The project is therefore likely to impact on this habitat which is critical to the survival of the TEC, with the addition of a minimum 30m buffer area, which also meets the definition as habitat critical for survival under the conservation advice (Department of Environment 2015).

MODIFY OR DESTROY ABIOTIC (NON-LIVING) FACTORS (SUCH AS WATER, NUTRIENTS, OR SOIL) NECESSARY FOR AN ECOLOGICAL COMMUNITY'S SURVIVAL, INCLUDING REDUCTION OF GROUNDWATER LEVELS, OR SUBSTANTIAL ALTERATION OF SURFACE WATER DRAINAGE PATTERNS.

Any large-scale excavation that occurs in close proximity to the community or to marginal patches would involve mitigation measures to minimise sedimentation and hydrological impacts. Therefore, the project is considered unlikely to substantially modify or destroy these abiotic factors.

CAUSE A SUBSTANTIAL CHANGE IN THE SPECIES COMPOSITION OF AN OCCURRENCE OF AN ECOLOGICAL COMMUNITY, INCLUDING CAUSING A DECLINE OR LOSS OF FUNCTIONALLY IMPORTANT SPECIES, FOR EXAMPLE THROUGH REGULAR BURNING OR FLORA OR FAUNA HARVESTING.

The project would require the removal and/or disturbance to 1.95 ha Central Hunter Valley eucalypt forest and woodland. The project does not include regular burning or flora and fauna harvesting or other activities that would substantially change the species composition of the community. Mitigation measures such as weed and pathogen control, controls for sedimentation and hydrological impacts will be put in place to limit indirect impacts of the proposed development surrounding vegetation. The project is considered unlikely to substantially alter he species composition of the retained vegetation, or to substantially impact fauna occurring within this habitat.

WILL THE ACTION CAUSE A SUBSTANTIAL REDUCTION IN THE QUALITY OR INTEGRITY OF AN OCCURRENCE OF AN ECOLOGICAL COMMUNITY, INCLUDING, BUT NOT LIMITED TO:

- **assisting invasive species, that are harmful to the listed ecological community, to become established**
- **causing regular mobilisation of fertilisers, herbicides or other chemicals or pollutants into the ecological community which kill or inhibit the growth of species in the ecological community.**

Central Hunter Valley eucalypt forest and woodland within the subject land is already currently subject to weed and pest invasion. Additionally, the majority of the project occurs within previously disturbed land. Therefore, it is considered unlikely that the project would substantially reduce the quality or integrity of the community's occurrence or significantly increase the spread of invasive species.

Additionally, mitigation measures recommended in the BDAR, such as weed and pest management plans, vegetation clearing protocols, installation vehicle wash stations and sediment and control measures, to minimise the likelihood of spread of weeds or pathogens into the site. These mitigation measures would aid in reducing potential impacts associated with the project that may otherwise result in the further reduction of the community's quality.

INTERFERE WITH THE RECOVERY OF AN ECOLOGICAL COMMUNITY

To date, no recovery plan has been developed by the Department of Climate Change, Energy, the Environment and Water (DCCEEW) for Central Hunter Valley eucalypt forest and woodland (Department of Climate Change Energy the Environment and Water 2023). The *Approved Conservation Advice (including listing advice) for the Central Hunter Valley eucalypt forest and woodland ecological community* (Department of Environment 2015) provides a number research priorities, and priority recovery and threat abatement actions to maintain and improve condition and protection for remaining remnants of the community. The project would involve clearing of this TEC and therefore the project would interfere with the recovery of this TEC.

CONCLUSION

The project would require the removal and/or disturbance to 1.95 ha Central Hunter Valley eucalypt forest and woodland. The removal of this vegetation would represent 0.005% of the extent of the community and is likely to marginally fragment the patches within the locality. Where possible the clearing of this community will be avoided during detailed design and mitigation measures are recommended in the EIS, such as weed control to reduce impacts.

Given the very small extent of clearance, avoidance during detailed design and implementation of mitigation measures to reduce impacts, the project unlikely to have a significant impact on this community.

NSW Assessment Bilateral requirements

For each of the EPBC Act listed threatened species and communities and migratory species likely to be impacted by the action the EIS must provide a separate*:*

DESCRIPTION OF THE HABITAT (INCLUDING IDENTIFICATION AND MAPPING OF SUITABLE BREEDING HABITAT, SUITABLE FORAGING HABITAT, IMPORTANT POPULATIONS AND HABITAT CRITICAL FOR SURVIVAL), WITH CONSIDERATION OF, AND REFERENCE TO, ANY RELEVANT COMMONWEALTH GUIDELINES AND POLICY STATEMENTS INCLUDING LISTING ADVICE, CONSERVATION ADVICE AND RECOVERY PLAN

A description of habitat for this community, important populations, habitat critical for survival and relevant Commonwealth documents are provided above, with a map showing its modelled distribution provided in Figure C.1. No recovery plan exists for this community. A map showing the field verified locations of this vegetation within the study area is provided in Figure 14-8 Threatened ecological communities and ecological communities in the BDAR.

Figure C.1 Current distribution map for Central Hunter Valley eucalypt forest and woodland (Department of Climate Change Energy the Environment and Water 2023)

DETAILS OF THE SCOPE, TIMING AND METHODOLOGY FOR STUDIES OR SURVEYS USED AND HOW THEY ARE CONSISTENT WITH (OR JUSTIFICATION FOR DIVERGENCE FROM) PUBLISHED AUSTRALIAN GOVERNMENT GUIDELINES AND POLICY STATEMENTS

Key diagnostic characteristics for this community are provided in the conservation advice (Department of Environment 2015). The field survey techniques used to undertake surveys were also in general accordance with the *NSW Biodiversity Assessment Method* (Department of Planning Industry and Environment 2020) with a detailed field verification method provided in Section 2.2 of the BDAR.

The *Approved Conservation Advice (including listing advice) for the Central Hunter Valley eucalypt forest and woodland ecological community* (Department of Environment 2015) was applied to the PCT1176 within the subject land to determine whether the vegetation is part of the Central Hunter Valley eucalypt forest and woodland TEC.

To determine native vegetation extent within the subject land, preliminary mapping of vegetation community boundaries was undertaken through analysis of existing vegetation mapping and aerial photograph interpretation. Vegetation within the subject land and locality has been mapped at the regional scale in the NSW State Vegetation Type Map (SVTM) release C1.1.M1. Existing BDARs were also used to guide the mapping of native vegetation where the subject land overlaps with these projects. The PCT mapping provided in the Liverpool Range Wind Farm BDAR (Umwelt 2022) and the Valley of the Winds Wind Farm BDAR (Eco Logical Australia 2022) were reviewed for consistency PCT identification.

Field surveys and validation (ground-truthing) of the existing vegetation classifications was completed based on random meander surveys and BAM vegetation integrity plots. There were 274 vegetation integrity plots completed during the survey from July 2022 to March 2023.

DESCRIPTION OF THE SPECIFIC IMPACTS AND ITS REGARD TO THE FULL NATIONAL EXTENT OF THE SPECIES OR COMMUNITY'S RANGE

The direct impacts of the project on Central Hunter Valley eucalypt forest and woodland include removal of approximately 1.95 ha of habitat. The area of potential impact for Central Hunter Valley eucalypt forest and woodland is mapped in Figure 14-8 Threatened ecological communities and ecological communities in the BDAR. Figure C.1 shows the current known generalised distribution. The current extent of the community is estimated to be 37 000 ha (Department of Environment 2015). Based on this estimate, the proposed development would result in clearing of 0.005% of the extent of the community.

DESCRIPTION OF THE SPECIFIC PROPOSED AVOIDANCE AND MITIGATION MEASURES TO DEAL WITH RELEVANT IMPACTS OF THE ACTION

The proposed avoidance and mitigation measures are outlined in Section 7 and section 8.3 of the BDAR. Regarding specific measures for *this community*, the following relevant mitigation measures are recommended for any related residual impacts:

- positioning of the impact area to minimise clearance threatened ecological communities
- establishment of no-go zones to protect mapped patches of habitat during construction.

IDENTIFICATION OF SIGNIFICANT RESIDUAL ADVERSE IMPACTS LIKELY TO OCCUR AFTER THE PROPOSED ACTIVITIES TO AVOID AND MITIGATE ALL IMPACTS ARE TAKEN INTO ACCOUNT

The residual impact to for Central Hunter Valley eucalypt forest and woodland is estimated at 1.95 ha of habitat removal.

A DESCRIPTION OF ANY OFFSETS PROPOSED TO ADDRESS RESIDUAL ADVERSE SIGNIFICANT IMPACTS AND HOW THESE OFFSETS WILL BE ESTABLISHED

Details of offset requirements and obligations for this community as a result of residual impacts due the project is addressed in Section 10 of the BDAR.

DETAILS OF HOW THE CURRENT PUBLISHED NSW BIODIVERSITY ASSESSMENT METHOD (BAM) HAS BEEN APPLIED IN ACCORDANCE WITH THE OBJECTS OF THE EPBC ACT TO OFFSET SIGNIFICANT RESIDUAL ADVERSE IMPACTS

The BDAR specifically addresses Section 10 of the BAM and provides information on the application of the no net loss standard and the project biodiversity offset obligations.

DETAILS OF THE OFFSET PACKAGE TO COMPENSATE FOR SIGNIFICANT RESIDUAL IMPACTS INCLUDING DETAILS OF THE CREDIT PROFILES REQUIRED TO OFFSET THE ACTION IN ACCORDANCE WITH THE BAM AND/OR MAPPING AND DESCRIPTIONS OF THE EXTENT AND CONDITION OF THE RELEVANT HABITAT AND/OR THREATENED COMMUNITIES OCCURRING ON PROPOSED OFFSET SITES

Section 11 of the BDAR outlines the biodiversity credit requirements for the project. The offset obligations will be met through implementing a combination of the following offset delivery options, being:

- the purchase and retirement of existing biodiversity credits currently available on the biodiversity credit register
- establishing a biodiversity stewardship site(s) on lands with like for like biodiversity values to those impacted by the project
- through making a payment into the Biodiversity Conservation Fund.

Grey Box (*Eucalyptus microcarpa*) Grassy Woodlands and Derived Native Grasslands of South-eastern Australia

Grey Box (*Eucalyptus microcarpa*) Grassy Woodlands and Derived Native Grasslands of South-eastern Australia (Grey Box Woodlands) is listed as an Endangered Ecological Community under the EPBC Act.

Description

Grey Box Woodlands occupy a position in the landscape that is transitional between the temperate woodlands and forests of the lower slopes and tablelands of south-eastern Australia, and the semi-arid communities further inland. The ecological community typically occurs in landscapes of low-relief on productive soils derived from alluvial or colluvial materials but may occur on a range of substrates. The ecological community tends to occupy drier sites of the belt of grassy woodlands in south-eastern Australia, within a rainfall zone of 375–700 mm/year (Department of the Environment Water Heritage and the Arts 2010).

This community includes those woodlands in which the dominant tree species is *Eucalyptus microcarpa* (Inland Grey Box) and is often found in association with *Eucalyptus populnea* subsp. *bimbil* (Bimble or Poplar Box), *Callitris glaucophylla* (White Cypress Pine), *Brachychiton populneus* (Kurrajong), *Allocasuarina luehmannii* (Bulloak) or *Eucalyptus melliodora* (Yellow Box), and sometimes with *Eucalyptus albens* (White Box). Shrubs are typically sparse or absent, although this component can be diverse and may be locally common, especially in drier western portions of the community. A variable ground layer of grass and herbaceous species is present at most sites. At severely disturbed sites the ground layer may be absent. The community generally occurs as an open woodland 15–25 m tall, but in some locations the overstorey may be absent as a result of past clearing or thinning, leaving only an understorey (Threatened Species Scientific Committee 2010)

Distribution

Grey Box Woodlands occurs from the Narrabri district in central NSW through northern Victoria into South Australia. Patches that are disjunct from the main grey box woodland belt occur also in the Victorian Volcanic Plain to the west of Melbourne, and also in the Flinders and Mount Lofty Ranges near Adelaide in South Australia (Department of the Environment Water Heritage and the Arts 2010).

Relevant Commonwealth guidelines and policy statements including listing advice, conservation advice and recovery plan

A summary of the relevant Commonwealth guidelines and policy statements available for this community is as follows:

- Conservation advice: *Approved Conservation Advice for the Grey Box (*Eucalyptus microcarpa*) Grassy Woodlands and Derived Native Grasslands of South-east Australia* (Department of the Environment Water Heritage and the Arts 2010)
- Relevant listing advice: *Commonwealth Listing Advice on Grey Box (*Eucalyptus microcarpa*) Grassy Woodlands and Derived Native Grasslands of South-eastern Australia* (Threatened Species Scientific Committee 2010)
- There is no adopted or made Recovery Plan for this ecological community
- No Threat Abatement Plan has been identified as being relevant for this ecological community.

Specific impacts

The following vegetation types recorded within the project study area were considered consistent with the EPBC Act Grey Box Woodlands listing:

- PCT 81 Western Grey Box – cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion (Moderate/Good) and (Thinned).

Based on these assessments, the project is estimated to impact upon of 5.98 ha of the Grey Box Woodlands

Significant impact criteria

An action is likely to have a significant impact on a critically endangered or endangered ecological community if there is a real chance or possibility that it will:

REDUCE THE EXTENT OF AN ECOLOGICAL COMMUNITY

Within the subject land the TEC occurs in the NSW South Western Slopes IBRA region (Inland Slopes subregion), the Brigalow Belt South IBRA region (Talbragar Valley subregion). The project would result in a reduction of the extent of the Grey Box Woodlands. Approximately 5.98 ha of this community would be impacted by the project. The current extent of the community in NSW is estimated between 300 000 and 330 000 ha and the current extent of the community nationally is estimated at around 534,500 ha (Threatened Species Scientific Committee 2010). Based on these estimates, the proposed development would result in clearing of 0.002% of the extent of the community in NSW and 0.001%, nationally. These potential impacts are considered to marginally reduce the extent of the community within the region.

FRAGMENT OR INCREASE FRAGMENTATION OF AN ECOLOGICAL COMMUNITY, FOR EXAMPLE BY CLEARING VEGETATION FOR ROADS OR TRANSMISSION LINES

The project involves the installation of transmission line infrastructure and would require the removal and/or disturbance to 5.98 ha Grey Box Woodlands. Within the subject land, Grey Box Woodlands generally occurs within a fragmented landscape, by other impacts such as agriculture, but the bisection of patches for linear clearing will marginally increase fragmentation of Grey Box Woodlands within the subject land and region.

ADVERSELY AFFECT HABITAT CRITICAL TO THE SURVIVAL OF AN ECOLOGICAL COMMUNITY

No critical habitat has been listed for the Grey Box Woodlands ecological community under the *Environment Protection and Biodiversity Conservation Act 1999* (*Department of Climate Change Energy the Environment and Water 2023*).

Habitat critical to the survival of ecological communities also refers to areas that are necessary:

- for activities such as foraging, breeding, roosting, or dispersal
- for the long-term maintenance of the species or ecological community (including the maintenance of species essential to the survival of the species or ecological community, such as pollinators)
- to maintain genetic diversity and long-term evolutionary development, or
- for the reintroduction of populations or recovery of the species or ecological community.

Grey Box Woodlands recorded within the project study area currently occurs as patches with varying levels of disturbance and resulting condition. Given the extent and distribution of this community, it is unlikely that any areas to be cleared for the project are habitat critical to the survival of this community.

MODIFY OR DESTROY ABIOTIC (NON-LIVING) FACTORS (SUCH AS WATER, NUTRIENTS, OR SOIL) NECESSARY FOR AN ECOLOGICAL COMMUNITY'S SURVIVAL, INCLUDING REDUCTION OF GROUNDWATER LEVELS, OR SUBSTANTIAL ALTERATION OF SURFACE WATER DRAINAGE PATTERNS

The project would require the removal of up to 5.98 ha of Grey Box Woodlands.

Any large-scale excavation that occurs in close proximity to Grey Box Woodlands or to marginal patches would involve mitigation measures to minimise sedimentation and hydrological impacts. Therefore, the project is considered unlikely to substantially modify or destroy these abiotic factors.

CAUSE A SUBSTANTIAL CHANGE IN THE SPECIES COMPOSITION OF AN OCCURRENCE OF AN ECOLOGICAL COMMUNITY, INCLUDING CAUSING A DECLINE OR LOSS OF FUNCTIONALLY IMPORTANT SPECIES, FOR EXAMPLE THROUGH REGULAR BURNING OR FLORA OR FAUNA HARVESTING.

The project would require the removal and/or disturbance to 5.98 ha of Grey Box Woodlands. The project does not include regular burning or flora and fauna harvesting or other activities that would substantially change the species composition of the community. Mitigation measures such as weed and pathogen control, controls for sedimentation and hydrological impacts will be put in place to limit indirect impacts of the proposed development surrounding vegetation. The project is considered unlikely to substantially alter he species composition of the retained vegetation, or to substantially impact fauna occurring within this habitat.

CAUSE A SUBSTANTIAL REDUCTION IN THE QUALITY OR INTEGRITY OF AN OCCURRENCE OF AN ECOLOGICAL COMMUNITY, INCLUDING, BUT NOT LIMITED TO:

- **assisting invasive species, that are harmful to the listed ecological community, to become established**
- **causing regular mobilisation of fertilisers, herbicides or other chemicals or pollutants into the ecological community which kill or inhibit the growth of species in the ecological community.**

Grey Box Woodlands within the subject land is currently subject to weed and pest invasion. Additionally, the majority of the project occurs within previously disturbed land. Therefore, it is considered unlikely that the project would substantially reduce the quality or integrity of the community or significantly increase the spread of invasive species.

Additionally, mitigation measures are recommended in the EIS to be implemented during construction to minimise the likelihood of spread of weeds or pathogens into the subject land and minimise sedimentation and hydrological impacts.

INTERFERE WITH THE RECOVERY OF AN ECOLOGICAL COMMUNITY

To date, no recovery plan has been developed by the Department of Climate Change, Energy, the Environment and Water (DCCEEW) for Grey Box Grassy Woodlands. The *Approved Conservation Advice for the Grey Box (Eucalyptus microcarpa) Grassy Woodlands and Derived Native Grasslands of South-east Australia* (Department of the Environment Water Heritage and the Arts 2010) provides a number research priorities, and priority recovery and threat abatement actions to maintain and improve condition and protection for remaining remnants of the community. The project would involve clearing of this TEC and therefore the project would interfere with the recovery of this TEC.

CONCLUSION

Within the subject land, this community occurs in the NSW South Western Slopes IBRA region (Inland Slopes subregion), the Brigalow Belt South IBRA region (Talbragar Valley subregion). The community occurs as small, scattered remnants within the locality in varied condition. The project will clear 5.98 ha of habitat (equivalent to 0.002% of the extent of the community in NSW and 0.001%, nationally) and is likely to marginally fragment the patches within the locality.

None of the community within the subject land is likely to be habitat critical to the survival of the community. Where possible the clearing of this community will be avoided during detailed design and mitigation measures are recommended in the EIS, such as weed control to reduce impacts.

Given the small extent of clearance, avoidance during detailed design and implementation of mitigation measures to reduce impacts, the project unlikely to have a significant impact on this community.

NSW Assessment Bilateral requirements

For each of the EPBC Act listed threatened species and communities and migratory species likely to be impacted by the action the EIS must provide a separate:

DESCRIPTION OF THE HABITAT (INCLUDING IDENTIFICATION AND MAPPING OF SUITABLE BREEDING HABITAT, SUITABLE FORAGING HABITAT, IMPORTANT POPULATIONS AND HABITAT CRITICAL FOR SURVIVAL), WITH CONSIDERATION OF, AND REFERENCE TO, ANY RELEVANT COMMONWEALTH GUIDELINES AND POLICY STATEMENTS INCLUDING LISTING ADVICE, CONSERVATION ADVICE AND RECOVERY PLAN

A description of habitat for this community, important populations, habitat critical for survival and relevant Commonwealth documents are provided above with a map showing its modelled distribution provided in Figure C.2. A map showing the field verified locations of this vegetation within the study area is provided in Figure 14-8 Threatened ecological communities and ecological communities in the BDAR.

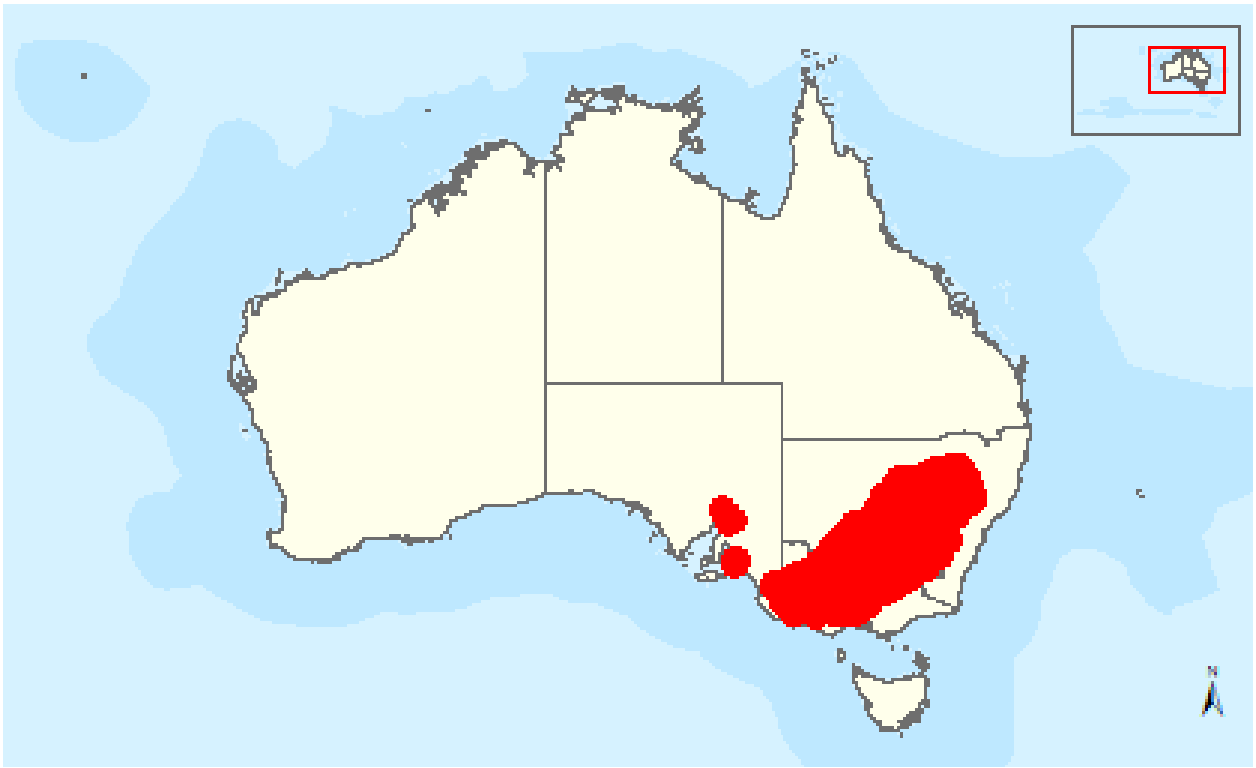

Figure C.2 Current distribution map for Grey Box Grassy Woodlands (Department of Climate Change Energy the Environment and Water 2023)

DETAILS OF THE SCOPE, TIMING AND METHODOLOGY FOR STUDIES OR SURVEYS USED AND HOW THEY ARE CONSISTENT WITH (OR JUSTIFICATION FOR DIVERGENCE FROM) PUBLISHED AUSTRALIAN GOVERNMENT GUIDELINES AND POLICY STATEMENTS

Key diagnostic characteristics for this community are provided in the listing advice (Threatened Species Scientific Committee 2010). The field survey techniques used to undertake surveys were also in general accordance with the *NSW Biodiversity Assessment Method* (Department of Planning Industry and Environment 2020) with a detailed field verification method provided in Section 2.2.3 of the BDAR.

The *Approved Conservation Advice for the Grey Box (*Eucalyptus microcarpa*) Grassy Woodlands and Derived Native Grasslands of South-east Australia* (Department of the Environment Water Heritage and the Arts 2010) *Commonwealth Listing Advice on Grey Box (*Eucalyptus microcarpa*) Grassy Woodlands and Derived Native Grasslands of South-eastern Australia* (Threatened Species Scientific Committee 2010) were applied to the PCT 81 within the subject land to determine whether the vegetation is part of the Grey Box (*Eucalyptus microcarpa*) Grassy Woodlands and Derived Native Grasslands of South-eastern Australia TEC.

To determine native vegetation extent within the subject land, preliminary mapping of vegetation community boundaries was undertaken through analysis of existing vegetation mapping and aerial photograph interpretation. Vegetation within the subject land and locality has been mapped at the regional scale in the NSW State Vegetation Type Map (SVTM) release C1.1.M1. Existing BDARs were also used to guide the mapping of native vegetation where the subject land overlaps with these projects. The PCT mapping provided in the Liverpool Range Wind Farm BDAR (Umwelt 2022) and the Valley of the Winds Wind Farm BDAR (Eco Logical Australia 2022) were reviewed for consistency PCT identification.

Field surveys and validation (ground-truthing) of the existing vegetation classifications was completed based on random meander surveys and BAM vegetation integrity plots. There were 274 vegetation integrity plots completed during the survey from July 2022 to March 2023.

DESCRIPTION OF THE SPECIFIC IMPACTS AND ITS REGARD TO THE FULL NATIONAL EXTENT OF THE SPECIES OR COMMUNITY'S RANGE

The direct impacts of the project on Grey Box Grassy Woodlands include removal of approximately 5.98 ha of habitat. The area of potential impact for Grey Box Grassy Woodlands. is mapped in in Figure 14-8 Threatened ecological communities and ecological communities in the BDAR. Figure C.2 shows the current known generalised distribution. The current extent of the community in NSW is estimated between 300 000 and 330 000 ha and the current extent of the community nationally is estimated at around 534 500 ha (Threatened Species Scientific Committee 2010). Based on these estimates, the proposed development would result in clearing of 0.002% of the extent of the community in NSW and 0.001%, nationally.

DESCRIPTION OF THE SPECIFIC PROPOSED AVOIDANCE AND MITIGATION MEASURES TO DEAL WITH RELEVANT IMPACTS OF THE ACTION

The proposed avoidance and mitigation measures are outlined in Section 7 and section 8.3 of the BDAR. Regarding specific measures for *this community*, the following relevant mitigation measures are recommended for any related residual impacts:

- positioning of the impact area to minimise clearance threatened ecological communities
- establishment of no-go zones to protect mapped patches of habitat during construction.

IDENTIFICATION OF SIGNIFICANT RESIDUAL ADVERSE IMPACTS LIKELY TO OCCUR AFTER THE PROPOSED ACTIVITIES TO AVOID AND MITIGATE ALL IMPACTS ARE TAKEN INTO ACCOUNT

The residual impact to Grey Box Grassy Woodlands is estimated at 5.98 ha of habitat removal.

A DESCRIPTION OF ANY OFFSETS PROPOSED TO ADDRESS RESIDUAL ADVERSE SIGNIFICANT IMPACTS AND HOW THESE OFFSETS WILL BE ESTABLISHED

Details of offset requirements and obligations for this community as a result of residual impacts due the project is addressed in Section 10 of the BDAR.

DETAILS OF HOW THE CURRENT PUBLISHED NSW BIODIVERSITY ASSESSMENT METHOD (BAM) HAS BEEN APPLIED IN ACCORDANCE WITH THE OBJECTS OF THE EPBC ACT TO OFFSET SIGNIFICANT RESIDUAL ADVERSE IMPACTS

The BDAR specifically addresses Section 10 of the BAM and provides information on the application of the no net loss standard and the project biodiversity offset obligations.

DETAILS OF THE OFFSET PACKAGE TO COMPENSATE FOR SIGNIFICANT RESIDUAL IMPACTS INCLUDING DETAILS OF THE CREDIT PROFILES REQUIRED TO OFFSET THE ACTION IN ACCORDANCE WITH THE BAM AND/OR MAPPING AND DESCRIPTIONS OF THE EXTENT AND CONDITION OF THE RELEVANT HABITAT AND/OR THREATENED COMMUNITIES OCCURRING ON PROPOSED OFFSET SITES

Section 11 of the BDAR outlines the biodiversity credit requirements for the project. The offset obligations will be met through implementing a combination of the following offset delivery options, being:

- the purchase and retirement of existing biodiversity credits currently available on the biodiversity credit register
- establishing a biodiversity stewardship site(s) on lands with like for like biodiversity values to those impacted by the project
- through making a payment into the Biodiversity Conservation Fund.

White Box – Yellow Box – Blakely's Red Gum Grassy Woodland and Derived Native Grassland

The White Box Yellow Box Blakely's Red Gum Woodland and Derived Native Grassland (Box Gum Woodland) ecological community is listed Critically Endangered under EPBC Act and the BC Act.

Description

Box Gum Woodland is characterised by a species-rich understorey of native tussock grasses, herbs and scattered shrubs, and the dominance, or prior dominance, of White Box (*Eucalyptus albens*), Yellow Box (*Eucalyptus melliodora*) and Blakely's Red Gum (*Eucalyptus blakelyi*). Tree-cover is generally discontinuous and consists of widely-spaced trees of medium height.

In its pre-1750 state, this ecological community was characterised by:

- a ground layer dominated by tussock grasses
- an overstorey dominated or co-dominated by White Box, Yellow Box or Blakely's Red Gum, or Grey Box in the Nandewar bioregion
- a sparse or patchy shrub layer.

The Australian Government listing of White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland is slightly different to the NSW listing. Areas that are part of the Australian Government listed ecological community must have either:

- an intact tree layer and predominately native ground layer; or
- an intact native ground layer with a high diversity of native plant species but no remaining tree layer.
- *Box Gum Woodland* occurs along the western slopes and tablelands of the Great Dividing Range from southern Queensland through New South Wales and the Australian Capital Territory to Victoria.

Due to the ecological community's occurrence on fertile soils it has been extensively cleared for agriculture and intact remnants, including both trees and unmodified understory, are now extremely rare. Clearing and fragmentation for urban, rural residential, agricultural and infrastructure development remain on-going threats to this ecological community, while degradation resulting from inappropriate management and weed invasion by introduced perennial grasses continues to erode the conservation value of remnant areas.

Relevant Commonwealth guidelines and policy statements including listing advice, conservation advice and recovery plan

A summary of the relevant Commonwealth guidelines and policy statements available for this community which were used in this assessment are as follows:

- Relevant listing advice: *Commonwealth Listing Advice on White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland* (Threatened Species Scientific Committee 2006)
- Recovery plan: *National Recovery Plan for White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland* (Department of Environment Climate Change and Water NSW 2010)
- Policy statement: *EPBC Act policy statement 3.5 - White box - yellow box - Blakely's red gum grassy woodlands and derived native grasslands* (Department of the Environment and Heritage 2006)
- Relevant threat abatement plans for this community include:
- *Threat abatement plan for the biological effects, including lethal toxic ingestion, caused by cane toads* (Department of Sustainability Environment Water Population and Communities 2011)
- *Threat abatement plan for predation, habitat degradation, competition and disease transmission by feral pigs (*Sus scrofa*) (2017)* (Department of the Environment and Energy 2017)
- *Threat abatement plan for disease in natural ecosystems caused by Phytophthora cinnamomi.* (Department of the Environment and Energy 2018)

Specific impacts

The following vegetation types recorded within the study area were considered consistent with the EPBC Act Box Gum Woodland listing based on condition criteria:

- PCT 266 White Box grassy woodland in the upper slopes sub-region of the NSW South Western Slopes Bioregion (Moderate/Good)
- PCT 277 Blakely's Red Gum – Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion (Moderate/Good)
- PCT 281 Rough-barked Apple – Red Gum – Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South western slopes Bioregion and Brigalow Belt South Bioregion (Moderate/Good)
- PCT 483 Grey Box x White Box grassy open woodland on basalt hills in the Merriwa region, upper Hunter Valley (Moderate/Good)
- PCT 618 White Box x Grey Box – red gum – Rough-barked Apple grassy woodland on rich soils on hills in the upper Hunter Valley (Moderate/Good)

Based on these assessments, the project is estimated to impact upon of 287.45 ha of the Box Gum Woodland.

Significant impact criteria

An action is likely to have a significant impact on a Critically Endangered ecological community if there is a real chance or possibility that it will:

REDUCE THE EXTENT OF AN ECOLOGICAL COMMUNITY.

The project would result in a reduction of the extent of the Box Gum Woodland. Approximately 287.45 ha of this community would be impacted by the project. The current extent of the community within NSW is estimated to be 250,729 ha, while the current extent nationally is estimated at 416,325 ha. Based on these estimates, the proposed development would result in clearing of 0.11% of the extent of the community in NSW and 0.06%, nationally. These potential impacts are considered to reduce the extent of the community within subject land, as well as reduce the extent of the community within the region.

FRAGMENT OR INCREASE FRAGMENTATION OF AN ECOLOGICAL COMMUNITY, FOR EXAMPLE BY CLEARING VEGETATION FOR ROADS OR TRANSMISSION LINES.

The project would require the removal and /or disturbance to 287.45 ha of Box-Gum Woodland within areas of existing disturbance. This community generally occurs within a fragmented landscape, by other impacts such as agriculture. The project would increase fragmentation of Box-Gum Woodland within the landscape.

ADVERSELY AFFECT HABITAT CRITICAL TO THE SURVIVAL OF AN ECOLOGICAL COMMUNITY

Box-Gum Woodlands recorded within the survey area occur as patches with a variety of condition types. "White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland National Recovery Plan" (2010) notes that "g*iven the currently highly fragmented and degraded state of this ecological community, all areas of Box-Gum Grassy Woodland which meet the minimum condition criteria outlined in Section 3 should be considered critical to the survival of this ecological community".*

Based on the recovery plan for this community, all areas that have been assigned are likely to be habitat critical for the community.

MODIFY OR DESTROY ABIOTIC (NON-LIVING) FACTORS (SUCH AS WATER, NUTRIENTS, OR SOIL) NECESSARY FOR AN ECOLOGICAL COMMUNITY'S SURVIVAL, INCLUDING REDUCTION OF GROUNDWATER LEVELS, OR SUBSTANTIAL ALTERATION OF SURFACE WATER DRAINAGE PATTERNS.

Any large-scale excavation that occurs in close proximity to the community or to marginal patches would involve mitigation measures to minimise sedimentation and hydrological impacts. Therefore, the project is considered unlikely to substantially modify or destroy these abiotic factors.

CAUSE A SUBSTANTIAL CHANGE IN THE SPECIES COMPOSITION OF AN OCCURRENCE OF AN ECOLOGICAL COMMUNITY, INCLUDING CAUSING A DECLINE OR LOSS OF FUNCTIONALLY IMPORTANT SPECIES, FOR EXAMPLE THROUGH REGULAR BURNING OR FLORA OR FAUNA HARVESTING.

The project would require the removal and/or disturbance to 287.45 ha *Box-Gum Woodland.* The project does not include regular burning or flora and fauna harvesting or other activities that would substantially change the species composition of the community. Mitigation measures such as weed and pathogen control, controls for sedimentation and hydrological impacts will be put in place to limit indirect impacts of the proposed development surrounding vegetation. The project is considered unlikely to substantially alter he species composition of the retained vegetation, or to substantially impact fauna occurring within this habitat.

CAUSE A SUBSTANTIAL REDUCTION IN THE QUALITY OR INTEGRITY OF AN OCCURRENCE OF AN ECOLOGICAL COMMUNITY, INCLUDING, BUT NOT LIMITED TO:

- **assisting invasive species, that are harmful to the listed ecological community, to become established**
- **causing regular mobilisation of fertilisers, herbicides or other chemicals or pollutants into the ecological community which kill or inhibit the growth of species in the ecological community.**

Box-Gum Woodlands within the project study area are currently subject to weed and pest invasion and much of the project occurs within previously disturbed land. Therefore, it is considered unlikely that the project would substantially reduce the quality or integrity of the community's occurrence or significantly increase the spread of invasive species.

Additionally, mitigation measures recommended in the BDAR, such as weed and pest management plans, vegetation clearing protocols, installation vehicle wash stations and sediment and control measures, to minimise the likelihood of spread of weeds or pathogens into the site. These mitigation measures would aid in reducing potential impacts associated with the project that may otherwise result in the further reduction of the community's quality.

INTERFERE WITH THE RECOVERY OF AN ECOLOGICAL COMMUNITY

A national recovery plan was written for *Box Gum Woodlands* by the NSW Department of Environment, Climate Change and Water in 2010 and was adopted by the Commonwealth in 2013. The following are the objectives of the National Recovery Plan:

- achieving no net loss in extent and condition of the ecological community throughout is geographic distribution
- increasing protection of sites with high recovery potential
- increasing landscape functionality of the ecological community through management and restoration of degraded sites
- increase transitional areas around remnants and linkages between remnants; and
- bringing about enduring changes in participating land manager attitudes and behaviours towards environmental protection and sustainable land management practices to increase extent, integrity and function of Box Gum Woodlands.

The project is likely to remove 287.45 ha of this community, which is likely to interfere with the recovery of Box Gum Woodlands by impacting directly on the initial objective of community protection and no net loss.

CONCLUSION

Approximately 287.45 ha of the EPBC listed ecological community would be removed. The project would result in a reduction of the extent of the *Box-Gum Woodlands* within the Project study area, all of which is considered habitat critical to the survival of this community. The project would interfere with the recovery of this community and has the potential to increase fragmentation of *Box-Gum Woodland* within the landscape.

For these reasons, the project is likely to have a significant impact on this community.

NSW Assessment Bilateral requirements

For each of the EPBC Act listed threatened species and communities and migratory species likely to be impacted by the action the EIS must provide a separate:

DESCRIPTION OF THE HABITAT (INCLUDING IDENTIFICATION AND MAPPING OF SUITABLE BREEDING HABITAT, SUITABLE FORAGING HABITAT, IMPORTANT POPULATIONS AND HABITAT CRITICAL FOR SURVIVAL), WITH CONSIDERATION OF, AND REFERENCE TO, ANY RELEVANT COMMONWEALTH GUIDELINES AND POLICY STATEMENTS INCLUDING LISTING ADVICE, CONSERVATION ADVICE AND RECOVERY PLAN

A description of habitat for this community, important populations, habitat critical for survival and relevant Commonwealth documents are provided above, with a map showing the modelled distribution of the community provided in Figure C.3.

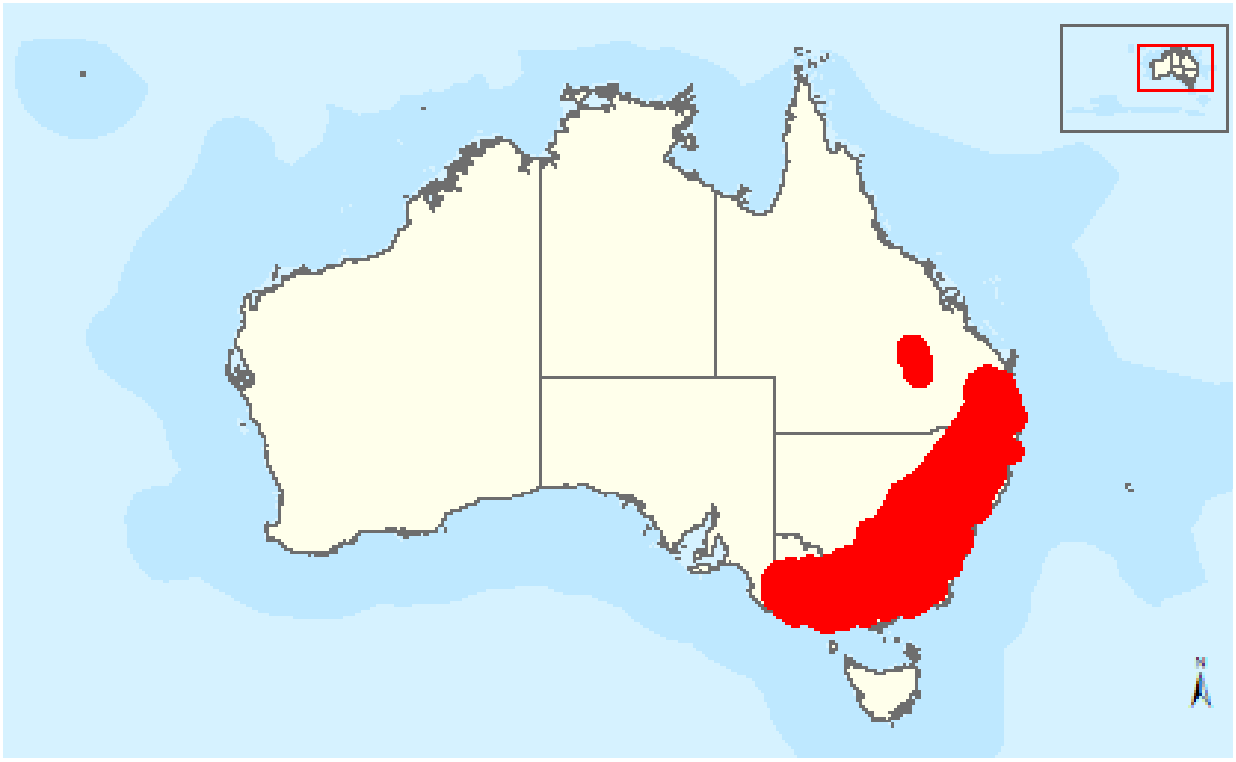

Figure C.3 Current distribution map for Box-Gum Grassy Woodland
(Department of Climate Change Energy the Environment and Water 2023)

The "White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland National Recovery Plan" (2010) is the key recovery plan for this community. This Plan notes that all areas of Box-Gum Grassy Woodland which meet minimum condition criteria should be considered critical to the survival of this ecological community.

A habitat map showing the location of this vegetation within the study area is provided in Figure 14-8 Threatened ecological communities and ecological communities in the BDAR, main report.

DETAILS OF THE SCOPE, TIMING AND METHODOLOGY FOR STUDIES OR SURVEYS USED AND HOW THEY ARE CONSISTENT WITH (OR JUSTIFICATION FOR DIVERGENCE FROM) PUBLISHED AUSTRALIAN GOVERNMENT GUIDELINES AND POLICY STATEMENTS

Survey guidelines for *Box-Gum Grassy Woodland* are provided in the recovery plan for this community (Department of Environment Climate Change and Water NSW 2010) and field data was used to assign condition classes for any given observed patch. The field survey techniques used to undertake surveys were also in general accordance with the *NSW Biodiversity Assessment Method* (Department of Planning Industry and Environment 2020) with a detailed field verification method provided in Section 2.2 of the BDAR.

The NSW Threatened Species Scientific Committee's final determinations for woodland endangered ecological communities (EECs) has been considered when preparing the vegetation maps for this BDAR to ensure that all condition states are mapped appropriately. For example, the BC Act listed White Box – Yellow Box – Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Riverina Bioregions TEC specifically includes derived native grasslands as part of the TEC. The NSW listing for Box Gum woodland is slightly different to the Commonwealth listing, and not all areas of the NSW-listed community meet the Commonwealth listing.

The *Commonwealth Listing Advice on White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland* (Threatened Species Scientific Committee 2006) and the *EPBC Act policy statement 3.5 - White box - yellow box - Blakely's red gum grassy woodlands and derived native grasslands* (Department of the Environment and Heritage 2006) were applied to the PCTs within the subject land to determine whether the vegetation is part of the White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland TEC listed under the EPBC Act.

To determine native vegetation extent within the subject land, preliminary mapping of vegetation community boundaries was undertaken through analysis of existing vegetation mapping and aerial photograph interpretation. Vegetation within the subject land and locality has been mapped at the regional scale in the NSW State Vegetation Type Map (SVTM) release C1.1.M1. Existing BDARs were also used to guide the mapping of native vegetation where the subject land overlaps with these projects. The PCT mapping provided in the Liverpool Range Wind Farm BDAR (Umwelt 2022) and the Valley of the Winds Wind Farm BDAR (Eco Logical Australia 2022) were reviewed for consistency PCT identification.

Field surveys and validation (ground-truthing) of the existing vegetation classifications was completed based on random meander surveys and BAM vegetation integrity plots. There were 274 vegetation integrity plots completed during the survey from July 2022 to March 2023.

DESCRIPTION OF THE SPECIFIC IMPACTS AND ITS REGARD TO THE FULL NATIONAL EXTENT OF THE SPECIES OR COMMUNITY'S RANGE

The direct impacts of the project on *Box-Gum Grassy Woodland* include removal of approximately 287.45 ha of habitat. The area of potential impact for *Box-Gum Grassy Woodland*. is mapped in Figure 14-8 of the BDAR. Figure C.3 shows the current known generalised distribution. The current extent of the community within NSW is estimated to be 250,729 ha, while the current extent nationally is estimated at 416,325 ha (Threatened Species Scientific Committee 2006). Based on these estimates, the proposed development would result in clearing of 0.11% of the extent of the community in NSW and 0.06%, nationally.

DESCRIPTION OF THE SPECIFIC PROPOSED AVOIDANCE AND MITIGATION MEASURES TO DEAL WITH RELEVANT IMPACTS OF THE ACTION

The proposed avoidance and mitigation measures are outlined in Section 7 and section 8.3 of the BDAR. Regarding specific measures for *this community*, the following relevant mitigation measures are recommended for any related residual impacts:

- positioning of the impact area to minimise clearance threatened ecological communities
- establishment of no-go zones to protect mapped patches of habitat during construction.

IDENTIFICATION OF SIGNIFICANT RESIDUAL ADVERSE IMPACTS LIKELY TO OCCUR AFTER THE PROPOSED ACTIVITIES TO AVOID AND MITIGATE ALL IMPACTS ARE TAKEN INTO ACCOUNT

The residual impact to *Box-Gum Grassy Woodland is* estimated at 287.45 ha of habitat removal.

A DESCRIPTION OF ANY OFFSETS PROPOSED TO ADDRESS RESIDUAL ADVERSE SIGNIFICANT IMPACTS AND HOW THESE OFFSETS WILL BE ESTABLISHED

Details of offset requirements and obligations for this community as a result of residual impacts due the project is addressed in Section 10 of the BDAR.

DETAILS OF HOW THE CURRENT PUBLISHED NSW BIODIVERSITY ASSESSMENT METHOD (BAM) HAS BEEN APPLIED IN ACCORDANCE WITH THE OBJECTS OF THE EPBC ACT TO OFFSET SIGNIFICANT RESIDUAL ADVERSE IMPACTS

The BDAR specifically addresses Section 10 of the BAM and provides information on the application of the no net loss standard and the project biodiversity offset obligations.

DETAILS OF THE OFFSET PACKAGE TO COMPENSATE FOR SIGNIFICANT RESIDUAL IMPACTS INCLUDING DETAILS OF THE CREDIT PROFILES REQUIRED TO OFFSET THE ACTION IN ACCORDANCE WITH THE BAM AND/OR MAPPING AND DESCRIPTIONS OF THE EXTENT AND CONDITION OF THE RELEVANT HABITAT AND/OR THREATENED COMMUNITIES OCCURRING ON PROPOSED OFFSET SITES

Section 11 of the BDAR outlines the biodiversity credit requirements for the project. The offset obligations will be met through implementing a combination of the following offset delivery options, being:

- the purchase and retirement of existing biodiversity credits currently available on the biodiversity credit register
- establishing a biodiversity stewardship site(s) on lands with like for like biodiversity values to those impacted by the project
- through making a payment into the Biodiversity Conservation Fund.

C3.2 Threatened flora species subject to assessment

Appendix A of the SEARs outlines an initial list of EPBC Act listed threatened flora species likely to be impacted by the action. Combined with database searches (BioNet, BAM-C and PMST), there is predicted habitat or identified known habitat within the project study area for 27 threatened flora species listed under the EPBC Act. Of these, 11 have been identified to have a moderate likelihood of occurrence and were the subject of targeted surveys. These include:

- *Androcalva procumbens* – Vulnerable
- *Androcalva rosea* (syn. *Commersonia rosea*) (Sandy Hollow Commersonia)
- *Dichanthium setosum* (Bluegrass) – Vulnerable
- *Euphrasia arguta* – Critically Endangered
- *Homoranthus darwinioides* – Vulnerable
- *Leucochrysum albicans* var. *tricolor* (syn. *Leucochrysum albicans* subsp. *tricolor*) (Hoary Sunray) – Endangered
- *Ozothamnus tesselatus* – Vulnerable
- *Pomaderris cotoneaster* (Cotoneaster Pomaderris) – Endangered
- *Swainsona recta* (Small Purple-pea) – Endangered
- *Thesium australe* (Austral Toadflax) – Vulnerable
- *Tylophora linearis* (syn. *Vincetoxicum forsteri*) – Endangered.

One additional threatened flora species, *Pultenaea glabra* (Smooth Bush-pea) - Vulnerable under the EPBC Act, was requested for consideration of significant impact based on preliminary documentation provided. However, as this species has no known or predicted habitat within the subject land (all known populations occur within the Blue Mountains Local Government Area (Department of Planning and Environment, 2023c)), the species is not considered applicable to this assessment.

Details of the scope, timing and methodology of the targeted surveys used for EPBC Act listed threatened flora species and how they are consistent with (or justification for divergence from) published Australian Government guidelines and policy statements is provided in Section 2.3 of the BDAR.

Of the EPBC Act listed threatened flora species that were identified to have a moderate likelihood of occurrence and were the subject of targeted surveys, the following two species were recorded during the targeted surveys that were completed for the project in 2022:

- *Dichanthium setosum*
- *Leucochrysum albicans subsp. tricolor*

Significance assessments for all species with moderate or higher likelihood of occurrence have been completed following the Significant Impact Guidelines.

Androcalva procumbens

Androcalva procumbens is listed as Vulnerable under the EPBC Act.

Description

Androcalva procumbens is a prostrate shrub with slender trailing stems to 30 cm long. Plants are covered with star-shaped hairs on all parts. Leaves are rounded to lance-shaped, 2-5 cm long, 15-25 mm wide, with wavy or lobed margins, upper surface green and sprinkled with star-shaped hairs, lower surface densely white-hairy. Petals are about 2 mm long and pinkish. Fruit occurs as a capsule 6-8 mm in diameter, covered with both star-shaped hairs and bristles (Department of Planning and Environment 2022).

The species occurs in sandy soils, often in disturbed habitats such as road verges, quarry boundaries, gravel stockpiles, and power line easements. It is often found in communities of *Eucalyptus dealbata–E. sideroxylon* woodland, *Melaleuca uncinata* shrubland, and mallee eucalypt with *Calytrix tetragona* understorey. Associated species include *Acacia triptera, Callitris endlicheri, Eucalyptus melliodora, Allocasuarina diminuta, Philotheca salsolifolia, Xanthorrhoea* spp., *Exocarpos cupressiformis, Leptospermum parvifolium*, and *Kunzea parvifolia.* (Department of the Environment Water Heritage and the Arts 2008).

Distribution

Androcalva procumbens is endemic to NSW and is known from the Dubbo–Medooran– Gilgandra region, the Cobar region, and the upper Hunter Valley. Populations of this species have been recorded in Goonoo State Forest (SF), Mt Kaputar National Park, and Pilliga Nature Reserve and other populations occur on crown land, state forests, and on private land. Occurs within the Border Rivers–Gwydir, Central West, Hunter–Central Rivers, Namoi, and Western (NSW) Natural Resource Management Regions. Biodiversity surveys of Brigalow Belt South in 2002 recorded the species at only one of 32 previously known locations (Department of the Environment Water Heritage and the Arts 2008).

Relevant Commonwealth guidelines and policy statements including listing advice, conservation advice and recovery plan

A summary of the relevant Commonwealth guidelines and policy statements available for this species is as follows:

- Approved conservation advice: *Approved Conservation Advice for Rulingia procumbens* (Department of the Environment Water Heritage and the Arts 2008).
- There is no listing advice available for this species. Listing assessment information may be available in the approved Conservation Advice.
- There is no adopted or made Recovery Plan for this species.
- No Threat Abatement Plan has been identified as being relevant for this species.

Specific impacts

This species has not been recorded within the subject land during surveys to date. However, some areas of the project were unable to be accessed for survey during preliminary assessments. In the absence of targeted survey in these areas, associated PCTs have been assumed to be habitat for the species. In total the project is estimated to impact on 15.9 ha of assumed habitat for this species in the form of the following PCTs:

- PCT 477 (Moderate-Good, Thinned, DNG)
- PCT 479 (Moderate-Good and Thinned)
- PCT 1661 (Moderate_Good and Thinned).

Is this part of an important population?

Under the Act, important populations are:

- likely to be key source populations either for breeding or dispersal
- likely to be necessary for maintaining genetic diversity
- at or near the limit of the species range.

Androcalva procumbens has not been recorded within the subject land. However, some areas of the project were unable to be accessed for survey during preliminary assessments and in the absence of targeted survey, the project is likely to impact on up to 15.9 ha of assumed habitat for this species.

Given this, and using a precautionary approach, potential individuals recorded within the subject land are likely to form part of an important population.

Significant impact criteria

An action is likely to have a significant impact on a Vulnerable species if there is a real chance or possibility that it will:

LEAD TO A LONG-TERM DECREASE IN THE SIZE OF AN IMPORTANT POPULATION

Given the extent of assumed habitat for *Androcalva procumbens* within the impact area, potentially occurring populations may be necessary for maintaining genetic diversity or dispersal across the region and assumed habitat within the locality is widespread and as such the project is considered unlikely to form part of an important population. The project is considered unlikely to lead to a long-term decrease in the size of an important population.

REDUCE THE AREA OF OCCUPANCY OF AN IMPORTANT POPULATION

The project is likely to impact on up to 15.9 ha of assumed habitat for this species although this assumed habitat is considered widespread in the locality and unlikely to form part of an important population. The project **is** considered unlikely to reduce the area of occupancy for an important population.

FRAGMENT AN EXISTING IMPORTANT POPULATION INTO TWO OR MORE POPULATIONS

This species has not been recorded within the study area to date. However, the project is likely to impact on up to 15.9 ha of assumed habitat for this species. The impact to assumed habitat within the study area is considered unlikely to result in fragmentation of an important population.

ADVERSELY AFFECT HABITAT CRITICAL TO THE SURVIVAL OF A SPECIES

No Critical Habitat as defined under section 207A of the EPBC Act has been identified for *Androcalva procumbens* or included in the Register of Critical Habitat (Department of Climate Change Energy the Environment and Water 2023). 'Habitat critical to the survival of a species or ecological community' refers to areas that are necessary:

- for activities such as foraging, breeding, roosting, or dispersal
- for the long-term maintenance of the species or ecological community (including the maintenance of species essential to the survival of the species or ecological community, such as pollinators)
- to maintain genetic diversity and long-term evolutionary development, or
- for the reintroduction of populations or recovery of the species or ecological community (Department of the Environment Heritage Water and the Arts 2009)

There is a general paucity of information for this species in regard to population size and demographics. Given the extent of assumed habitat mapped within the subject land, it is unlikely that this habitat may be important for facilitating population dispersal and contributing to genetic diversity and species recovery. Therefore, the project is unlikely to impact habitat critical to the survival of the species.

DISRUPT THE BREEDING CYCLE OF AN IMPORTANT POPULATION

Androcalva procumbens flowers from August to December, with fruiting occurring from summer to autumn. The species appears to produce seed which persists for some time in the seed bank. Large numbers of seedlings have been observed germinating after fire at sites where the species was not apparent above ground before the fires. Clusters of individuals may be clonal (Department of Planning and Environment 2022).

The project is generally unlikely to result in direct disruptions to the ecological processes and functions important for the life cycle of this species.

MODIFY, DESTROY, REMOVE OR ISOLATE OR DECREASE THE AVAILABILITY OR QUALITY OF HABITAT TO THE EXTENT THAT THE SPECIES IS LIKELY TO DECLINE

Assumed habitat impacts total 15.9 ha and given the disjunct nature of known patches and lack of targeted survey in these habitats; it is difficult to discern if such impacts will cause the species to decline in the broader landscape.

The project is unlikely to modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline.

RESULT IN INVASIVE SPECIES THAT ARE HARMFUL TO A VULNERABLE SPECIES BECOMING ESTABLISHED IN THE VULNERABLE SPECIES' HABITAT

Mitigation measures are recommended in the BDAR to limit the spread of weeds, pathogens and disease. Given these measures, the project is unlikely to significantly contribute to the introduction or spread of invasive species not currently present in surrounding areas.

INTRODUCE DISEASE THAT MAY CAUSE THE SPECIES TO DECLINE

There are no known diseases that are specific to *Androcalva procumbens.*

Mitigation measures are recommended in the BDAR, such as weed and pest management plans, vegetation clearing protocols, installation vehicle wash stations and sediment and control measures. These will help to minimise the likelihood of introduction or spread of pathogens into the site. Consequently, the project is unlikely to introduce disease or pathogens that may contribute to the decline of the species.

INTERFERE SUBSTANTIALLY WITH THE RECOVERY OF THE SPECIES

No Recovery plan has been prepared for this species at this stage. The approved conservation advice for the species outlines a number of local and regional priority research, recovery and threat abatement actions can be done to support the recovery of *Androcalva procumbens.*

As the project involves removal of assumed habitat for the species, the project is likely to interfere with the recovery of the species.

CONCLUSION

This species has not been recorded within the subject land, however some areas of the subject land were unable to be accessed for survey during preliminary assessments and in the absence of targeted survey, the project is likely to impact on up to 15.9 ha of assumed habitat for this species. Little information is currently known about the size and distribution of existing populations of this species (Department of Climate Change Energy the Environment and Water 2023) however, considering the and extent of assumed habitat within the subject land the project is unlikely to impact on an important population of *Androcalva procumbens.* Consequently, the action is unlikely to significantly impact *Androcalva procumbens.*

NSW Assessment Bilateral requirements

For each of the EPBC Act listed threatened species and communities and migratory species likely to be impacted by the action the EIS must provide a separate:

DESCRIPTION OF THE HABITAT (INCLUDING IDENTIFICATION AND MAPPING OF SUITABLE BREEDING HABITAT, SUITABLE FORAGING HABITAT, IMPORTANT POPULATIONS AND HABITAT CRITICAL FOR SURVIVAL), WITH CONSIDERATION OF, AND REFERENCE TO, ANY RELEVANT COMMONWEALTH GUIDELINES AND POLICY STATEMENTS INCLUDING LISTING ADVICE, CONSERVATION ADVICE AND RECOVERY PLAN

A description of habitat for this species, important populations, habitat critical for survival and relevant Commonwealth documents are provided above, with a map showing the modelled distribution of the species provided in Figure C.4. A map showing the field verified locations of this species within the study area is provided in mapped in Figure 14-10 Threatened ecological communities and ecological communities in the BDAR of the BDAR.

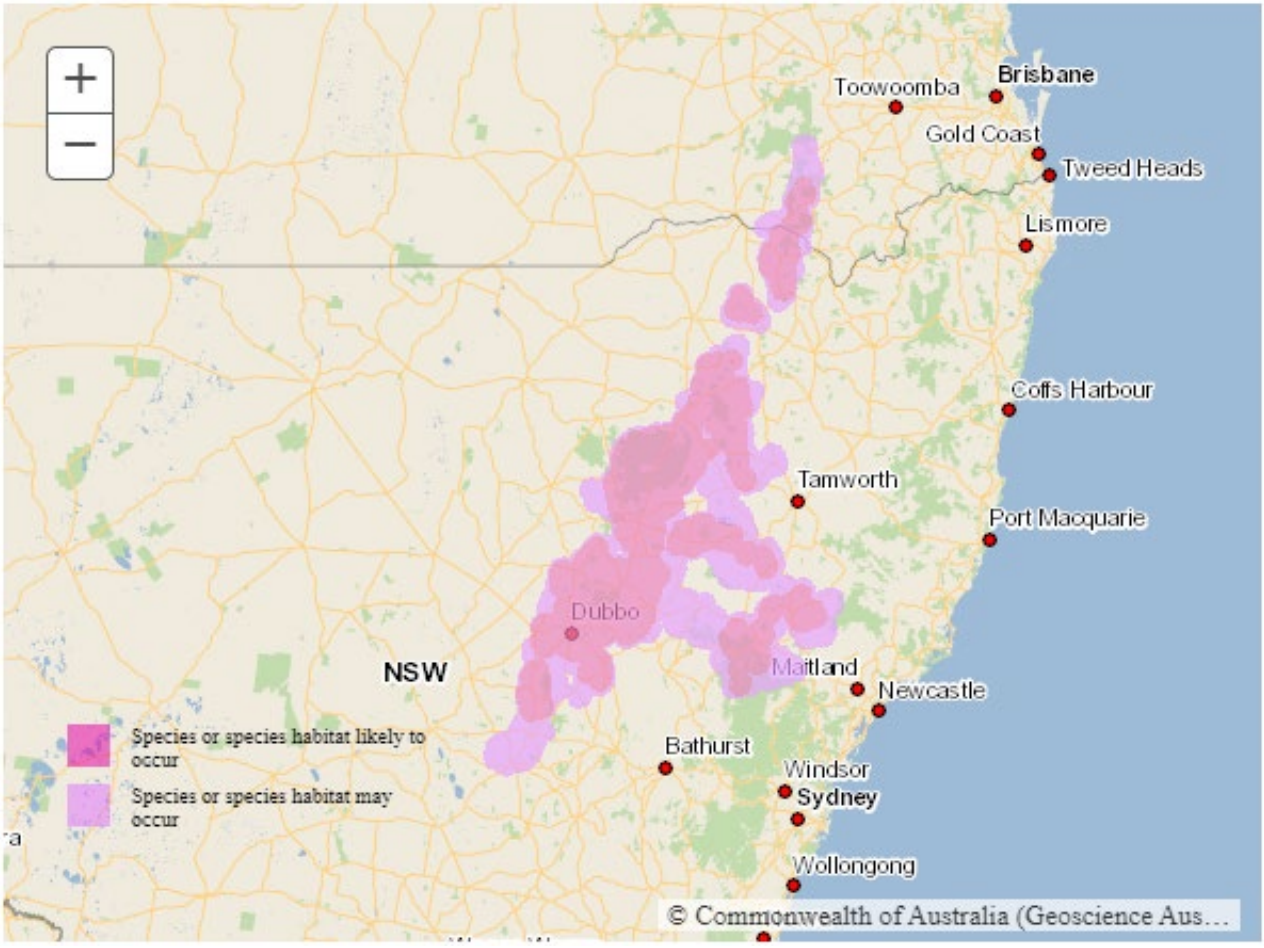

Figure C.4 Current distribution map for Androcalva procumbens (Department of Climate Change Energy the Environment and Water 2023)

DETAILS OF THE SCOPE, TIMING AND METHODOLOGY FOR STUDIES OR SURVEYS USED AND HOW THEY ARE CONSISTENT WITH (OR JUSTIFICATION FOR DIVERGENCE FROM) PUBLISHED AUSTRALIAN GOVERNMENT GUIDELINES AND POLICY STATEMENTS

Prior to surveys, a review of habitat constraints, geographic limitations and microhabitats for candidate threatened flora (species credit) species as listed within the NSW Threatened Biodiversity Data Collection (TBDC) was undertaken. A number of existing BDARs and other biodiversity reports were reviewed to obtain existing information on biodiversity in the locality with specific focus placed on areas assessed in previous BDARs that overlap with the Project.

Field survey techniques were used to undertake targeted seasonal surveys in general accordance with *Surveying threatened plants and their habitats; NSW guide for the Biodiversity Assessment Method* (Department of Planning Industry and Environment 2020):

- two-phase grid-based systematic survey
- parallel field traverses of microhabitats.

Further details of these surveys are provided in in Section 2.3 of the BDAR.

The field survey techniques used to undertake surveys were also in general accordance with the *NSW Biodiversity Assessment Method* (Department of Planning Industry and Environment 2020) with a detailed field verification method provided in Section 2.3 of the BDAR. Where a species could not be positively identified in the field and was suspected of being a threatened species, a voucher specimen was collected and preserved for later identification. These samples were sent to the Royal Botanic Gardens in Sydney and/or the Australian National Botanic Gardens for confirmation of identification.

DESCRIPTION OF THE SPECIFIC IMPACTS AND ITS REGARD TO THE FULL NATIONAL EXTENT OF THE SPECIES OR COMMUNITY'S RANGE

The direct impacts to this species include impact on 15.9 ha. Figure C.4 shows the current known generalised distribution, with the estimated habitat extent unknown.

DESCRIPTION OF THE SPECIFIC PROPOSED AVOIDANCE AND MITIGATION MEASURES TO DEAL WITH RELEVANT IMPACTS OF THE ACTION

The proposed avoidance and mitigation measures are outlined in Section 7 and section 8.3 of the BDAR. Regarding specific measures for *this species*, the following relevant mitigation measures are recommended for any related residual impacts:

- positioning of the impact area to minimise clearance of habitat
- establishment of no-go zones to protect mapped patches of habitat during construction.

IDENTIFICATION OF SIGNIFICANT RESIDUAL ADVERSE IMPACTS LIKELY TO OCCUR AFTER THE PROPOSED ACTIVITIES TO AVOID AND MITIGATE ALL IMPACTS ARE TAKEN INTO ACCOUNT

The residual direct impacts to *Androcalva procumbens* include at least 15.9 ha of assumed habitat removal for this species (total removal of vegetation).

A DESCRIPTION OF ANY OFFSETS PROPOSED TO ADDRESS RESIDUAL ADVERSE SIGNIFICANT IMPACTS AND HOW THESE OFFSETS WILL BE ESTABLISHED

Details of offset requirements and obligations for this community as a result of residual impacts due the project is addressed in Section 10 of the BDAR.

DETAILS OF HOW THE CURRENT PUBLISHED NSW BIODIVERSITY ASSESSMENT METHOD (BAM) HAS BEEN APPLIED IN ACCORDANCE WITH THE OBJECTS OF THE EPBC ACT TO OFFSET SIGNIFICANT RESIDUAL ADVERSE IMPACTS

The BDAR specifically addresses Section 10 of the BAM and provides information on the application of the no net loss standard and the project biodiversity offset obligations.

DETAILS OF THE OFFSET PACKAGE TO COMPENSATE FOR SIGNIFICANT RESIDUAL IMPACTS INCLUDING DETAILS OF THE CREDIT PROFILES REQUIRED TO OFFSET THE ACTION IN ACCORDANCE WITH THE BAM AND/OR MAPPING AND DESCRIPTIONS OF THE EXTENT AND CONDITION OF THE RELEVANT HABITAT AND/OR THREATENED COMMUNITIES OCCURRING ON PROPOSED OFFSET SITES

Section 11 of the BDAR outlines the biodiversity credit requirements for the project. The offset obligations will be met through implementing a combination of the following offset delivery options, being:

- the purchase and retirement of existing biodiversity credits currently available on the biodiversity credit register
- establishing a biodiversity stewardship site(s) on lands with like for like biodiversity values to those impacted by the project
- through making a payment into the Biodiversity Conservation Fund.

Androcalva rosea

Androcalva rosea — Sandy Hollow Commersonia *is* listed as Endangered under the EPBC Act and the BC Act.

Description

Androcalva rosea is a prostrate shrub growing 0.1-0.3 m high, producing trailing branches up to 60 cm long. Branches are densely stellate-hairy (especially on young growth), becoming almost hairless and channelled on older branches. The leaves have a petiole 4-10 mm long, persistent linear stipules, 6-9 mm long and 1 mm wide, and blades that are narrowly oblong to narrowly elliptic, 24-70 mm long, 8-17 mm wide, and stellate-hairy on both surfaces. The inflorescence is arranged as one to three flowers with densely stellate-hairy stalks 2-8 mm long. Flowers have five pink, three-lobed petals. Fruit capsules are globe-shaped, lime-green turning pale brown with age, 10-16 mm diameter, and densely covered in 2-4 mm long bristles (Department of Climate Change Energy the Environment and Water 2023).

Androcalva rosea occurs on skeletal soils in scrub or heath vegetation with occasional emergents of *Eucalyptus crebra, Callitris endlicheri* or *Eucalyptus caleyi* subsp. *caleyi*. The species appears to rely on a suitable fire regime for it to germinate and produce flowers and seed and has thus been called a fire-ephemeral. The species has been observed flowering in August, November, January and February. As a fire-ephemeral species it exhibits naturally high fluctuations in population numbers. Recruitment may depend on the existence of a soil seed bank. Further research on the ecology of this species is required to determine plant longevity, seed longevity and the frequency and intensity of fire required to ensure recruitment (Threatened Species Scientific Committee 2008).

Distribution

Androcalva rosea is known from six populations in the vicinity of Sandy Hollow in the upper Hunter Valley in New South Wales. Four populations are located within an 8 km radius of Sandy Hollow, one population occurs several kilometres to the south-east of Sandy Hollow and one population occurs 80 km to the west in Goulburn River National Park (Department of the Environment 2014).

Relevant Commonwealth guidelines and policy statements including listing advice, conservation advice and recovery plan

A summary of the relevant Commonwealth guidelines and policy statements available for this species is as follows:

- Approved conservation advice: *Approved Conservation Advice for Androcalva rosea* (Sandy Hollow Commersonia) (Department of the Environment 2014)
- Relevant Listing advice: *Commonwealth Listing Advice on* Commersonia rosea (Threatened Species Scientific Committee 2008)
- There is no adopted or made Recovery Plan for this species
- No Threat Abatement Plan has been identified as being relevant for this species.

Specific impacts

This species has not been recorded within the subject land during surveys to date. However, some areas of the subject land were unable to be accessed for survey during preliminary assessments. In the absence of targeted survey in these areas, associated PCTs have been assumed to be habitat for the species. In total the project is estimated to impact on 3.25 ha of assumed habitat for this species in the form of PCT 1674 (Moderate-Good).

Significant impact criteria

An action is likely to have a significant impact on an Endangered species if there is a real chance or possibility that it will:

LEAD TO A LONG-TERM DECREASE IN THE SIZE OF A POPULATION

This species has not been recorded within the subject land to date. One known population of the species occurs close by the subject land in Goulburn River National Park (population of 50-100 plants). All remaining known populations are located within a radius of 10 km of Sandy Hollow, further east of the subject land (Threatened Species Scientific Committee 2008). The distribution of this species is highly restricted and the total extent of occurrence is estimated at between 100km^2 (Threatened Species Scientific Committee 2008) and 2000 km^2 (Department of the Environment 2014). In total, the project is estimated to impact on around 3.25 ha of assumed habitat for this species (based on total vegetation removal), which would be < 0.1% of the total extent of occurrence, based on this estimate. Given the limited extent of assumed habitat to be removed for the species on the subject land, the restricted distribution and lack of records from surveys to date, it is unlikely that the loss of this habitat would be significant to the extent that it would lead to a long-term decrease in the size of a local population.

REDUCE THE AREA OF OCCUPANCY OF THE SPECIES

The project is likely to impact 3.25 ha of assumed habitat for the species (total removal and canopy removal only). The *Commonwealth Listing Advice on Androcalva rosea* (Threatened Species Scientific Committee 2008) indicates the estimated area of occupancy for the species to be less than 10km^2. The impact to 3.25 ha of assumed habitat for this species would therefore represent a (maximum) reduction of <0.1% of the known area of occupancy, if all assumed habitat were occupied.

FRAGMENT AN EXISTING POPULATION INTO TWO OR MORE POPULATIONS

This species has not been recorded within the study area to date. However, the project is likely to impact 3.25 ha of assumed habitat for the species., which is also mapped either side of the proposed impact area. If a local population occurs within the study area, the project is unlikely to result in fragmentation of a local population.

ADVERSELY EFFECT HABITAT CRITICAL TO THE SURVIVAL OF A SPECIES

No Critical Habitat as defined under section 207A of the EPBC Act has been identified for *Androcalva rosea* or included in the Register of Critical Habitat (Department of Climate Change Energy the Environment and Water 2023). 'Habitat critical to the survival of a species or ecological community' refers to areas that are necessary:

- for activities such as foraging, breeding, roosting, or dispersal
- for the long-term maintenance of the species or ecological community (including the maintenance of species essential to the survival of the species or ecological community, such as pollinators)
- to maintain genetic diversity and long term evolutionary development, or
- for the reintroduction of populations or recovery of the species or ecological community (Department of the Environment Heritage Water and the Arts 2009).

This species has not been recorded within the subject land to date. Given the small extent of assumed habitat mapped within the subject land, it is unlikely that any population occurring within this habitat may be important for facilitating population dispersal and contributing to genetic diversity and as the subject land is not under protection for conservation and likely to be suitable for future population recovery and reintroduction. Therefore, the project is unlikely to impact habitat critical to the survival of the species.

DISRUPT THE BREEDING CYCLE OF A POPULATION

Androcalva rosea has been observed flowering in August, November, January and February. Given that fire had occurred within 6-12 months prior to the location of this species at three of the four sites, it may be a fire ephemeral (that is it appears after fires) (Department of Climate Change Energy the Environment and Water 2023).

Given the extent and nature of impact to assumed habitat for this species, the disturbance is unlikely to result in direct disruptions to the ecological processes and functions important for the life cycle of the species.

MODIFY DESTROY, REMOVE, ISOLATE OR DECREASE THE AVAILABILITY OR QUALITY OF HABITAT TO THE EXTENT THAT THE SPECIES IS LIKELY TO DECLINE

The project is likely to result in the removal of 3.25 ha of assumed habitat for this species. Given the lack of records within the subject land and the small extent of habitat to be removed, it is considered unlikely that the project may modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline.

RESULT IN INVASIVE SPECIES THAT ARE HARMFUL TO A CRITICALLY ENDANGERED OR ENDANGERED SPECIES BECOMING ESTABLISHED IN THE ENDANGERED OR CRITICALLY ENDANGERED SPECIES' HABITAT

Mitigation measures are recommended in the BDAR to limit the spread of weeds, pathogens and disease. Given these measures, the project is unlikely to significantly contribute to the introduction or spread of invasive species not currently present in surrounding areas.

INTRODUCE DISEASE THAT MAY CAUSE THE SPECIES TO DECLINE, OR

There are no known diseases that are specific to *Androcalva rosea.*

Mitigation measures are recommended in the BDAR, such as weed and pest management plans, vegetation clearing protocols, installation vehicle wash stations and sediment and control measures. These will help to minimise the likelihood of introduction or spread of pathogens into the site. Consequently, the project is unlikely to introduce disease or pathogens that may contribute to the decline of the species.

INTERFERE WITH THE RECOVERY OF THE SPECIES

No Recovery plan has been prepared for this species at this stage. The approved conservation advice for the species outlines a number of local and regional priority research, recovery and threat abatement actions can be done to support the recovery of *Androcalva rosea.*

As the project involves removal of assumed habitat for the species, the project has potential to marginally interfere with the recovery of the species.

CONCLUSION

This species has not been recorded within the subject land, however some areas of the subject land were unable to be accessed for survey during preliminary assessments and in the absence of targeted survey, the project is likely to impact on 3.25 ha of assumed habitat for the species. The extent of habitat to be removed is extremely small in terms of potential habitat available in the locality and broader landscape and represents <0.1% of the total extent of occurrence for the species. Given the extent of habitat removal, it is unlikely to contain a population of significant size to be important in terms of genetic diversity or dispersal and would not represent habitat critical for survival. The project is unlikely to significantly reduce the area of occupancy for the species. The project is therefore unlikely to significantly impact *Androcalva rosea.*

NSW Assessment Bilateral requirements

For each of the EPBC Act listed threatened species and communities and migratory species likely to be impacted by the action the EIS must provide a separate:

DESCRIPTION OF THE HABITAT (INCLUDING IDENTIFICATION AND MAPPING OF SUITABLE BREEDING HABITAT, SUITABLE FORAGING HABITAT, IMPORTANT POPULATIONS AND HABITAT CRITICAL FOR SURVIVAL), WITH CONSIDERATION OF, AND REFERENCE TO, ANY RELEVANT COMMONWEALTH GUIDELINES AND POLICY STATEMENTS INCLUDING LISTING ADVICE, CONSERVATION ADVICE AND RECOVERY PLAN

A description of habitat for this species, important populations, habitat critical for survival and relevant Commonwealth documents are provided above, with a map showing the modelled distribution of the species provided in Figure C.5. A map showing the field verified locations of this species within the study area is provided in Figure 14.10 of the BDAR.

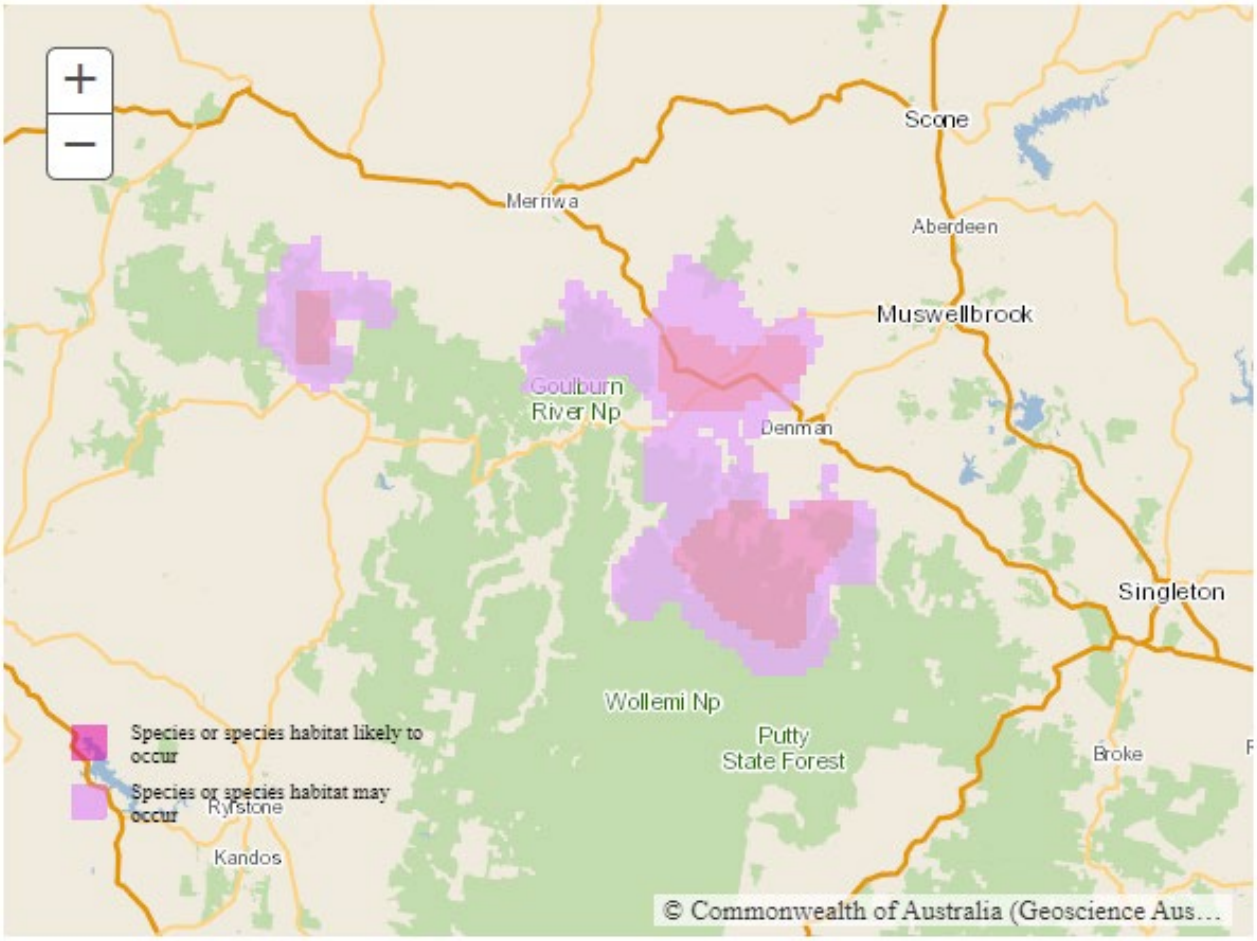

Figure C.5 Current distribution map for Androcalva rosea
(Department of Climate Change Energy the Environment and Water, 2023b)

DETAILS OF THE SCOPE, TIMING AND METHODOLOGY FOR STUDIES OR SURVEYS USED AND HOW THEY ARE CONSISTENT WITH (OR JUSTIFICATION FOR DIVERGENCE FROM) PUBLISHED AUSTRALIAN GOVERNMENT GUIDELINES AND POLICY STATEMENTS

Prior to surveys, a review of habitat constraints, geographic limitations and microhabitats for candidate threatened flora (species credit) species as listed within the NSW Threatened Biodiversity Data Collection (TBDC) was undertaken. A number of existing BDARs and other biodiversity reports were reviewed to obtain existing information on biodiversity in the locality with specific focus placed on areas assessed in previous BDARs that overlap with the Project.

Field survey techniques were used to undertake targeted seasonal surveys in general accordance with *Surveying threatened plants and their habitats; NSW guide for the Biodiversity Assessment Method* (Department of Planning Industry and Environment 2020):

- two-phase grid-based systematic survey
- parallel field traverses of microhabitats.

Further details of these surveys are provided in in Section 2.3 of the BDAR.

The field survey techniques used to undertake surveys were also in general accordance with the *NSW Biodiversity Assessment Method* (Department of Planning Industry and Environment 2020) with a detailed field verification method provided in Section 2.3 of the BDAR. Where a species could not be positively identified in the field and was suspected of being a threatened species, a voucher specimen was collected and preserved for later identification. These samples were sent to the Royal Botanic Gardens in Sydney and/or the Australian National Botanic Gardens for confirmation of identification.

DESCRIPTION OF THE SPECIFIC IMPACTS AND ITS REGARD TO THE FULL NATIONAL EXTENT OF THE SPECIES OR COMMUNITY'S RANGE

The direct impacts to this species include 3.25 ha of assumed habitat. Figure C.5 shows the current known generalised distribution. The estimated total extent of occurrence is estimated between 100 km^2 (Threatened Species Scientific Committee 2008) and 2000 km^2 (Department of the Environment 2014). The total removal of 3.25 ha of assumed habitat for this species (based on total vegetation removal), which would be <0.1% of the total extent of occurrence, based on this estimate.

DESCRIPTION OF THE SPECIFIC PROPOSED AVOIDANCE AND MITIGATION MEASURES TO DEAL WITH RELEVANT IMPACTS OF THE ACTION

The proposed avoidance and mitigation measures are outlined in Section 7 and section 8.3 of the BDAR. Regarding specific measures for *this species*, the following relevant mitigation measures are recommended for any related residual impacts:

- positioning of the impact area to minimise clearance of habitat
- establishment of no-go zones to protect mapped patches of habitat during construction.

IDENTIFICATION OF SIGNIFICANT RESIDUAL ADVERSE IMPACTS LIKELY TO OCCUR AFTER THE PROPOSED ACTIVITIES TO AVOID AND MITIGATE ALL IMPACTS ARE TAKEN INTO ACCOUNT

The residual direct impacts to *Androcalva rosea* include at least 3.25 ha of assumed habitat removal for this species.

A DESCRIPTION OF ANY OFFSETS PROPOSED TO ADDRESS RESIDUAL ADVERSE SIGNIFICANT IMPACTS AND HOW THESE OFFSETS WILL BE ESTABLISHED

Details of offset requirements and obligations for this community as a result of residual impacts due the project is addressed in Section 10 of the BDAR.

DETAILS OF HOW THE CURRENT PUBLISHED NSW BIODIVERSITY ASSESSMENT METHOD (BAM) HAS BEEN APPLIED IN ACCORDANCE WITH THE OBJECTS OF THE EPBC ACT TO OFFSET SIGNIFICANT RESIDUAL ADVERSE IMPACTS

The BDAR specifically addresses Section 10 of the BAM and provides information on the application of the no net loss standard and the project biodiversity offset obligations.

DETAILS OF THE OFFSET PACKAGE TO COMPENSATE FOR SIGNIFICANT RESIDUAL IMPACTS INCLUDING DETAILS OF THE CREDIT PROFILES REQUIRED TO OFFSET THE ACTION IN ACCORDANCE WITH THE BAM AND/OR MAPPING AND DESCRIPTIONS OF THE EXTENT AND CONDITION OF THE RELEVANT HABITAT AND/OR THREATENED COMMUNITIES OCCURRING ON PROPOSED OFFSET SITES

Section 11 of the BDAR outlines the biodiversity credit requirements for the project. The offset obligations will be met through implementing a combination of the following offset delivery options, being:

- the purchase and retirement of existing biodiversity credits currently available on the biodiversity credit register
- establishing a biodiversity stewardship site(s) on lands with like for like biodiversity values to those impacted by the project
- through making a payment into the Biodiversity Conservation Fund.

Dichanthium setosum

Dichanthium setosum is listed as Vulnerable under the EPBC Act.

Description

Dichanthium setosum, also known as Bluegrass, is an upright perennial grass less than 1 m tall. It has mostly hairless leaves about 2−3 mm wide. The flowers are densely hairy and clustered together along a stalk in a cylinder shape and appear mostly during summer. The species can form pure swards or occur as scattered clumps (Department of Planning Industry and Environment 2019).

The species is generally associated with heavy basaltic black soils and red-brown loams with clay subsoil. It is often found in moderately disturbed areas such as cleared woodland, grassy roadside remnants and highly disturbed pasture. (Often collected from disturbed open grassy woodlands on the northern tablelands, where the habitat has been variously grazed, nutrient-enriched and water-enriched). It is open to question whether the species tolerates or is promoted by a certain amount of disturbance, or whether this is indicative of the threatening processes behind its depleted habitat (Department of the Environment Water Heritage and the Arts 2008).

Distribution

Dichanthium setosum, occurs on the New England Tablelands, North West Slopes and Plains and the Central Western Slopes of NSW, extending to northern Queensland. It occurs widely on private property, including in the Inverell, Guyra, Armidale and Glen Innes areas (Department of Planning Industry and Environment 2019).

Relevant Commonwealth guidelines and policy statements including listing advice, conservation advice and recovery plan

A summary of the relevant Commonwealth guidelines and policy statements available for this species is as follows:

- Approved conservation advice: *Approved Conservation Advice for* Dichanthium setosum (Department of the Environment Water Heritage and the Arts 2008)
- Relevant listing advice: *Commonwealth Listing Advice on* Dichanthium setosum *(bluegrass)* (Threatened Species Scientific Committee 2012)
- There is no adopted or made Recovery Plan for this species.

Relevant threat abatement plans for this species includes:

- *Threat Abatement Plan for competition and land degradation by rabbits (2016)* (Department of Environment and Energy 2016)

Specific impacts

Within the subject land, *Dichanthium setosum* was recorded on grazing land at Leadville approximately 2.1 m north of the Golden Highway. Twenty plants were recorded in this location. The paddock was relatively heavily grazed at the time of survey so it is likely that this plant is more abundant than counted. The habitat was grazed grassland on rolling hills attributed to a derived grassland form of PCT 618 (White Box x Grey Box – Red Gum – Rough-barked Apple grassy woodland on rich soils on hills in the upper Hunter Valley).

During this survey *Dichanthium setosum* was also recorded to the west of Cainbil Creek at Leadville (at the edge of the study area) approximately 360 m north of the Golden Highway. The habitat was disturbed grassland at the edge of PCT281 (Rough-barked Apple – Red Gum – Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South western slopes Bioregion and Brigalow Belt South Bioregion) and PCT 618 (White Box x Grey Box – Red Gum – Rough-barked Apple grassy woodland on rich soils on hills in the upper Hunter Valley). Searches of the adjacent heavily grazed paddocks resulted in no *Dichanthium setosum* plants being found.

Other samples of *Dichanthium* sp. from the subject land have been sent to the Royal Botanic Gardens for confirmation of identification.

Some areas were unable to be accessed for survey during preliminary assessments. In the absence of targeted survey in these areas, associated PCTs have been assumed to be habitat for the species. In total the project is estimated to impact on 124.74 ha of assumed habitat for this species (total removal) in the form of the following PCTs:

- PCT 81 (Thinned, DNG)
- PCT 281 (Thinned, DNG and Moderate_Good)
- PCT 461 (Moderate_Good and DNG)

Is this part of an important population?

Under the Act, important populations are:

- likely to be key source populations either for breeding or dispersal
- likely to be necessary for maintaining genetic diversity
- at or near the limit of the species range.

Dichanthium setosum is known to occur primarily on the northern tablelands in the Saumarez area, west of Armidale, and 18-30 km east of Guyra. It is more rarely found on the north-western slopes, central western slopes and north-western plains of NSW, and is known to extend west to Narrabri in NSW (Department of the Environment Water Heritage and the Arts 2008). Given this, the records of the species within the subject land in the Leadville area would be at or near the western limit of the species range.

Population information is generally lacking for this species. Given the number of individuals recorded within the subject land, it is likely that recorded populations could be important for maintaining genetic diversity and facilitating dispersal.

Given these factors, and using a precautionary approach, the individuals recorded within the subject land are likely to form part of an important population.

Significant impact criteria

An action is likely to have a significant impact on a Vulnerable species if there is a real chance or possibility that it will:

LEAD TO A LONG-TERM DECREASE IN THE SIZE OF AN IMPORTANT POPULATION

Given the records occur near the western limit of the species range and the extent of the recorded presence and assumed habitat for *Dichanthium setosum* within the study area, it is likely to be necessary for maintaining genetic diversity or dispersal across the region and is assumed to form part of an important population. The project will directly impact on two recorded locally occurring populations and will impact up to 124.74 ha of assumed habitat for this species. Therefore, it is likely that the project will lead to a decrease in the size of an important population.

REDUCE THE AREA OF OCCUPANCY OF AN IMPORTANT POPULATION

The project will not reduce the area of occupancy for an important population. The modelled distribution of the species is provided in Figure C.6.

FRAGMENT AN EXISTING IMPORTANT POPULATION INTO TWO OR MORE POPULATIONS

Given the pollination and seed dispersal mechanisms of this species, the project will not result in fragmentation of an important population into two or more populations.

ADVERSELY AFFECT HABITAT CRITICAL TO THE SURVIVAL OF A SPECIES

No Critical Habitat as defined under section 207A of the EPBC Act has been identified for *Dichanthium setosum* or included in the Register of Critical Habitat (Department of Climate Change Energy the Environment and Water 2023). 'Habitat critical to the survival of a species or ecological community' refers to areas that are necessary:

- for activities such as foraging, breeding, roosting, or dispersal
- for the long-term maintenance of the species or ecological community (including the maintenance of species essential to the survival of the species or ecological community, such as pollinators)
- to maintain genetic diversity and long term evolutionary development, or
- for the reintroduction of populations or recovery of the species or ecological community (Department of the Environment Heritage Water and the Arts 2009)

There is a general paucity of information for this species in regard to population size and demographics. Given the location of the recorded populations at, or near the limit of the species range and the number of individuals recorded, it is possible that this habitat may be important for facilitating population dispersal and contributing to genetic diversity and species recovery. Therefore, the project may impact habitat critical to the survival of the species.

DISRUPT THE BREEDING CYCLE OF AN IMPORTANT POPULATION

Dichanthium setosum is a warm season perennial which commences growing in spring, flowers in summer and becomes dormant in late autumn. A fire frequency of greater than five years has been recommended for the species (Department of Climate Change Energy the Environment and Water 2023). The project is likely to result in direct impact to individuals occurring within the impact footprint which may have some impact on genetic diversity of local populations. However, the disturbance is unlikely to result in direct disruptions to the ecological processes and functions important for the life cycle of the species.

MODIFY, DESTROY, REMOVE OR ISOLATE OR DECREASE THE AVAILABILITY OR QUALITY OF HABITAT TO THE EXTENT THAT THE SPECIES IS LIKELY TO DECLINE

Assumed habitat impacts total 124.74 ha and given the disjunct nature of known patches and lack of targeted survey in these habitats; it is difficult to discern if such impacts will cause the species to decline in the broader landscape. Assumed habitat within the locality and IBRA subregions is extensive. The species is not restricted to the subject land and the majority of the assessed impact to this species is assumed habitat.

The project will not modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline.

RESULT IN INVASIVE SPECIES THAT ARE HARMFUL TO A VULNERABLE SPECIES BECOMING ESTABLISHED IN THE VULNERABLE SPECIES' HABITAT

Mitigation measures are recommended in the BDAR to limit the spread of weeds, pathogens and disease. Given these measures, the project is unlikely to significantly contribute to the introduction or spread of invasive species not currently present in surrounding areas.

INTRODUCE DISEASE THAT MAY CAUSE THE SPECIES TO DECLINE

There are no known diseases that are specific to *Dichanthium setosum.*

Mitigation measures are recommended in the BDAR, such as weed and pest management plans, vegetation clearing protocols, installation vehicle wash stations and sediment and control measures. These will help to minimise the likelihood of introduction or spread of pathogens into the site. Consequently, the project is unlikely to introduce disease or pathogens that may contribute to the decline of the species.

INTERFERE SUBSTANTIALLY WITH THE RECOVERY OF THE SPECIES

No Recovery plan has been prepared for this species at this stage. The approved conservation advice for the species outlines a number of local and regional priority recovery and threat abatement actions can be done to support the recovery of *Dichanthium setosum.*

As the project involves removal of individuals and assumed habitat for the species, the project is likely to interfere with the recovery of the species.

CONCLUSION

Little information is currently known about the size and distribution of existing populations of this species (Department of Climate Change Energy the Environment and Water 2023) however, considering the size and extent of recorded populations within the subject land and the location of individuals near the western extent of the species known range, the project is likely to impact on an important population of *Dichanthium setosum.*

Assumed habitat within the locality and IBRA subregions is extensive. The species is not restricted to the subject land and the majority of the assessed impact to this species is assumed habitat.

Based on the assessment completed above, there is no real chance or possibility that the project is likely to have a significant impact on *Dichanthium setosum*.

NSW Assessment Bilateral requirements

For each of the EPBC Act listed threatened species and communities and migratory species likely to be impacted by the action the EIS must provide a separate*:*

DESCRIPTION OF THE HABITAT (INCLUDING IDENTIFICATION AND MAPPING OF SUITABLE BREEDING HABITAT, SUITABLE FORAGING HABITAT, IMPORTANT POPULATIONS AND HABITAT CRITICAL FOR SURVIVAL), WITH CONSIDERATION OF, AND REFERENCE TO, ANY RELEVANT COMMONWEALTH GUIDELINES AND POLICY STATEMENTS INCLUDING LISTING ADVICE, CONSERVATION ADVICE AND RECOVERY PLAN

A description of habitat for this species, important populations, habitat critical for survival and relevant Commonwealth documents are provided above, with a map showing the modelled distribution of the species provided in Figure C.6. A map showing the field verified locations of this species within the study area is provided in Figure 14.10 of the BDAR.

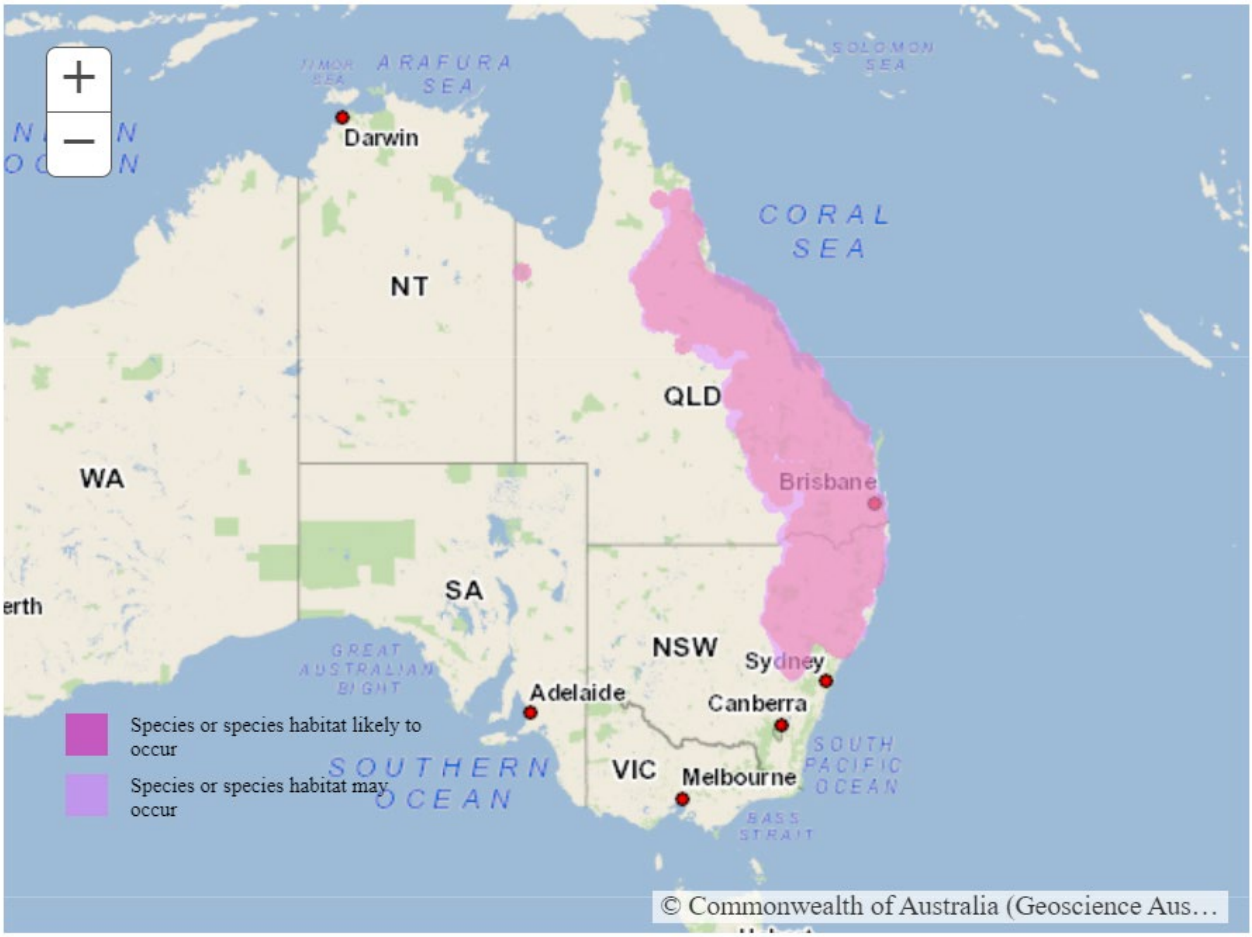

Figure C.6 Current distribution map for Dichanthium setosum
(Department of Climate Change Energy the Environment and Water, 2023h)

DETAILS OF THE SCOPE, TIMING AND METHODOLOGY FOR STUDIES OR SURVEYS USED AND HOW THEY ARE CONSISTENT WITH (OR JUSTIFICATION FOR DIVERGENCE FROM) PUBLISHED AUSTRALIAN GOVERNMENT GUIDELINES AND POLICY STATEMENTS

Prior to surveys, a review of habitat constraints, geographic limitations and microhabitats for candidate threatened flora (species credit) species as listed within the NSW Threatened Biodiversity Data Collection (TBDC) was undertaken. A number of existing BDARs and other biodiversity reports were reviewed to obtain existing information on biodiversity in the locality with specific focus placed on areas assessed in previous BDARs that overlap with the Project.

Field survey techniques were used to undertake targeted seasonal surveys in general accordance with *Surveying threatened plants and their habitats; NSW guide for the Biodiversity Assessment Method* (Department of Planning Industry and Environment 2020):

- two-phase grid-based systematic survey
- parallel field traverses of microhabitats.

Further details of these surveys are provided in in Section 2.3 of the BDAR.

The field survey techniques used to undertake surveys were also in general accordance with the *NSW Biodiversity Assessment Method* (Department of Planning Industry and Environment 2020) with a detailed field verification method provided in Section 2.3 of the BDAR. Where a species could not be positively identified in the field and was suspected of being a threatened species, a voucher specimen was collected and preserved for later identification. These samples were sent to the Royal Botanic Gardens in Sydney and/or the Australian National Botanic Gardens for confirmation of identification.

DESCRIPTION OF THE SPECIFIC IMPACTS AND ITS REGARD TO THE FULL NATIONAL EXTENT OF THE SPECIES OR COMMUNITY'S RANGE

The direct impacts to this species include impact to more than 20 recorded plants along with 124.74 ha of habitat for this species (total removal of vegetation). Figure C.6 shows the current known generalised distribution, with the estimated habitat extent unknown.

DESCRIPTION OF THE SPECIFIC PROPOSED AVOIDANCE AND MITIGATION MEASURES TO DEAL WITH RELEVANT IMPACTS OF THE ACTION

The proposed avoidance and mitigation measures are outlined in Section 7 and section 8.3 of the BDAR. Regarding specific measures for *this species*, the following relevant mitigation measures are recommended for any related residual impacts:

- positioning of the impact area to minimise clearance of habitat
- establishment of no-go zones to protect mapped patches of habitat during construction.

IDENTIFICATION OF SIGNIFICANT RESIDUAL ADVERSE IMPACTS LIKELY TO OCCUR AFTER THE PROPOSED ACTIVITIES TO AVOID AND MITIGATE ALL IMPACTS ARE TAKEN INTO ACCOUNT

The residual direct impacts to *Dichanthium setosum* include impact to more than 20 recorded plants along with at least 124.74 ha of assumed habitat removal for this species (total removal of vegetation).

A DESCRIPTION OF ANY OFFSETS PROPOSED TO ADDRESS RESIDUAL ADVERSE SIGNIFICANT IMPACTS AND HOW THESE OFFSETS WILL BE ESTABLISHED

Details of offset requirements and obligations for this community as a result of residual impacts due the project is addressed in Section 10 of the BDAR.

DETAILS OF HOW THE CURRENT PUBLISHED NSW BIODIVERSITY ASSESSMENT METHOD (BAM) HAS BEEN APPLIED IN ACCORDANCE WITH THE OBJECTS OF THE EPBC ACT TO OFFSET SIGNIFICANT RESIDUAL ADVERSE IMPACTS

The BDAR specifically addresses Section 10 of the BAM and provides information on the application of the no net loss standard and the project biodiversity offset obligations.

DETAILS OF THE OFFSET PACKAGE TO COMPENSATE FOR SIGNIFICANT RESIDUAL IMPACTS INCLUDING DETAILS OF THE CREDIT PROFILES REQUIRED TO OFFSET THE ACTION IN ACCORDANCE WITH THE BAM AND/OR MAPPING AND DESCRIPTIONS OF THE EXTENT AND CONDITION OF THE RELEVANT HABITAT AND/OR THREATENED COMMUNITIES OCCURRING ON PROPOSED OFFSET SITES

Section 11 of the BDAR outlines the biodiversity credit requirements for the project. The offset obligations will be met through implementing a combination of the following offset delivery options, being:

- the purchase and retirement of existing biodiversity credits currently available on the biodiversity credit register
- establishing a biodiversity stewardship site(s) on lands with like for like biodiversity values to those impacted by the project
- through making a payment into the Biodiversity Conservation Fund.

Euphrasia arguta

Euphrasia arguta is listed as Critically Endangered under the EPBC Act and the BC Act.

Description

Euphrasia arguta is an erect annual herb ranging in height from 20-35 cm. Collectively, the *Euphrasia* are commonly known as 'eyebrights'. Its branches are densely covered with stiff hairs and the leaf margins usually have 2-4 pairs of teeth. The flowers vary in colour from white to lilac with yellow, and are borne on flower spikes of 50 to 90 flowers (Department of Planning Industry and Environment 2020).

The *Euphrasia arguta* populations found in 2008 occur in eucalypt forest with a mixed grass and shrub understorey within Nundle State Forest. These sites have either been logged in the last few decades or appear to have regrown from past clearing. Historical information from *Euphrasia arguta* collections suggest the species could be found in 'open forest country around Bathurst in subhumid places', 'on the grassy country near Bathurst' or more generally, in grassy areas near rivers at elevations up to 700 m above sea level, with an annual rainfall of 600 mm (Department of Climate Change Energy the Environment and Water 2023).

Distribution

Euphrasia arguta had not been found since 1904 until its rediscovery in 2008. The species is now known from six sites up to 25 km apart in the area of Nundle State Forest, south east of Tamworth, NSW. All sites are in the Nandewar Bioregion (subregion 4) of northern New South Wales, in the south-east section of Namoi NRM region (Department of Sustainability Environment Water Population and Communities 2011).

Relevant Commonwealth guidelines and policy statements including listing advice, conservation advice and recovery plan

A summary of the relevant Commonwealth guidelines and policy statements available for this species is as follows:

- Approved conservation advice: *Approved Conservation Advice for Euphrasia arguta (a herb)* (Department of Sustainability Environment Water Population and Communities 2011)
- Relevant Listing advice: *Commonwealth Listing Advice on Euphrasia arguta* (Threatened Species Scientific Committee 2011)
- *Threat Abatement Plan for competition and land degradation by rabbits (2016)* (Department of Environment and Energy 2016).

Specific impacts

This species has not been recorded within the subject land during surveys to date. However, some areas of the subject land were unable to be accessed for survey during preliminary assessments. In the absence of targeted survey in these areas, associated PCTs have been assumed to be habitat for the species. In total the project is estimated to impact on 7.54 ha of assumed habitat in the form of the following PCTs:

- PCT 266 (Moderate-Good, Thinned, DNG)
- PCT 277 (Moderate-Good, Thinned, DNG)
- PCT 281 (Moderate-Good, Thinned, DNG)

Significant impact criteria

An action is likely to have a significant impact on a Critically Endangered species if there is a real chance or possibility that it will:

LEAD TO A LONG-TERM DECREASE IN THE SIZE OF A POPULATION

This species has not been recorded within the subject land to date, however given the total number and size of subpopulations within the locality is unknown, and the scale of assumed habitat impact to the species although considering the extent of assumed habitat within the subject land and within the broader locality (refer Figure 7) the project is unlikely to lead to a long-term decrease in the size of a local population.

REDUCE THE AREA OF OCCUPANCY OF THE SPECIES

As outlined in the listing advice for the species, the current estimated area of occupancy is very restricted. The total area of occupancy is estimated to be 20 km^2, based on a 2 x 2 km grid, the scale of assessment recommended by IUCN (2010) (Threatened Species Scientific Committee 2021). The species has not been recorded from the study area during surveys, however the project is likely to remove at least 7.54 ha of assumed habitat for this species and it is considered unlikely that the project would significantly reduce the area of known occupancy of the species.

FRAGMENT AN EXISTING POPULATION INTO TWO OR MORE POPULATIONS

This species has not been recorded within the study area to date. However, the project is likely to impact on up to 7.54 ha assumed habitat for this species. Impact to the assumed habitat within the study area is unlikely to result in fragmentation of a local population.

ADVERSELY EFFECT HABITAT CRITICAL TO THE SURVIVAL OF A SPECIES

No Critical Habitat as defined under section 207A of the EPBC Act has been identified for *Euphrasia arguta* or included in the Register of Critical Habitat (Department of Climate Change Energy the Environment and Water 2023). 'Habitat critical to the survival of a species or ecological community' refers to areas that are necessary:

- for activities such as foraging, breeding, roosting, or dispersal
- for the long-term maintenance of the species or ecological community (including the maintenance of species essential to the survival of the species or ecological community, such as pollinators)
- to maintain genetic diversity and long term evolutionary development, or
- for the reintroduction of populations or recovery of the species or ecological community (Department of the Environment Heritage Water and the Arts 2009).

This species has an extremely restricted distribution and is currently only known from six sites, up to 25 km apart, all of which are within the Nandewar bioregion. No individuals have been recorded from the subject land to date, however 7.54 ha of habitat has been assumed for the species in the absence of surveys. Considering the extent of assumed habitat within the subject land and within the broader locality (refer Figure 7), the project is considered unlikely to result in removal of habitat critical to the survival of the species.

DISRUPT THE BREEDING CYCLE OF A POPULATION

Euphrasia arguta flowers from January to April, although some flowering has been recorded in June and October. The species is recorded as dying off over winter, with most growth occurring in the January to April period. As an annual species, *Euphrasia arguta* may undergo fluctuations in population numbers at different sites based on seasonal environmental factors and levels of disturbance (Department of Climate Change Energy the Environment and Water 2023).

The project is likely to impact on up to 7.54 ha of assumed habitat for this species. However, the disturbance is unlikely to result in direct disruptions to the ecological processes and functions important for the life cycle of the species.

MODIFY DESTROY, REMOVE, ISOLATE OR DECREASE THE AVAILABILITY OR QUALITY OF HABITAT TO THE EXTENT THAT THE SPECIES IS LIKELY TO DECLINE

The project is likely to result in the removal of up to 7.54 ha of assumed habitat for this species. Given the lack of records and that the broader occurrence of the species within the locality is unknown, it is difficult to discern if such impacts will cause the species to decline in the broader landscape. Based on the large area of probable habitat for the species and lack of records in the locality the project is considered unlikely to modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline.

RESULT IN INVASIVE SPECIES THAT ARE HARMFUL TO A CRITICALLY ENDANGERED OR ENDANGERED SPECIES BECOMING ESTABLISHED IN THE ENDANGERED OR CRITICALLY ENDANGERED SPECIES' HABITAT

Mitigation measures are recommended in the BDAR to limit the spread of weeds, pathogens and disease. Given these measures, the project is unlikely to significantly contribute to the introduction or spread of invasive species not currently present in surrounding areas.

INTRODUCE DISEASE THAT MAY CAUSE THE SPECIES TO DECLINE, OR

There are no known diseases that are specific to *Euphrasia arguta.*

Mitigation measures are recommended in the BDAR, such as weed and pest management plans, vegetation clearing protocols, installation vehicle wash stations and sediment and control measures. These will help to minimise the likelihood of introduction or spread of pathogens into the site. Consequently, the project is unlikely to introduce disease or pathogens that may contribute to the decline of the species.

INTERFERE WITH THE RECOVERY OF THE SPECIES

No Recovery plan has been prepared for this species at this stage. The approved conservation advice for the species outlines a number of local and regional priority research, recovery and threat abatement actions can be done to support the recovery of *Euphrasia arguta.*

As the project involves removal of assumed habitat for the species, the project is unlikely to interfere with the recovery of the species.

CONCLUSION

This species has not been recorded within the subject land, however some areas of the subject land were unable to be accessed for survey during preliminary assessments and in the absence of targeted survey, the project is likely to impact on up to 7.54 ha of assumed habitat for this species. The species is not currently known to occur within the locality, with all known populations restricted to the Nandewar Bioregion (subregion 4) of northern New South Wales, in the south-east section of Namoi NRM region. Considering the extent of assumed habitat within the subject land and within the broader locality (refer Figure C.7) the project in unlikely to significantly impact *Euphrasia arguta.*

NSW Assessment Bilateral requirements

For each of the EPBC Act listed threatened species and communities and migratory species likely to be impacted by the action the EIS must provide a separate:

DESCRIPTION OF THE HABITAT (INCLUDING IDENTIFICATION AND MAPPING OF SUITABLE BREEDING HABITAT, SUITABLE FORAGING HABITAT, IMPORTANT POPULATIONS AND HABITAT CRITICAL FOR SURVIVAL), WITH CONSIDERATION OF, AND REFERENCE TO, ANY RELEVANT COMMONWEALTH GUIDELINES AND POLICY STATEMENTS INCLUDING LISTING ADVICE, CONSERVATION ADVICE AND RECOVERY PLAN

A description of habitat for this species, important populations, habitat critical for survival and relevant Commonwealth documents are provided above, with a map showing the modelled distribution of the species provided in Figure C.7. A map showing the field verified locations of this species within the study area is provided in Figure 14-10 Threatened ecological communities and ecological communities in the BDAR.

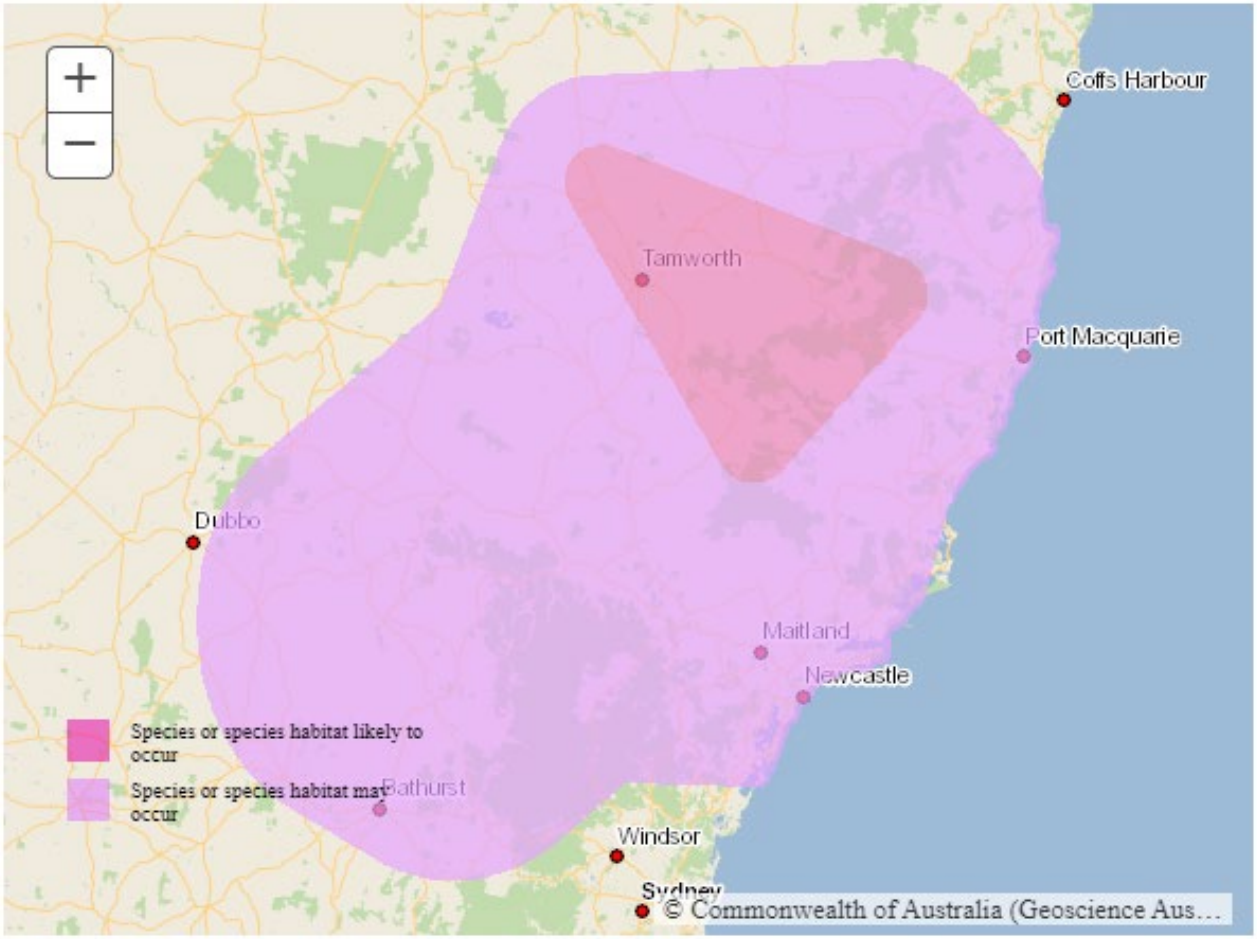

Figure C.7 Current distribution map for Euphrasia arguta (Department of Climate Change Energy the Environment and Water, 2023i).

DETAILS OF THE SCOPE, TIMING AND METHODOLOGY FOR STUDIES OR SURVEYS USED AND HOW THEY ARE CONSISTENT WITH (OR JUSTIFICATION FOR DIVERGENCE FROM) PUBLISHED AUSTRALIAN GOVERNMENT GUIDELINES AND POLICY STATEMENTS

Prior to surveys, a review of habitat constraints, geographic limitations and microhabitats for candidate threatened flora (species credit) species as listed within the NSW Threatened Biodiversity Data Collection (TBDC) was undertaken. A number of existing BDARs and other biodiversity reports were reviewed to obtain existing information on biodiversity in the locality with specific focus placed on areas assessed in previous BDARs that overlap with the project.

Field survey techniques were used to undertake targeted seasonal surveys in general accordance with *Surveying threatened plants and their habitats; NSW guide for the Biodiversity Assessment Method* (Department of Planning Industry and Environment 2020):

- two-phase grid-based systematic survey
- parallel field traverses of microhabitats.

Further details of these surveys are provided in in Section 2.3 of the BDAR.

The field survey techniques used to undertake surveys were also in general accordance with the *NSW Biodiversity Assessment Method* (Department of Planning Industry and Environment 2020) with a detailed field verification method provided in Section 2.3 of the BDAR. Where a species could not be positively identified in the field and was suspected of being a threatened species, a voucher specimen was collected and preserved for later identification. These samples were sent to the Royal Botanic Gardens in Sydney and/or the Australian National Botanic Gardens for confirmation of identification.

DESCRIPTION OF THE SPECIFIC IMPACTS AND ITS REGARD TO THE FULL NATIONAL EXTENT OF THE SPECIES OR COMMUNITY'S RANGE

The direct impacts to this species include impact on 7.54 ha. Figure C.7 shows the current known generalised distribution. The total extent of occurrence of the species is estimated to be approximately 40 km^2 (measured using a minimum convex polygon covering the known distribution) (Threatened Species Scientific Committee 2021).

DESCRIPTION OF THE SPECIFIC PROPOSED AVOIDANCE AND MITIGATION MEASURES TO DEAL WITH RELEVANT IMPACTS OF THE ACTION

The proposed avoidance and mitigation measures are outlined in Section 7 and section 8.3 of the BDAR. Regarding specific measures for *this species*, the following relevant mitigation measures are recommended for any related residual impacts:

- positioning of the impact area to minimise clearance of habitat
- establishment of no-go zones to protect mapped patches of habitat during construction.

IDENTIFICATION OF SIGNIFICANT RESIDUAL ADVERSE IMPACTS LIKELY TO OCCUR AFTER THE PROPOSED ACTIVITIES TO AVOID AND MITIGATE ALL IMPACTS ARE TAKEN INTO ACCOUNT

The residual direct impacts to *Euphrasia arguta* include at least 7.54 ha of assumed habitat removal for this species (total removal of vegetation).

A DESCRIPTION OF ANY OFFSETS PROPOSED TO ADDRESS RESIDUAL ADVERSE SIGNIFICANT IMPACTS AND HOW THESE OFFSETS WILL BE ESTABLISHED

Details of offset requirements and obligations for this community as a result of residual impacts due the project is addressed in Section 10 of the BDAR.

DETAILS OF HOW THE CURRENT PUBLISHED NSW BIODIVERSITY ASSESSMENT METHOD (BAM) HAS BEEN APPLIED IN ACCORDANCE WITH THE OBJECTS OF THE EPBC ACT TO OFFSET SIGNIFICANT RESIDUAL ADVERSE IMPACTS

The BDAR specifically addresses Section 10 of the BAM and provides information on the application of the no net loss standard and the project biodiversity offset obligations.

DETAILS OF THE OFFSET PACKAGE TO COMPENSATE FOR SIGNIFICANT RESIDUAL IMPACTS INCLUDING DETAILS OF THE CREDIT PROFILES REQUIRED TO OFFSET THE ACTION IN ACCORDANCE WITH THE BAM AND/OR MAPPING AND DESCRIPTIONS OF THE EXTENT AND CONDITION OF THE RELEVANT HABITAT AND/OR THREATENED COMMUNITIES OCCURRING ON PROPOSED OFFSET SITES

Section 11 of the BDAR outlines the biodiversity credit requirements for the project. The offset obligations will be met through implementing a combination of the following offset delivery options, being:

- the purchase and retirement of existing biodiversity credits currently available on the biodiversity credit register
- establishing a biodiversity stewardship site(s) on lands with like for like biodiversity values to those impacted by the project.
- through making a payment into the Biodiversity Conservation Fund.

Homoranthus darwinioides

Homoranthus darwinioides listed as Vulnerable under the EPBC Act and the BC Act.

Description

Homoranthus darwinioides, commonly known as Fairy Bells is a Slender hairless shrub, characterised by its distinctive drooping flower heads, each consisting of two flowers on a stalk. Leaves are linear, cylindrical, 2-5 mm long in some populations, 6-11 mm long in others. Forms small shrubs or shrublets, often in tangled masses. It has a localised distribution and may be the dominant undershrub at some sites. Its abundance in populations ranges from rare (only one plant at site) to locally very abundant (Department of Planning and Environment 2022).

Homoranthus darwinioides occurs in thin sandy soil on sandstone outcrops and sloping ridges. Vegetation associations include Eucalyptus-Callitris woodland, consisting of *Eucalyptus crebra, E. fibrosa, E. trachyphloia, E. beyeri* subsp. *illaquens, E. dwyeri, E. rossii, Leptospermum divaricatum, Melaleuca uncinata, Calytrix tetragona, Allocasuarina* spp., *Micromyrtus* spp., and *Acacia* spp. This species occurs within the Central West and Hunter–Central Rivers (NSW) Natural Resource Management Regions (Department of Environment Water Heritage and the Arts 2008).

Distribution

Homoranthus darwinioides occurs rarely in the central tablelands and western slopes of NSW, occurring from Putty to the Dubbo district. Several populations occur in Goulburn River National Park and two populations in Goonoo State Forest. It is found west of Muswellbrook between Merriwa and Bylong, and north of Muswellbrook to Goonoo SCA. The species has been collected from Lee's Pinch, but not relocated at its original locality north of Mt Coricudgy above the headwaters of Widden Brook (Department of Environment Water Heritage and the Arts 2008, Department of Planning and Environment 2022).

Relevant Commonwealth guidelines and policy statements including listing advice, conservation advice and recovery plan

A summary of the relevant Commonwealth guidelines and policy statements available for this species is as follows:

- Approved conservation advice: *Approved Conservation Advice for Homoranthus darwinioides* (Department of Environment Water Heritage and the Arts 2008)
- There is no listing advice available for this species. Listing assessment information may be available in the approved Conservation Advice
- *Threat Abatement Plan for competition and land degradation by rabbits* (2016) (Department of Environment and Energy 2016).

Specific impacts

This species has not been recorded within the subject land during surveys to date. However, some areas of the subject land were unable to be accessed for survey during preliminary assessments. In the absence of targeted survey in these areas, associated PCTs have been assumed to be habitat for the species. In total the project is estimated to impact on 9.39 ha of assumed habitat for this species (total removal) in the form of the following PCTs:

- PCT 599 (Moderate-Good)
- PCT 1674 (Moderate-Good)

Is this part of an important population?

Under the Act, important populations are:

- likely to be key source populations either for breeding or dispersal
- likely to be necessary for maintaining genetic diversity
- at or near the limit of the species range.

Homoranthus darwinioides has not been recorded within the subject land. However, some areas of the subject land were unable to be accessed for survey during preliminary assessments and in the absence of targeted survey, the project is likely to impact on up to 9.39 ha of assumed habitat for this species.

Given the small extent of the assumed habitat to be impacted, it is unlikely that any population occurring within the subject land would be of significant size to be important in maintaining genetic diversity or be a key source population for dispersal. *Homoranthus darwinioides* is known to occur in Goulburn River National Park and the mapped habitat for the species would be within the known range, as mapped by the Commonwealth Species Profile and Threats (SPRAT) Database (Department of Climate Change Energy the Environment and Water 2023). It is therefore unlikely that individuals occurring within the subject land, if present, would form part of an important population based on significance of size distribution or genetics. However, given the paucity of information regarding population size and dynamics, and taking a precautionary approach, a potential population occurring in the subject land is assumed to be part of an important population.

Significant impact criteria

An action is likely to have a significant impact on a Vulnerable species if there is a real chance or possibility that it will:

LEAD TO A LONG-TERM DECREASE IN THE SIZE OF AN IMPORTANT POPULATION

Given the small extent of assumed habitat for *Homoranthus darwinioides* within the impact area, potentially occurring populations are unlikely to be of sufficiently large size to be necessary for maintaining genetic diversity or dispersal across the region. Given the lack of records for the species to date, and the small amount of habitat to be removed, the project is unlikely to lead to a long-term decrease in the size of an important population.

REDUCE THE AREA OF OCCUPANCY OF AN IMPORTANT POPULATION

The project is likely to impact on up to 9.39 ha of assumed habitat for this species. If present within the subject land, individuals may form part of an important population. The project may reduce the area of occupancy for an important population.

FRAGMENT AN EXISTING IMPORTANT POPULATION INTO TWO OR MORE POPULATIONS

This species has not been recorded within the study area to date. However, the project is likely to impact on up to 9.39 ha of assumed habitat for this species, which is also mapped either side of the study area. If a local population occurs within the study area, the project may result in fragmentation of an important population.

ADVERSELY AFFECT HABITAT CRITICAL TO THE SURVIVAL OF A SPECIES

No Critical Habitat as defined under section 207A of the EPBC Act has been identified for *Homoranthus darwinioides* or included in the Register of Critical Habitat (Department of Climate Change Energy the Environment and Water 2023). 'Habitat critical to the survival of a species or ecological community' refers to areas that are necessary:

- for activities such as foraging, breeding, roosting, or dispersal
- for the long-term maintenance of the species or ecological community (including the maintenance of species essential to the survival of the species or ecological community, such as pollinators)
- to maintain genetic diversity and long term evolutionary development, or
- for the reintroduction of populations or recovery of the species or ecological community (Department of the Environment Heritage Water and the Arts 2009).

There is a general paucity of information for this species in regard to population size and demographics. Given the small extent of assumed habitat mapped within the subject land, it is unlikely that any population occurring within this habitat may be important for facilitating population dispersal and contributing to genetic diversity and species recovery. Therefore, the project is unlikely to impact habitat critical to the survival of the species.

DISRUPT THE BREEDING CYCLE OF AN IMPORTANT POPULATION

Homoranthus darwinioides flowers from March to December (Department of Planning and Environment 2022). Little information is available about the species' life cycle and ecology.

Given the small extent of assumed impact and nature of impact, the project is generally unlikely to result in direct disruptions to the ecological processes and functions important for the life cycle of this species.

MODIFY, DESTROY, REMOVE OR ISOLATE OR DECREASE THE AVAILABILITY OR QUALITY OF HABITAT TO THE EXTENT THAT THE SPECIES IS LIKELY TO DECLINE

Assumed habitat impacts total 9.39 ha and given the disjunct nature of known patches and lack of targeted survey in these habitats; it is difficult to discern if such impacts will cause the species to decline in the broader landscape.

Given the small extent of impact and lack of records or known occurrence, it is considered unlikely that the project may modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline.

RESULT IN INVASIVE SPECIES THAT ARE HARMFUL TO A VULNERABLE SPECIES BECOMING ESTABLISHED IN THE VULNERABLE SPECIES' HABITAT

Mitigation measures are recommended in the BDAR to limit the spread of weeds, pathogens and disease. Given these measures, the project is unlikely to significantly contribute to the introduction or spread of invasive species not currently present in surrounding areas.

INTRODUCE DISEASE THAT MAY CAUSE THE SPECIES TO DECLINE

There are no known diseases that are specific to *Homoranthus darwinioides.*

Mitigation measures are recommended in the BDAR, such as weed and pest management plans, vegetation clearing protocols, installation vehicle wash stations and sediment and control measures. These will help to minimise the likelihood of introduction or spread of pathogens into the site. Consequently, the project is unlikely to introduce disease or pathogens that may contribute to the decline of the species.

INTERFERE SUBSTANTIALLY WITH THE RECOVERY OF THE SPECIES

No Recovery plan has been prepared for this species at this stage. The approved conservation advice for the species outlines a number of local and regional priority research, recovery and threat abatement actions can be done to support the recovery of *Homoranthus darwinioides.* As the project involves removal of assumed habitat for the species, the project has potential to marginally interfere with the recovery of the species.

CONCLUSION

This species has not been recorded within the subject land, however some areas of the subject land were unable to be accessed for survey during preliminary assessments and in the absence of targeted survey, the project is likely to impact on up to 9.39 ha of assumed habitat for this species. The extent of assumed habitat to be removed for the project is small in comparison to the total extent of the species, does not represent habitat critical for survival and is unlikely to contain a population that is significant in terms of distribution or genetic viability. The project boundary has also been positioned to avoid known populations of this species at Cobbora, NSW. Consequently, the project is unlikely to significantly impact *Homoranthus darwinioides.*

NSW Assessment Bilateral requirements

For each of the EPBC Act listed threatened species and communities and migratory species likely to be impacted by the action the EIS must provide a separate*:*

DESCRIPTION OF THE HABITAT (INCLUDING IDENTIFICATION AND MAPPING OF SUITABLE BREEDING HABITAT, SUITABLE FORAGING HABITAT, IMPORTANT POPULATIONS AND HABITAT CRITICAL FOR SURVIVAL), WITH CONSIDERATION OF, AND REFERENCE TO, ANY RELEVANT COMMONWEALTH GUIDELINES AND POLICY STATEMENTS INCLUDING LISTING ADVICE, CONSERVATION ADVICE AND RECOVERY PLAN

A description of habitat for this species, important populations, habitat critical for survival and relevant Commonwealth documents are provided above, with a map showing the modelled distribution of the species provided in Figure C.8. A map showing the field verified locations of this species within the study area is provided in Figure 14.10 of the BDAR.

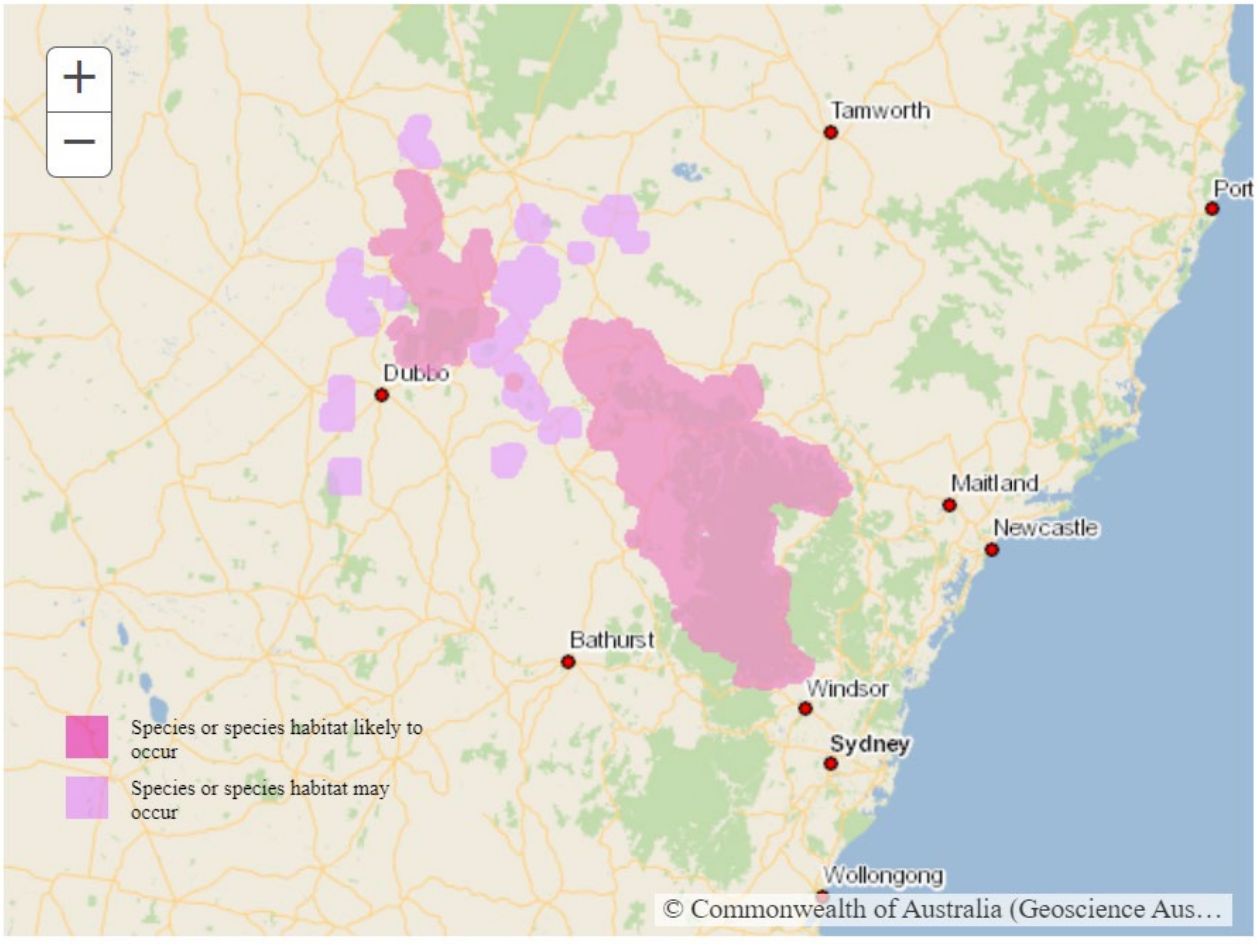

Figure C.8 Current distribution map for Homoranthus darwinioides (Department of Climate Change Energy the Environment and Water, 2023k)

DETAILS OF THE SCOPE, TIMING AND METHODOLOGY FOR STUDIES OR SURVEYS USED AND HOW THEY ARE CONSISTENT WITH (OR JUSTIFICATION FOR DIVERGENCE FROM) PUBLISHED AUSTRALIAN GOVERNMENT GUIDELINES AND POLICY STATEMENTS

Prior to surveys, a review of habitat constraints, geographic limitations and microhabitats for candidate threatened flora (species credit) species as listed within the NSW Threatened Biodiversity Data Collection (TBDC) was undertaken. A number of existing BDARs and other biodiversity reports were reviewed to obtain existing information on biodiversity in the locality with specific focus placed on areas assessed in previous BDARs that overlap with the Project.

Field survey techniques were used to undertake targeted seasonal surveys in general accordance with *Surveying threatened plants and their habitats; NSW guide for the Biodiversity Assessment Method* (Department of Planning Industry and Environment 2020):

- two-phase grid-based systematic survey
- parallel field traverses of microhabitats.

Further details of these surveys are provided in in Section 2.3 of the BDAR.

The field survey techniques used to undertake surveys were also in general accordance with the *NSW Biodiversity Assessment Method* (Department of Planning Industry and Environment 2020) with a detailed field verification method provided in Section 2.3 of the BDAR. Where a species could not be positively identified in the field and was suspected of being a threatened species, a voucher specimen was collected and preserved for later identification. These samples were sent to the Royal Botanic Gardens in Sydney and/or the Australian National Botanic Gardens for confirmation of identification.

DESCRIPTION OF THE SPECIFIC IMPACTS AND ITS REGARD TO THE FULL NATIONAL EXTENT OF THE SPECIES OR COMMUNITY'S RANGE

The direct impacts to this species include impact on 10.1 ha of assumed habitat for this species. Figure C.8 shows the current known generalised distribution with the current extent of occurrence unknown.

DESCRIPTION OF THE SPECIFIC PROPOSED AVOIDANCE AND MITIGATION MEASURES TO DEAL WITH RELEVANT IMPACTS OF THE ACTION

The proposed avoidance and mitigation measures are outlined in Section 7 and section 8.3 of the BDAR. Regarding specific measures for *this species*, the following relevant mitigation measures are recommended for any related residual impacts:

- positioning of the impact area to avoid known populations of *Homoranthus darwinioides* at Cobbora
- establishment of no-go zones to protect mapped patches of habitat during construction.

IDENTIFICATION OF SIGNIFICANT RESIDUAL ADVERSE IMPACTS LIKELY TO OCCUR AFTER THE PROPOSED ACTIVITIES TO AVOID AND MITIGATE ALL IMPACTS ARE TAKEN INTO ACCOUNT

The residual direct impacts to *Homoranthus darwinioides* include at least 9.39 ha of assumed habitat for this species.

A DESCRIPTION OF ANY OFFSETS PROPOSED TO ADDRESS RESIDUAL ADVERSE SIGNIFICANT IMPACTS AND HOW THESE OFFSETS WILL BE ESTABLISHED

Details of offset requirements and obligations for this community as a result of residual impacts due the project is addressed in Section 10 of the BDAR.

DETAILS OF HOW THE CURRENT PUBLISHED NSW BIODIVERSITY ASSESSMENT METHOD (BAM) HAS BEEN APPLIED IN ACCORDANCE WITH THE OBJECTS OF THE EPBC ACT TO OFFSET SIGNIFICANT RESIDUAL ADVERSE IMPACTS

The BDAR specifically addresses Section 10 of the BAM and provides information on the application of the no net loss standard and the project biodiversity offset obligations.

DETAILS OF THE OFFSET PACKAGE TO COMPENSATE FOR SIGNIFICANT RESIDUAL IMPACTS INCLUDING DETAILS OF THE CREDIT PROFILES REQUIRED TO OFFSET THE ACTION IN ACCORDANCE WITH THE BAM AND/OR MAPPING AND DESCRIPTIONS OF THE EXTENT AND CONDITION OF THE RELEVANT HABITAT AND/OR THREATENED COMMUNITIES OCCURRING ON PROPOSED OFFSET SITES

Section 11 of the BDAR outlines the biodiversity credit requirements for the project. The offset obligations will be met through implementing a combination of the following offset delivery options, being:

- the purchase and retirement of existing biodiversity credits currently available on the biodiversity credit register
- establishing a biodiversity stewardship site(s) on lands with like for like biodiversity values to those impacted by the project
- through making a payment into the Biodiversity Conservation Fund.

Leucochrysum albicans var. tricolor

Leucochrysum albicans var. *tricolor* is listed as Endangered under the EPBC Act and the BC Act.

Description

Leucochrysum albicans var. *tricolor* is a perennial everlasting daisy with stems 10–15 cm tall, narrow leaves 2–10 cm long, covered in white cottony hairs and yellowish flowerheads are 2–5 cm in diameter, surrounded by numerous papery, white, overlapping ovate-oblong bracts, with the outer layers tinged red, pink, purple or brown. Fruits are brown, ovoid, 2–3 mm long, with 14–20 pappus bristles. *Leucochrysum albicans* subsp. *tricolor* is distinguished from the other subspecies within *L. albicans* by its white involucral bracts and narrow, linear-oblanceolate leaves. In rare instances, populations typical of subsp. *tricolor* apparently intergrade with the yellow-flowered *L. albicans* subsp. *albicans* (Department of Planning and Environment 2023).

The species occurs in a wide variety of grassland, woodland and forest habitats, generally on relatively heavy soils and can occur in modified habitats such as semi-urban areas and roadsides. *Leucochrysum albicans* var. *tricolor* is highly dependent on the presence of bare ground for germination. In some areas, disturbance is also required for successful establishment (Department of Planning and Environment 2023).

Distribution

The Hoary Sunray occurs from Queensland to Victoria and in Tasmania. Records from Queensland are historic, and the species most current northern occurrence is Goulburn, NSW. In NSW and ACT, the species occurs at relatively high elevations in woodland and open forest communities, in an area roughly bounded by Goulburn, Albury and Bega. The species has been recorded in the Yass Valley, Tumut, Upper Lachlan, Snowy River and Galong and is known from the South Eastern Highlands, Australian Alps and Sydney Basin bioregions (Department of Climate Change Energy the Environment and Water 2023).

Relevant Commonwealth guidelines and policy statements including listing advice, conservation advice and recovery plan

A summary of the relevant Commonwealth guidelines and policy statements available for this species is as follows:

- Approved conservation advice: *Conservation Advice for Leucochrysum albicans subsp. tricolor (Hoary Sunray).* (Department of Agriculture Water and the Environment 2021)
- There is no relevant Listing advice for this species. Listing assessment information may be available in the approved Conservation Advice
- Recovery plan: *National Recovery Plan for the Hoary Sunray Leucochrysum albicans var. tricolor* (Sinclair 2010)
- No Threat Abatement Plan has been identified as being relevant for this species.

Specific impacts

Within the subject land, *Leucochrysum albicans* subsp. *tricolor* was recorded at a known site (present on BioNet) at Cope in two different habitat types. The first habitat type was an open forest dominated by *Angophora floribunda, Eucalyptus melliodora, Eucalyptus bridgesiana,* and *Callitris endlicheri* on sandy flats and the second habitat type was *Eucalyptus dealbata* and *Callitris endlicheri* forest on Ulan Quartz Monzonite.

There were 87 *Leucochrysum albicans* subsp. *tricolor* plants recorded during the survey. The location of the *Leucochrysum albicans* subsp. *tricolor* plants is shown in mapped in Figure 14-10 Threatened ecological communities and ecological communities in the BDAR

During the survey there were observations of *Leucochrysum albicans* subsp. *tricolor* plants made while commuting to the subject land. *Leucochrysum albicans* subsp. *tricolor* plants were observed on the edge of Barneys Reef Road and Castlereagh Highway at Gulgong.

The project is likely to directly impact on 1.31 ha of known (occupied) habitat for the species in the form of the following PCTs:

- PCT 461 (Moderate-Good and Thinned)
- PCT 481 (Thinned)
- Miscellaneous ecosystems.

The project would also result in the removal of 5 individuals within this habitat.

Significant impact criteria

An action is likely to have a significant impact on an Endangered species if there is a real chance or possibility that it will:

LEAD TO A LONG-TERM DECREASE IN THE SIZE OF A POPULATION

The project is likely to result in the removal of 5 recorded plants within the study area being <1 ha of known (occupied) habitat for the species. The total number and size of subpopulations within the locality is unknown, however given the scale of known and potential impact to the species, and taking a precautionary approach, it is possible that the project would lead to a long-term decrease in the size of a local population.

REDUCE THE AREA OF OCCUPANCY OF THE SPECIES

As outlined in the conservation advice for the species, the current estimated area of occupancy is 1376 km^2 (using records from 20 years of data, 2000 to 2020) (Department of Agriculture Water and the Environment 2021). The project is likely to remove 5 plants being <1 ha of occupied habitat for the species, which is 0.1% of the total area of occupancy of the species, based on this estimate.

FRAGMENT AN EXISTING POPULATION INTO TWO OR MORE POPULATIONS

Recorded individuals occurring within the study area occur at the edge of the proposed impact area, so removal of these plants and habitat would not result in fragmentation to a larger population. However, the project will result in removal of individuals and a small, incremental loss of habitat for the species within the locality.

ADVERSELY EFFECT HABITAT CRITICAL TO THE SURVIVAL OF A SPECIES

No Critical Habitat as defined under section 207A of the EPBC Act has been identified for *Leucochrysum albicans* subsp. *tricolor* or included in the Register of Critical Habitat.

According to the *National Recovery Plan for the Hoary Sunray* Leucochrysum albicans *var.* tricolor (Sinclair 2010), habitat critical to the survival of Hoary Sunray likely includes suitable native grassland and grassy woodland habitat occupied by Hoary Sunray in Vic, Tas and NSW/ACT. In NSW and ACT, habitat critical to the survival of Hoary Sunray includes Natural Temperate Grassland of the South Eastern Highlands and White Box–Yellow Box–Blakely's Red Gum Grassy Woodlands and Derived Native Grasslands.

Within the range of Hoary Sunray, these habitats are likely necessary for dispersal activities, the maintenance of genetic diversity and the long-term evolutionary trajectory of Hoary Sunray. (Sinclair 2010).

The project is likely to result in the removal of up to 287.45 ha of EPBC-listed White Box–Yellow Box–Blakely's Red Gum Grassy Woodlands and Derived Native Grasslands in the form of PCTs 266, 277, 281, 483 and 618. While the Box Gum Woodland community is listed as a known habitat type for this species, none of the Box Gum Woodland PCTs within the study area are listed as associated PCTs for *Leucochrysum albicans* var. *tricolor* in the Bionet database (Department of Planning and Environment 2023). Notwithstanding this and given the small scale of habitat impact the project is considered unlikely to result in removal of habitat critical to the survival of the species.

DISRUPT THE BREEDING CYCLE OF A POPULATION

Leucochrysum albicans subsp. *tricolor* is reliant on cross-pollination by Hymenoptera and Diptera. When pollinated, it produces many small, wind-blown seeds that generally have high seed viability and germinate quickly. Seeds are thought to be short-lived in the soil seed bank, although germination from soil cores has been observed, suggesting they may be capable of surviving at least for short periods of time. Germination usually occurs in June – July. Adult plants usually resprout following fire (Department of Agriculture Water and the Environment 2021).

The project is likely to result in direct impact to individuals occurring within the impact footprint which may have some impact on genetic diversity of local populations. However, the disturbance is unlikely to result in direct disruptions to the ecological processes and functions important for the life cycle of the species.

MODIFY DESTROY, REMOVE, ISOLATE OR DECREASE THE AVAILABILITY OR QUALITY OF HABITAT TO THE EXTENT THAT THE SPECIES IS LIKELY TO DECLINE

The project is likely to result in the removal of up to 5 recorded plants within the study being <1 ha of known (occupied) habitat for the species. The broader occurrence of the species within the locality is unknown although numerous sightings of the species were observed flowering during field surveys in the locality, and as such the small nature of impact as a result of the project is considered unlikely that it will cause the species to decline in the broader landscape.

The project is considered unlikely to modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline.

RESULT IN INVASIVE SPECIES THAT ARE HARMFUL TO A CRITICALLY ENDANGERED OR ENDANGERED SPECIES BECOMING ESTABLISHED IN THE ENDANGERED OR CRITICALLY ENDANGERED SPECIES' HABITAT

Mitigation measures are recommended in the BDAR to limit the spread of weeds, pathogens and disease. Given these measures, the project is unlikely to significantly contribute to the introduction or spread of invasive species not currently present in surrounding areas.

INTRODUCE DISEASE THAT MAY CAUSE THE SPECIES TO DECLINE, OR

There are no known diseases that are specific to *Leucochrysum albicans* subsp. *tricolor.*

Mitigation measures are recommended in the BDAR, such as weed and pest management plans, vegetation clearing protocols, installation vehicle wash stations and sediment and control measures. These will help to minimise the likelihood of introduction or spread of pathogens into the site. Consequently, the project is unlikely to introduce disease or pathogens that may contribute to the decline of the species.

INTERFERE WITH THE RECOVERY OF THE SPECIES

The *National Recovery Plan for the Hoary Sunray Leucochrysum albicans var. tricolor* (Sinclair 2010) identifies a number of key objectives for recovery of the species including:

- Determine distribution, abundance and population structure
- Determine habitat requirements
- Ensure that key populations and their habitat are protected, monitored and managed appropriately
- Manage threats to populations
- Identify key biological characteristics
- Determine growth rates and viability of populations
- Build community support for conservation.

The project will interfere with recovery objective three, as the project will result in removal of individuals and habitat. Therefore, the project is likely to interfere with the recovery of the species.

CONCLUSION

While the project will directly impact on only a small proportion of the total area of occupancy and extent of occurrence of the species, the removal of habitat and individuals is considered unlikely to contribute to the long-term decrease of a local population and interfere with the recovery of the species. Therefore, the project is considered unlikely to significantly impact *Leucochrysum albicans* subsp. *tricolor.*

NSW Assessment Bilateral requirements

For each of the EPBC Act listed threatened species and communities and migratory species likely to be impacted by the action the EIS must provide a separate*:*

DESCRIPTION OF THE HABITAT (INCLUDING IDENTIFICATION AND MAPPING OF SUITABLE BREEDING HABITAT, SUITABLE FORAGING HABITAT, IMPORTANT POPULATIONS AND HABITAT CRITICAL FOR SURVIVAL), WITH CONSIDERATION OF, AND REFERENCE TO, ANY RELEVANT COMMONWEALTH GUIDELINES AND POLICY STATEMENTS INCLUDING LISTING ADVICE, CONSERVATION ADVICE AND RECOVERY PLAN

A description of habitat for this species, important populations, habitat critical for survival and relevant Commonwealth documents are provided above, with a map showing the modelled distribution of the species provided in Figure C.9. A map showing the field verified locations of this species within the study area is provided in mapped in Figure 14-10 Threatened ecological communities and ecological communities in the BDAR.

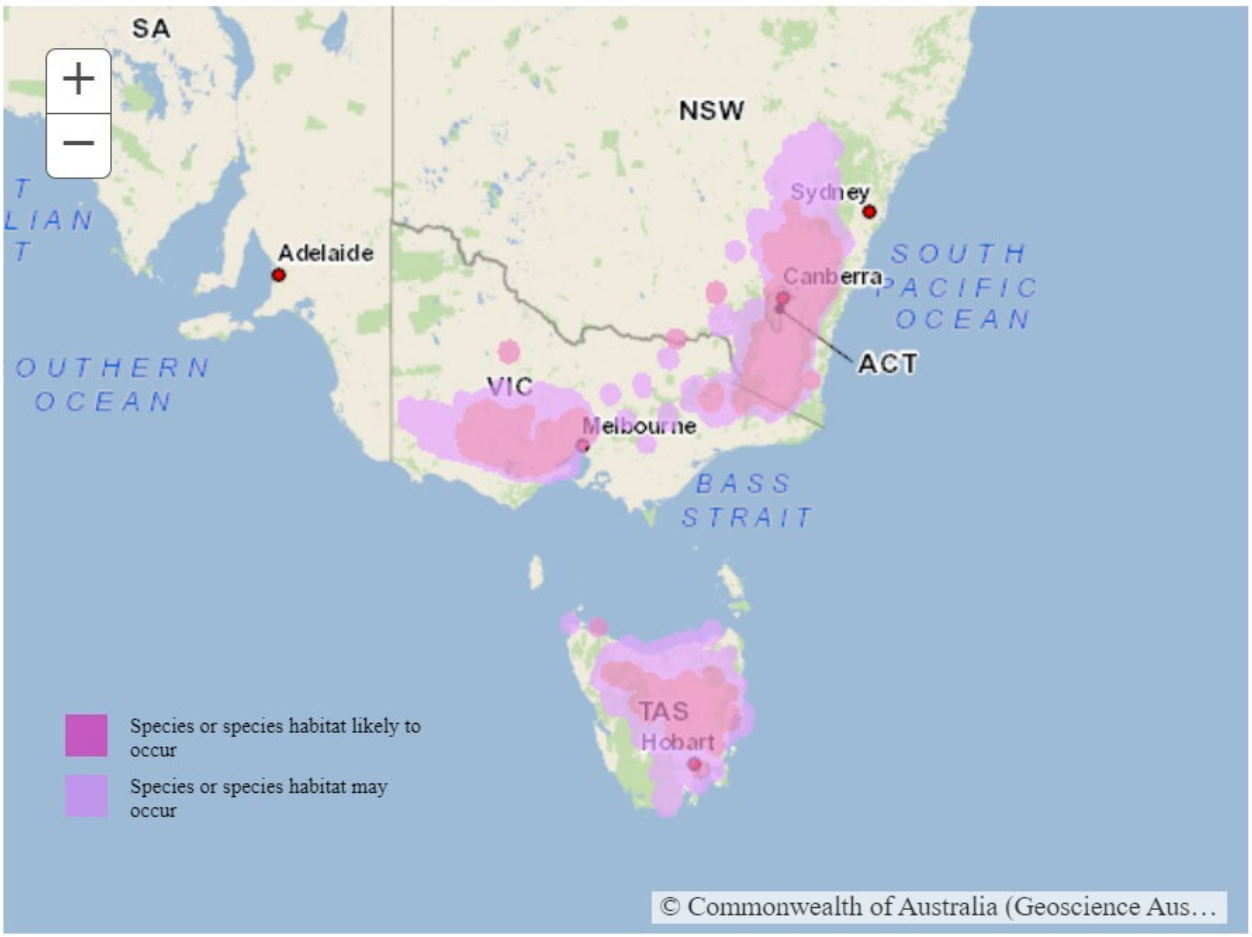

Figure C.9 Current distribution map for Leucochrysum albicans subsp. Tricolor (Department of Climate Change Energy the Environment and Water, 2023l)

DETAILS OF THE SCOPE, TIMING AND METHODOLOGY FOR STUDIES OR SURVEYS USED AND HOW THEY ARE CONSISTENT WITH (OR JUSTIFICATION FOR DIVERGENCE FROM) PUBLISHED AUSTRALIAN GOVERNMENT GUIDELINES AND POLICY STATEMENTS

Prior to surveys, a review of habitat constraints, geographic limitations and microhabitats for candidate threatened flora (species credit) species as listed within the NSW Threatened Biodiversity Data Collection (TBDC) was undertaken. A number of existing BDARs and other biodiversity reports were reviewed to obtain existing information on biodiversity in the locality with specific focus placed on areas assessed in previous BDARs that overlap with the Project.

Field survey techniques were used to undertake targeted seasonal surveys in general accordance with *Surveying threatened plants and their habitats; NSW guide for the Biodiversity Assessment Method* (Department of Planning Industry and Environment 2020):

- two-phase grid-based systematic survey
- parallel field traverses of microhabitats.

Further details of these surveys are provided in in Section 2.3 of the BDAR.

The field survey techniques used to undertake surveys were also in general accordance with the *NSW Biodiversity Assessment Method* (Department of Planning Industry and Environment 2020) with a detailed field verification method provided in Section 2.3 of the BDAR. Where a species could not be positively identified in the field and was suspected of being a threatened species, a voucher specimen was collected and preserved for later identification. These samples were sent to the Royal Botanic Gardens in Sydney and/or the Australian National Botanic Gardens for confirmation of identification.

DESCRIPTION OF THE SPECIFIC IMPACTS AND ITS REGARD TO THE FULL NATIONAL EXTENT OF THE SPECIES OR COMMUNITY'S RANGE

The direct impacts to this species include impact to 5 recorded plants being <1 ha of known (occupied) habitat for the species. Figure C.9 shows the current known generalised distribution. The total estimated extent of occurrence of the species is 438 166 km^2 (based on 20 years of records from 2000 - 2020). The removal of <1 ha of occupied habitat for the project therefore represents around 0.0003% of the total extent of occurrence for the species.

DESCRIPTION OF THE SPECIFIC PROPOSED AVOIDANCE AND MITIGATION MEASURES TO DEAL WITH RELEVANT IMPACTS OF THE ACTION

The proposed avoidance and mitigation measures are outlined in Section 7 and section 8.3 of the BDAR. Regarding specific measures for *this species*, the following relevant mitigation measures are recommended for any related residual impacts:

- positioning of the impact area to minimise clearance of habitat
- establishment of no-go zones to protect mapped patches of habitat during construction.

IDENTIFICATION OF SIGNIFICANT RESIDUAL ADVERSE IMPACTS LIKELY TO OCCUR AFTER THE PROPOSED ACTIVITIES TO AVOID AND MITIGATE ALL IMPACTS ARE TAKEN INTO ACCOUNT

The residual direct impacts to *Leucochrysum albicans* subsp. *tricolor* includes impact to 5 recorded plants being <1 ha of known (occupied) habitat for the species.

A DESCRIPTION OF ANY OFFSETS PROPOSED TO ADDRESS RESIDUAL ADVERSE SIGNIFICANT IMPACTS AND HOW THESE OFFSETS WILL BE ESTABLISHED

Details of offset requirements and obligations for this community as a result of residual impacts due the project is addressed in Section 10 of the BDAR.

DETAILS OF HOW THE CURRENT PUBLISHED NSW BIODIVERSITY ASSESSMENT METHOD (BAM) HAS BEEN APPLIED IN ACCORDANCE WITH THE OBJECTS OF THE EPBC ACT TO OFFSET SIGNIFICANT RESIDUAL ADVERSE IMPACTS

The BDAR specifically addresses Section 10 of the BAM and provides information on the application of the no net loss standard and the project biodiversity offset obligations.

DETAILS OF THE OFFSET PACKAGE TO COMPENSATE FOR SIGNIFICANT RESIDUAL IMPACTS INCLUDING DETAILS OF THE CREDIT PROFILES REQUIRED TO OFFSET THE ACTION IN ACCORDANCE WITH THE BAM AND/OR MAPPING AND DESCRIPTIONS OF THE EXTENT AND CONDITION OF THE RELEVANT HABITAT AND/OR THREATENED COMMUNITIES OCCURRING ON PROPOSED OFFSET SITES

Section 11 of the BDAR outlines the biodiversity credit requirements for the project. The offset obligations will be met through implementing a combination of the following offset delivery options, being:

- the purchase and retirement of existing biodiversity credits currently available on the biodiversity credit register
- establishing a biodiversity stewardship site(s) on lands with like for like biodiversity values to those impacted by the project
- through making a payment into the Biodiversity Conservation Fund.

Ozothamnus tesselatus

Ozothamnus tesselatus is listed as Vulnerable under the EPBC Act and the BC Act.

Description

Ozothamnus tesselatus, is a dense shrub growing to 1 m high with woolly branches. Leaves are spreading, oblong, 4–5 mm long, less than 1 mm wide, with leaf margins rolled backwards. The upper leaf surface is green, the lower leaf surface white and woolly, and the leaf base extends downwards on a stem 4 to 5 mm long. Floral heads grow in dense hemispherical corymbs, with the heads spherical, about 4 mm long, with obovate bracts surrounding the inflorescence. Floral heads consist of about 60 bisexual florets. *Ozothamnus tesselatus* grows in eucalypt woodland (Department of the Environment Water Heritage and the Arts 2008).

Distribution

Ozothamnus tesselatus is restricted to a few locations north of Rylstone, NSW, and is conserved within the Goulburn River National Park and Munghorn Gap Nature Reserve. This species has been collected at eight sites in a restricted area over a range of 300 km^2. Occurs within the Hunter–Central Rivers (NSW) Natural Resource Management Region (Department of the Environment Water Heritage and the Arts 2008).

Relevant Commonwealth guidelines and policy statements including listing advice, conservation advice and recovery plan

A summary of the relevant Commonwealth guidelines and policy statements available for this species is as follows:

- Approved conservation advice: *Approved Conservation Advice for Ozothamnus tesselatus* (Department of the Environment Water Heritage and the Arts 2008)
- There is no listing advice available for this species. Listing assessment information may be available in the approved Conservation Advice
- There is no adopted or made Recovery Plan for this species
- No Threat Abatement Plan has been identified as being relevant for this species

Specific impacts

This species has not been recorded within the subject land during surveys to date. However, some areas of the subject land were unable to be accessed for survey during preliminary assessments. In the absence of targeted survey in these areas, associated PCTs have been assumed to be habitat for the species. In total the project is estimated to impact on 3.3 ha in the form of the following PCTs:

- PCT 1674 (Moderate-Good)

Is this part of an important population?

Under the Act, important populations are:

- likely to be key source populations either for breeding or dispersal
- likely to be necessary for maintaining genetic diversity
- at or near the limit of the species range.

Ozothamnus tesselatus has not been recorded within the subject land. However, some areas of the subject land were unable to be accessed for survey during preliminary assessments and in the absence of targeted survey, the project is likely to impact on up to 3.3 ha of assumed habitat for this species.

Given the small extent of the assumed habitat to be impacted, it is unlikely that any population occurring within the subject land would be of significant size to be important in maintaining genetic diversity or be a key source population for dispersal. *Ozothamnus tesselatus* is known to occur in Goulburn River National Park and the mapped habitat for the

species would be within the known range, as mapped on the NSW Threatened Biodiversity Data Collection (Department of Planning Industry and Environment 2019). It is therefore unlikely that individuals occurring within the subject land, if present, would form part of an important population. However, given the generally restricted distribution and paucity of information regarding population size and dynamics, and taking a precautionary approach, a potential population occurring in the subject land is assumed to be part of an important population.

Significant impact criteria

An action is likely to have a significant impact on a Vulnerable species if there is a real chance or possibility that it will:

LEAD TO A LONG-TERM DECREASE IN THE SIZE OF AN IMPORTANT POPULATION

Given the small extent of assumed habitat for *Ozothamnus tesselatus* within the impact area, potentially occurring populations are unlikely to be of sufficiently large size to be necessary for maintaining genetic diversity or dispersal across the region. Given the lack of records for the species to date, and the small amount of habitat to be removed, the project is unlikely to lead to a long-term decrease in the size of an important population.

REDUCE THE AREA OF OCCUPANCY OF AN IMPORTANT POPULATION

The project is likely to impact on up to 3.3 ha of assumed habitat for this species. Given the small area of assumed habitat that will be impacted, project it is considered unlikely to reduce the area of occupancy for an important population.

FRAGMENT AN EXISTING IMPORTANT POPULATION INTO TWO OR MORE POPULATIONS

This species has not been recorded within the study area to date. However, the project is likely to impact on up to 3.3 ha of assumed habitat for this species. which is also mapped either side of the study area. Given the small area of assumed habitat that will be impacted, the project is considered unlikely to result in fragmentation of an important population.

ADVERSELY AFFECT HABITAT CRITICAL TO THE SURVIVAL OF A SPECIES

No Critical Habitat as defined under section 207A of the EPBC Act has been identified for *Ozothamnus tesselatus* or included in the Register of Critical Habitat (Department of Climate Change Energy the Environment and Water 2023). 'Habitat critical to the survival of a species or ecological community' refers to areas that are necessary:

- for activities such as foraging, breeding, roosting, or dispersal
- for the long-term maintenance of the species or ecological community (including the maintenance of species essential to the survival of the species or ecological community, such as pollinators)
- to maintain genetic diversity and long term evolutionary development, or
- for the reintroduction of populations or recovery of the species or ecological community (Department of the Environment Heritage Water and the Arts 2009)

There is a general paucity of information for this species in regard to population size and demographics. Given the small extent of assumed habitat mapped within the subject land, it is unlikely that any population occurring within this habitat may be important for facilitating population dispersal and contributing to genetic diversity and species recovery. Therefore, the project is unlikely to impact habitat critical to the survival of the species.

DISRUPT THE BREEDING CYCLE OF AN IMPORTANT POPULATION

Ozothamnus tesselatus flowers from September to October (Department of Planning and Environment 2023). Little information is available about the species' life cycle and ecology.

Given the small extent of assumed impact and nature of impact, the project is generally unlikely to result in direct disruptions to the ecological processes and functions important for the life cycle of this species.

MODIFY, DESTROY, REMOVE OR ISOLATE OR DECREASE THE AVAILABILITY OR QUALITY OF HABITAT TO THE EXTENT THAT THE SPECIES IS LIKELY TO DECLINE

Assumed habitat impacts total 3.3 ha and given the disjunct nature of known patches and lack of targeted survey in these habitats; it is difficult to discern if such impacts will cause the species to decline in the broader landscape.

Given the small extent of impact and lack of records or known occurrence it is considered unlikely that the project may modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline.

RESULT IN INVASIVE SPECIES THAT ARE HARMFUL TO A VULNERABLE SPECIES BECOMING ESTABLISHED IN THE VULNERABLE SPECIES' HABITAT

Mitigation measures are recommended in the BDAR to limit the spread of weeds, pathogens and disease. Given these measures, the project is unlikely to significantly contribute to the introduction or spread of invasive species not currently present in surrounding areas.

INTRODUCE DISEASE THAT MAY CAUSE THE SPECIES TO DECLINE

There are no known diseases that are specific to *Ozothamnus tesselatus.*

Mitigation measures are recommended in the BDAR, such as weed and pest management plans, vegetation clearing protocols, installation vehicle wash stations and sediment and control measures. These will help to minimise the likelihood of introduction or spread of pathogens into the site. Consequently, the project is unlikely to introduce disease or pathogens that may contribute to the decline of the species.

INTERFERE SUBSTANTIALLY WITH THE RECOVERY OF THE SPECIES

No Recovery plan has been prepared for this species at this stage. The approved conservation advice for the species outlines a number of local and regional priority research, recovery and threat abatement actions can be done to support the recovery of *Ozothamnus tesselatus.*

As the project involves removal of small area of assumed habitat for the species, the project is unlikely to interfere with the recovery of the species.

CONCLUSION

This species has not been recorded within the project study area however some areas were unable to be accessed for survey and in the absence of targeted survey, the project is likely to impact on up to 3.3 ha of assumed habitat for this species. The extent of assumed habitat to be removed for the project is small in comparison to the total potential habitat extent for the species and as such the project considered unlikely to significantly impact *Ozothamnus tesselatus.*

NSW Assessment Bilateral requirements

For each of the EPBC Act listed threatened species and communities and migratory species likely to be impacted by the action the EIS must provide a separate*:*

DESCRIPTION OF THE HABITAT (INCLUDING IDENTIFICATION AND MAPPING OF SUITABLE BREEDING HABITAT, SUITABLE FORAGING HABITAT, IMPORTANT POPULATIONS AND HABITAT CRITICAL FOR SURVIVAL), WITH CONSIDERATION OF, AND REFERENCE TO, ANY RELEVANT COMMONWEALTH GUIDELINES AND POLICY STATEMENTS INCLUDING LISTING ADVICE, CONSERVATION ADVICE AND RECOVERY PLAN

A description of habitat for this species, important populations, habitat critical for survival and relevant Commonwealth documents are provided above, with a map showing the modelled distribution of the species provided in Figure C.10. A map showing the field verified locations of this species within the study area is provided in Figure 14-10 of the BDAR.

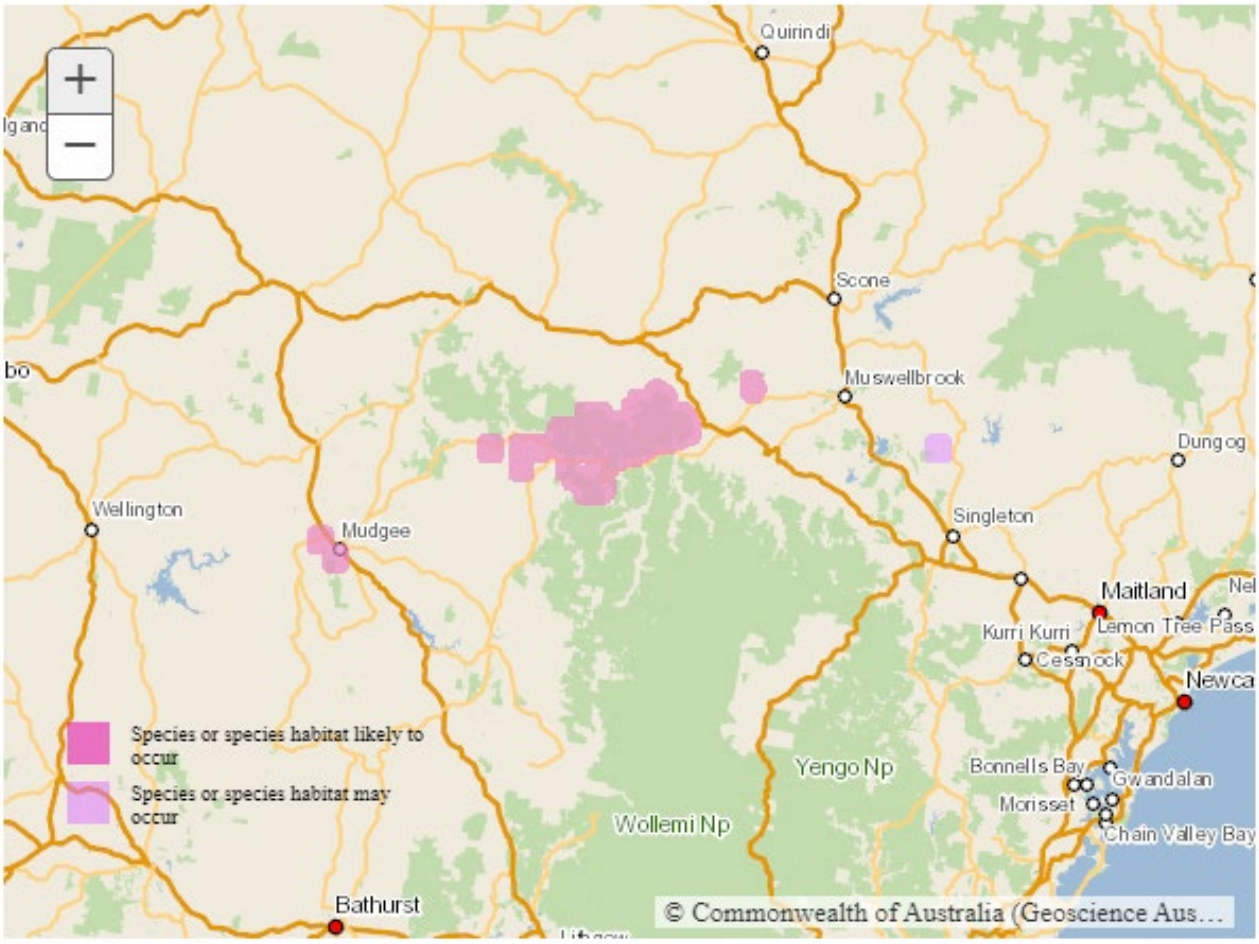

Figure C.10 Current distribution map for Ozothamnus tesselatus (Department of Climate Change Energy the Environment and Water, 2023m)

DETAILS OF THE SCOPE, TIMING AND METHODOLOGY FOR STUDIES OR SURVEYS USED AND HOW THEY ARE CONSISTENT WITH (OR JUSTIFICATION FOR DIVERGENCE FROM) PUBLISHED AUSTRALIAN GOVERNMENT GUIDELINES AND POLICY STATEMENTS

Prior to surveys, a review of habitat constraints, geographic limitations and microhabitats for candidate threatened flora (species credit) species as listed within the NSW Threatened Biodiversity Data Collection (TBDC) was undertaken. A number of existing BDARs and other biodiversity reports were reviewed to obtain existing information on biodiversity in the locality with specific focus placed on areas assessed in previous BDARs that overlap with the Project.

Field survey techniques were used to undertake targeted seasonal surveys in general accordance with *Surveying threatened plants and their habitats; NSW guide for the Biodiversity Assessment Method* (Department of Planning Industry and Environment 2020):

- two-phase grid-based systematic survey
- parallel field traverses of microhabitats.

Further details of these surveys are provided in in Section 2.3 of the BDAR.

The field survey techniques used to undertake surveys were also in general accordance with the *NSW Biodiversity Assessment Method* (Department of Planning Industry and Environment 2020) with a detailed field verification method provided in Section 2.3 of the BDAR. Where a species could not be positively identified in the field and was suspected of being a threatened species, a voucher specimen was collected and preserved for later identification. These samples were sent to the Royal Botanic Gardens in Sydney and/or the Australian National Botanic Gardens for confirmation of identification.

DESCRIPTION OF THE SPECIFIC IMPACTS AND ITS REGARD TO THE FULL NATIONAL EXTENT OF THE SPECIES OR COMMUNITY'S RANGE

The direct impacts to this species include impact on 3.3 ha. Figure C.10 shows the current known generalised distribution. The current extent of occurrence is unknown, however records have currently been collected at eight sites an area ranging 300 km^2(Department of the Environment Water Heritage and the Arts 2008). Based on this estimate, the total removal of 3.3 ha of assumed habitat would represent 0.01% of the known extent of occurrence.

DESCRIPTION OF THE SPECIFIC PROPOSED AVOIDANCE AND MITIGATION MEASURES TO DEAL WITH RELEVANT IMPACTS OF THE ACTION

The proposed avoidance and mitigation measures are outlined in Section 7 and section 8.3 of the BDAR. Regarding specific measures for *this species*, the following relevant mitigation measures are recommended for any related residual impacts:

- positioning of the impact area to minimise clearance of habitat
- establishment of no-go zones to protect mapped patches of habitat during construction.

IDENTIFICATION OF SIGNIFICANT RESIDUAL ADVERSE IMPACTS LIKELY TO OCCUR AFTER THE PROPOSED ACTIVITIES TO AVOID AND MITIGATE ALL IMPACTS ARE TAKEN INTO ACCOUNT

The residual direct impacts to *Ozothamnus tesselatus* include at least 3.3 ha of assumed habitat for this species (total removal of vegetation).

A DESCRIPTION OF ANY OFFSETS PROPOSED TO ADDRESS RESIDUAL ADVERSE SIGNIFICANT IMPACTS AND HOW THESE OFFSETS WILL BE ESTABLISHED

Details of offset requirements and obligations for this community as a result of residual impacts due the project is addressed in Section 10 of the BDAR.

DETAILS OF HOW THE CURRENT PUBLISHED NSW BIODIVERSITY ASSESSMENT METHOD (BAM) HAS BEEN APPLIED IN ACCORDANCE WITH THE OBJECTS OF THE EPBC ACT TO OFFSET SIGNIFICANT RESIDUAL ADVERSE IMPACTS

The BDAR specifically addresses Section 10 of the BAM and provides information on the application of the no net loss standard and the project biodiversity offset obligations.

DETAILS OF THE OFFSET PACKAGE TO COMPENSATE FOR SIGNIFICANT RESIDUAL IMPACTS INCLUDING DETAILS OF THE CREDIT PROFILES REQUIRED TO OFFSET THE ACTION IN ACCORDANCE WITH THE BAM AND/OR MAPPING AND DESCRIPTIONS OF THE EXTENT AND CONDITION OF THE RELEVANT HABITAT AND/OR THREATENED COMMUNITIES OCCURRING ON PROPOSED OFFSET SITES

Section 11 of the BDAR outlines the biodiversity credit requirements for the project. The offset obligations will be met through implementing a combination of the following offset delivery options, being:

- the purchase and retirement of existing biodiversity credits currently available on the biodiversity credit register
- establishing a biodiversity stewardship site(s) on lands with like for like biodiversity values to those impacted by the project
- through making a payment into the Biodiversity Conservation Fund.

Pomaderris cotoneaster

Pomaderris cotoneaster is listed as Endangered under the EPBC Act and the BC Act.

Description

Pomaderris cotoneaster is a shrub growing to 4 m tall. Its young stems have a covering of short, white, star-shaped hairs. Its leaves are elliptical, to 30 mm long and 15 mm wide with a tip that is sometimes indented (thus resembling the horticultural Cotoneaster, to which it is not related). The upper surface of the leaf is bristly, and the lower surface has a fine white mat of star-shaped hairs. Flowers have no petals and are cream-coloured (Department of Planning and Environment 2022).

The species occurs in a very broad mix of vegetation communities, from tall open eucalypt forest to dry open eucalypt woodland, sometimes (but not always) in sites physically protected from fire, such as along rivers, gorges or escarpments. Some subpopulations are largely riparian, others occur in dry sclerophyll forest, on steep slopes near the sandstone, in dry forest, and one population occurs on flat ridge top (Department of Agriculture Water and the Environment 2021).

Distribution

Pomaderris cotoneaster has a very disjunct distribution, being known from the Nungatta area, northern Kosciuszko National Park (near Tumut), the Tantawangalo area in South-East Forests National Park and adjoining freehold land, Badgery's Lookout near Tallong, Bungonia State Conservation Area, the Yerranderie area, Kanangra-Boyd National Park, the Canyonleigh area and Ettrema Gorge in Morton National Park. The species has also been recorded along the Genoa River in Victoria (Department of Planning and Environment 2022).

Relevant Commonwealth guidelines and policy statements including listing advice, conservation advice and recovery plan

A summary of the relevant Commonwealth guidelines and policy statements available for this species is as follows:

- Approved conservation advice: *Conservation Advice for Pomaderris cotoneaster (Cotoneaster Pomaderris)* (Department of Agriculture Water and the Environment 2021)
- There is no relevant Listing advice for this species. Listing assessment information may be available in the approved Conservation Advice
- Recovery Plan: *National Recovery Plan for Pomaderris cotoneaster (Cotoneaster Pomaderris)* (Department of Environment Climate Change and Water 2009)
- No Threat Abatement Plan has been identified as being relevant for this species.

Specific impacts

This species has not been recorded within the subject land during surveys to date. However, some areas of the subject land were unable to be accessed for survey during preliminary assessments. In the absence of targeted survey in these areas, associated PCTs have been assumed to be habitat for the species. In total the project is estimated to impact on 21.2 ha of assumed habitat for this species in the form of the following PCTs:

- PCT 478 (Moderate-Good, Thinned)
- PCT 1610 (Moderate-Good, Thinned)

Significant impact criteria

An action is likely to have a significant impact on an Endangered species if there is a real chance or possibility that it will:

LEAD TO A LONG-TERM DECREASE IN THE SIZE OF A POPULATION

This species has not been recorded within the subject land to date. Known subpopulations of the species mostly occur to the south of the study area, with the closest population recorded in Lue, NSW (~25km south) (Department of Agriculture Water and the Environment 2021). The impact to assumed habitat within the study area is considered unlikely to lead to a long-term decrease in the size of a local population.

REDUCE THE AREA OF OCCUPANCY OF THE SPECIES

The project is likely to remove up to 21.2 ha of assumed habitat for the species. The current area of occupancy for the species is not known, however the impact to assumed habitat within the study area is considered unlikely to reduce the species' area of occupancy, if present.

FRAGMENT AN EXISTING POPULATION INTO TWO OR MORE POPULATIONS

This species has not been recorded within the study area to date. However, the project is likely to impact on up to 21.2 ha of assumed habitat for this species. The impact to assumed habitat within the study area is considered unlikely to result in fragmentation of a local population.

ADVERSELY EFFECT HABITAT CRITICAL TO THE SURVIVAL OF A SPECIES

No Critical Habitat as defined under section 207A of the EPBC Act has been identified for *Pomaderris cotoneaster* or included in the Register of Critical Habitat (Department of Climate Change Energy the Environment and Water 2023). However the approved conservation advice for the species states: "Due to the species eligibility for listing (restricted range and/or severe fragmentation), all habitat is considered critical to the survival of the species" (Department of Agriculture Water and the Environment 2021). The impact to assumed habitat within the study area is considered unlikely to result in removal of habitat critical to the survival of the species.

DISRUPT THE BREEDING CYCLE OF A POPULATION

Pomaderris cotoneaster flowers from October to November. Fruits mature in summer and seed is released in late January and early February. Reproductive maturity is likely to be similar to other Pomaderris (2–6 years) and generation length of *Pomaderris cotoneaster* is estimated at 10–30 years. Pollinators of *Pomaderris cotoneaster* are unknown, although insects may be the primary pollinators of Pomaderris generally. Seed dispersal may be undertaken by ants across short distances. Under dense shade, flowering may not occur and growth may be poor. The longevity of individuals is estimated at 20–50 years (Department of Agriculture Water and the Environment 2021).

The project is likely to impact on up to 21.2 ha of assumed habitat for this species. However, the disturbance is unlikely to result in direct disruptions to the ecological processes and functions important for the life cycle of the species.

MODIFY DESTROY, REMOVE, ISOLATE OR DECREASE THE AVAILABILITY OR QUALITY OF HABITAT TO THE EXTENT THAT THE SPECIES IS LIKELY TO DECLINE

The project is likely to result in the removal of up to 21.2 ha of assumed habitat for this species. Given the lack of records and that the broader occurrence of the species within the locality is unknown, it is difficult to discern if such impacts will cause the species to decline in the broader landscape.

The impact to assumed habitat within the study area is considered unlikely modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline.

RESULT IN INVASIVE SPECIES THAT ARE HARMFUL TO A CRITICALLY ENDANGERED OR ENDANGERED SPECIES BECOMING ESTABLISHED IN THE ENDANGERED OR CRITICALLY ENDANGERED SPECIES' HABITAT

Mitigation measures are recommended in the BDAR to limit the spread of weeds, pathogens and disease. Given these measures, the project is unlikely to significantly contribute to the introduction or spread of invasive species not currently present in surrounding areas.

INTRODUCE DISEASE THAT MAY CAUSE THE SPECIES TO DECLINE, OR

There are no known diseases that are specific to *Pomaderris cotoneaster.*

Mitigation measures are recommended in the BDAR, such as weed and pest management plans, vegetation clearing protocols, installation vehicle wash stations and sediment and control measures. These will help to minimise the likelihood of introduction or spread of pathogens into the site. Consequently, the project is unlikely to introduce disease or pathogens that may contribute to the decline of the species.

INTERFERE WITH THE RECOVERY OF THE SPECIES

A current recovery plan is required for this species. The existing *National Recovery Plan for* Pomaderris cotoneaster *(Cotoneaster Pomaderris)* (Department of Environment Climate Change and Water 2009) outlines the following recovery objectives for the species:

Over the life of this Recovery Plan:

- to ensure that all natural populations of *Pomaderris cotoneaster* are stable or increasing in size
- to reduce or manage threats
- to increase knowledge of the reproductive biology of this species
- to undertake supplementary planting of this species and promote its recruitment wherever possible.

The impact to assumed habitat within the study area is considered unlikely to interfere with the first objective for recovery of the species.

CONCLUSION

This species has not been recorded within the subject land, however some areas of the subject land were unable to be accessed for survey during preliminary assessments and in the absence of targeted survey, the project is likely to impact on up to 21.2 ha of assumed habitat for this species. The species is not currently known to occur within the immediate vicinity of the subject land, with most known populations occurring further south in New South Wales. The impact to assumed habitat within the study area is considered unlikely to adversely impact on habitat critical for survival and interfere with the species' recovery. The project therefore considered unlikely to significantly impact *Pomaderris cotoneaster*.

NSW Assessment Bilateral requirements

For each of the EPBC Act listed threatened species and communities and migratory species likely to be impacted by the action the EIS must provide a separate*:*

DESCRIPTION OF THE HABITAT (INCLUDING IDENTIFICATION AND MAPPING OF SUITABLE BREEDING HABITAT, SUITABLE FORAGING HABITAT, IMPORTANT POPULATIONS AND HABITAT CRITICAL FOR SURVIVAL), WITH CONSIDERATION OF, AND REFERENCE TO, ANY RELEVANT COMMONWEALTH GUIDELINES AND POLICY STATEMENTS INCLUDING LISTING ADVICE, CONSERVATION ADVICE AND RECOVERY PLAN

A description of habitat for this species, important populations, habitat critical for survival and relevant Commonwealth documents are provided above, with a map showing the modelled distribution of the species provided in Figure C.11 A map showing the field verified locations of this species within the study area is provided in Figure 14-10 of the BDAR.

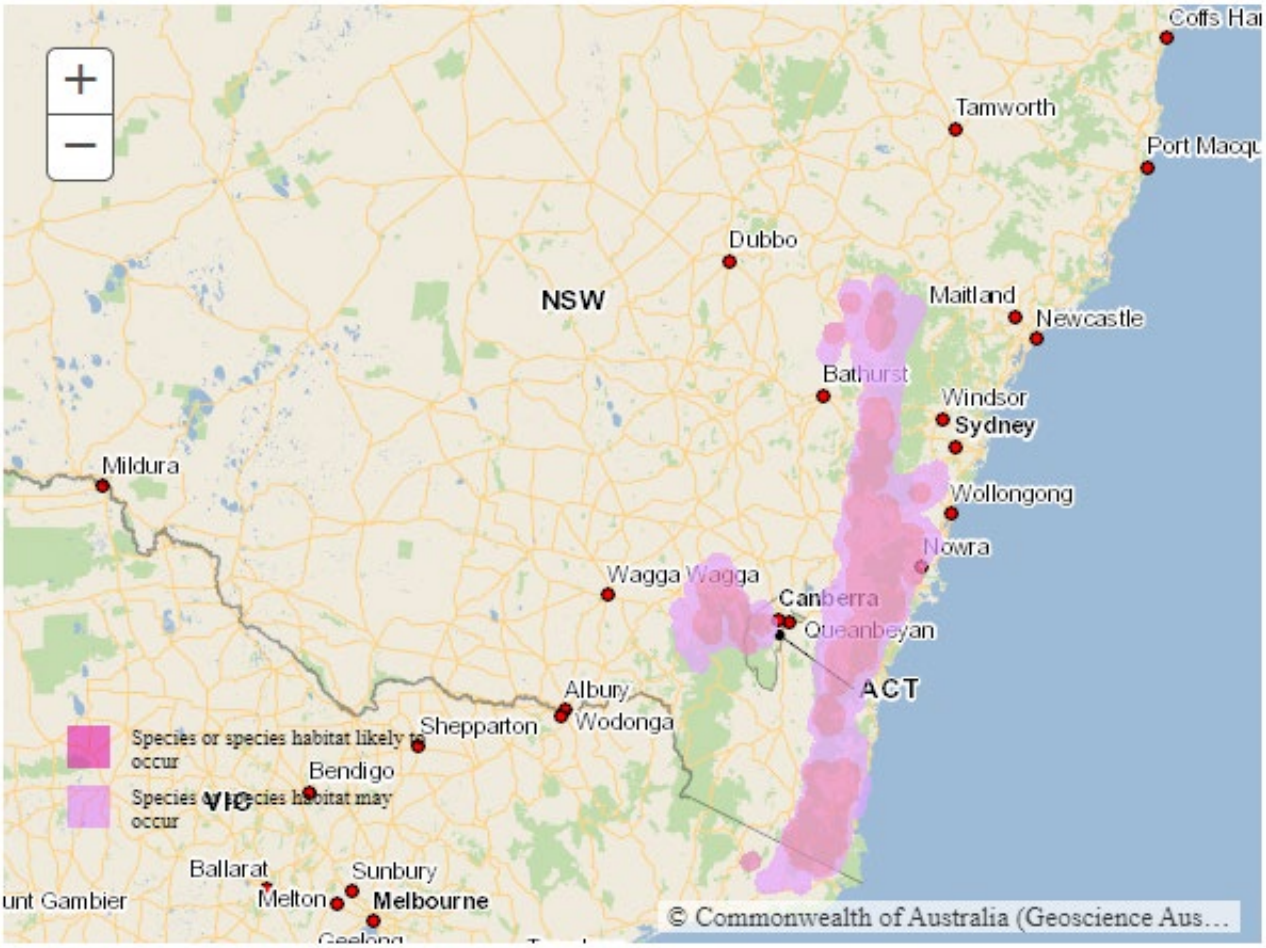

Figure C.11 Current distribution map for Pomaderris cotoneaster
(Department of Climate Change Energy the Environment and Water, 2023n)

DETAILS OF THE SCOPE, TIMING AND METHODOLOGY FOR STUDIES OR SURVEYS USED AND HOW THEY ARE CONSISTENT WITH (OR JUSTIFICATION FOR DIVERGENCE FROM) PUBLISHED AUSTRALIAN GOVERNMENT GUIDELINES AND POLICY STATEMENTS

Prior to surveys, a review of habitat constraints, geographic limitations and microhabitats for candidate threatened flora (species credit) species as listed within the NSW Threatened Biodiversity Data Collection (TBDC) was undertaken. A number of existing BDARs and other biodiversity reports were reviewed to obtain existing information on biodiversity in the locality with specific focus placed on areas assessed in previous BDARs that overlap with the Project.

Field survey techniques were used to undertake targeted seasonal surveys in general accordance with *Surveying threatened plants and their habitats; NSW guide for the Biodiversity Assessment Method* (Department of Planning Industry and Environment 2020):

- two-phase grid-based systematic survey
- parallel field traverses of microhabitats.

Further details of these surveys are provided in in Section 2.3 of the BDAR.

The field survey techniques used to undertake surveys were also in general accordance with the *NSW Biodiversity Assessment Method* (Department of Planning Industry and Environment 2020) with a detailed field verification method provided in Section 2.3 of the BDAR. Where a species could not be positively identified in the field and was suspected of being a threatened species, a voucher specimen was collected and preserved for later identification. These samples were sent to the Royal Botanic Gardens in Sydney and/or the Australian National Botanic Gardens for confirmation of identification.

DESCRIPTION OF THE SPECIFIC IMPACTS AND ITS REGARD TO THE FULL NATIONAL EXTENT OF THE SPECIES OR COMMUNITY'S RANGE

The direct impacts to this species include impact on 21.2 ha. Figure C.11 shows the current known generalised distribution, with the estimated habitat extent unknown.

DESCRIPTION OF THE SPECIFIC PROPOSED AVOIDANCE AND MITIGATION MEASURES TO DEAL WITH RELEVANT IMPACTS OF THE ACTION

The proposed avoidance and mitigation measures are outlined in Section 7 and section 8.3 of the BDAR. Regarding specific measures for *this species*, the following relevant mitigation measures are recommended for any related residual impacts:

- positioning of the impact area to minimise clearance of habitat
- establishment of no-go zones to protect mapped patches of habitat during construction.

IDENTIFICATION OF SIGNIFICANT RESIDUAL ADVERSE IMPACTS LIKELY TO OCCUR AFTER THE PROPOSED ACTIVITIES TO AVOID AND MITIGATE ALL IMPACTS ARE TAKEN INTO ACCOUNT

The residual direct impacts to *Pomaderris cotoneaster* include at least 21.2 ha of assumed habitat removal for this species (total removal of vegetation).

A DESCRIPTION OF ANY OFFSETS PROPOSED TO ADDRESS RESIDUAL ADVERSE SIGNIFICANT IMPACTS AND HOW THESE OFFSETS WILL BE ESTABLISHED

Details of offset requirements and obligations for this community as a result of residual impacts due the project is addressed in Section 10 of the BDAR.

DETAILS OF HOW THE CURRENT PUBLISHED NSW BIODIVERSITY ASSESSMENT METHOD (BAM) HAS BEEN APPLIED IN ACCORDANCE WITH THE OBJECTS OF THE EPBC ACT TO OFFSET SIGNIFICANT RESIDUAL ADVERSE IMPACTS

The BDAR specifically addresses Section 10 of the BAM and provides information on the application of the no net loss standard and the project biodiversity offset obligations.

DETAILS OF THE OFFSET PACKAGE TO COMPENSATE FOR SIGNIFICANT RESIDUAL IMPACTS INCLUDING DETAILS OF THE CREDIT PROFILES REQUIRED TO OFFSET THE ACTION IN ACCORDANCE WITH THE BAM AND/OR MAPPING AND DESCRIPTIONS OF THE EXTENT AND CONDITION OF THE RELEVANT HABITAT AND/OR THREATENED COMMUNITIES OCCURRING ON PROPOSED OFFSET SITES

Section 11 of the BDAR outlines the biodiversity credit requirements for the project. The offset obligations will be met through implementing a combination of the following offset delivery options, being:

- the purchase and retirement of existing biodiversity credits currently available on the biodiversity credit register
- establishing a biodiversity stewardship site(s) on lands with like for like biodiversity values to those impacted by the project
- through making a payment into the Biodiversity Conservation Fund.

Swainsona recta

Swainsona recta is listed as Endangered under the EPBC Act and the BC Act.

Description

Swainsona recta is a slender, erect perennial herb growing to 30 cm tall. The leaves are divided into up to six pairs of 10mm long, very narrow leaflets, each with a pointed tip. There is also a single leaflet at the end of each divided leaf. It bears one to several sprays of between 10 and 20 purple, pea-shaped flowers, between late September and early December. Flowers are followed by pods up to 10 mm long in summer (Department of Planning and Environment 2022).

Before European settlement Small Purple-pea occurred in the grassy understorey of woodlands and open-forests dominated by Blakely's Red Gum *Eucalyptus blakelyi*, Yellow Box *E. melliodora*, Candle bark Gum *E. rubida* and Long-leaf Box *E. goniocalyx*. The species grows in association with understorey dominants that include Kangaroo Grass *Themeda australis*, tussock grass, *Poa* spp. and spear-grasses *Austrostipa* spp. Plants die back in summer, surviving as a rootstocks until they shoot again in autumn. Generally tolerant of fire, which also enhances germination by breaking the seed coat and reduces competition from other species (Department of Planning and Environment 2022).

Distribution

Swainsona recta was recorded historically from places such as Carcoar, Culcairn and Wagga Wagga where it is probably now extinct. Populations still exist in the Queanbeyan and Wellington-Mudgee areas. Over 80% of the southern population grows on a railway easement. It is also known from the ACT and a single population of four plants near Chiltern in Victoria (Department of Planning and Environment 2022).

Relevant Commonwealth guidelines and policy statements including listing advice, conservation advice and recovery plan

A summary of the relevant Commonwealth guidelines and policy statements available for this species is as follows:

- There is no approved Conservation Advice for this species.
- There is no relevant Listing advice for this species.
- Recovery Plan: *National Recovery Plan for Small Purple-pea (*Swainsona recta*)* (NSW Office of Environment and Heritage 2012).
- No Threat Abatement Plan has been identified as being relevant for this species.

Specific impacts

This species has not been recorded within the subject land during surveys to date. However, some areas of the subject land were unable to be accessed for survey during preliminary assessments. In the absence of targeted survey in these areas, associated PCTs have been assumed to be habitat for the species. In total the project is estimated to impact on 3.9 ha in the form of the following PCTs:

- PCT 277 (Thinned, DNG).

Significant impact criteria

An action is likely to have a significant impact on an Endangered species if there is a real chance or possibility that it will:

LEAD TO A LONG-TERM DECREASE IN THE SIZE OF A POPULATION

This species has not been recorded within the subject land to date. Known subpopulations of the species mostly occur to the south of the study area, with the closest population recorded in Mudgee, NSW (~20km south) (NSW Office of Environment and Heritage 2012).

The extent of assumed habitat to be removed for the species on the subject is small (3.9 ha) and it is unlikely that the loss of this habitat would be significant to the extent that it would lead to a long-term decrease in the size of a local population.

REDUCE THE AREA OF OCCUPANCY OF THE SPECIES

The project is likely to remove up to 3.9 ha of assumed habitat for the species. The *National Recovery Plan for Small Purple-pea (*Swainsona recta*)* (NSW Office of Environment and Heritage 2012) indicates the estimated area of occupancy for all known sites that the species is about 34.28 ha. The species has not been recorded from the study area during surveys, however the project is likely to remove at least 3.9 ha of assumed habitat for this species and it is considered unlikely that the project would significantly reduce the area of known occupancy of the species.

FRAGMENT AN EXISTING POPULATION INTO TWO OR MORE POPULATIONS

This species has not been recorded within the study area to date. However, the project is likely to impact on up 3.9 ha of assumed habitat for the species. Impact to the assumed habitat within the study area is unlikely to result in fragmentation of a local population.

ADVERSELY EFFECT HABITAT CRITICAL TO THE SURVIVAL OF A SPECIES

No Critical Habitat as defined under section 207A of the EPBC Act has been identified for *Swainsona recta* or included in the Register of Critical Habitat (Department of Climate Change Energy the Environment and Water 2023, Department of Climate Change Energy the Environment and Water 2023). However, the *National Recovery Plan for Small Purple-pea (*Swainsona recta*)*states: "Given the small number of extant populations, small area of occupancy and the reliance on in-situ protection for the conservation of the species, all populations and the habitat they occupy are critical to the survival of the Small Purple-pea" (NSW Office of Environment and Heritage 2012). The project is considered unlikely to result in removal of habitat critical to the survival of the species.

DISRUPT THE BREEDING CYCLE OF A POPULATION

Swainsona recta flowers in spring, peaking in a 2-3 week period during October. Plants in the Wellington – Mudgee area usually commence flowering about two weeks earlier than those at the higher altitudes near Canberra and Queanbeyan. The seed ripens between early and late December. The plants then die back to the perennial rootstock until they resprout again in the following autumn / winter. Pollination appears to be primarily by insects, although plants also appear to have some capacity to self-pollinate. The life span of the species is not known with certainty but based on size of the rootstock and monitoring observations, could be as long as 50 years (NSW Office of Environment and Heritage 2012).

Given the extent and nature of impact to assumed habitat for this species, the disturbance is unlikely to result in direct disruptions to the ecological processes and functions important for the life cycle of the species.

MODIFY DESTROY, REMOVE, ISOLATE OR DECREASE THE AVAILABILITY OR QUALITY OF HABITAT TO THE EXTENT THAT THE SPECIES IS LIKELY TO DECLINE

The project is likely to result in the removal of up to 3.9 ha of assumed habitat for the species. Given the lack of records within the subject land and the small extent of habitat to be removed, it considered unlikely that the project may modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline.

RESULT IN INVASIVE SPECIES THAT ARE HARMFUL TO A CRITICALLY ENDANGERED OR ENDANGERED SPECIES BECOMING ESTABLISHED IN THE ENDANGERED OR CRITICALLY ENDANGERED SPECIES' HABITAT

Mitigation measures are recommended in the BDAR to limit the spread of weeds, pathogens and disease. Given these measures, the project is unlikely to significantly contribute to the introduction or spread of invasive species not currently present in surrounding areas.

INTRODUCE DISEASE THAT MAY CAUSE THE SPECIES TO DECLINE, OR

There are no known diseases that are specific to *Swainsona recta.*

Mitigation measures are recommended in the BDAR, such as weed and pest management plans, vegetation clearing protocols, installation vehicle wash stations and sediment and control measures. These will help to minimise the likelihood of introduction or spread of pathogens into the site. Consequently, the project is unlikely to introduce disease or pathogens that may contribute to the decline of the species.

INTERFERE WITH THE RECOVERY OF THE SPECIES

A current recovery plan is required for this species. The existing *National Recovery Plan for Small Purple-pea (*Swainsona recta*)* (NSW Office of Environment and Heritage 2012) outlines the following recovery actions required for the species:

- Undertake additional survey in vicinity of recently recorded sites.
- Monitor all known sites.
- Weed control.
- Undertake ecological burns.
- Negotiate improved management and/or formal protection of sites.
- Continue research into the biological / ecological effects of fire (burning frequency and season of burning) on Small Purple-pea and its habitat.
- Investigate potential sites suitable for enrichment planting or re-establishment of Small Purple-pea populations and undertake translocation projects.
- Investigate genetic variation within and between surviving populations to identify source and target populations for translocation and restoration. Measure the effects of habitat fragmentation and reduced population size on the long-term viability of Small Purple-pea.
- Increase community awareness and involvement in the Small Purple-pea recovery effort.

The project is unlikely to interfere specifically with any of the recovery actions outlined.

CONCLUSION

This species has not been recorded within the subject land, however some areas of the subject land were unable to be accessed for survey during preliminary assessments and in the absence of targeted survey, the project is likely to impact on up to 3.9 ha of assumed habitat for the species. The extent of habitat to be impacted is extremely small in terms of habitat available in the locality and broader landscape and given this is unlikely to contain a population of significant size to be important in terms of genetic diversity or dispersal. The project is unlikely to significantly reduce the area of occupancy or interfere with the species' recovery. The project is therefore unlikely to significantly impact *Swainsona recta.*

NSW Assessment Bilateral requirements

For each of the EPBC Act listed threatened species and communities and migratory species likely to be impacted by the action the EIS must provide a separate*:*

DESCRIPTION OF THE HABITAT (INCLUDING IDENTIFICATION AND MAPPING OF SUITABLE BREEDING HABITAT, SUITABLE FORAGING HABITAT, IMPORTANT POPULATIONS AND HABITAT CRITICAL FOR SURVIVAL), WITH CONSIDERATION OF, AND REFERENCE TO, ANY RELEVANT COMMONWEALTH GUIDELINES AND POLICY STATEMENTS INCLUDING LISTING ADVICE, CONSERVATION ADVICE AND RECOVERY PLAN

A description of habitat for this species, important populations, habitat critical for survival and relevant Commonwealth documents are provided above, with a map showing the modelled distribution of the species provided in Figure C.12 below. Figure 14-10 in the BDAR shows the field verified locations of this species within the study.

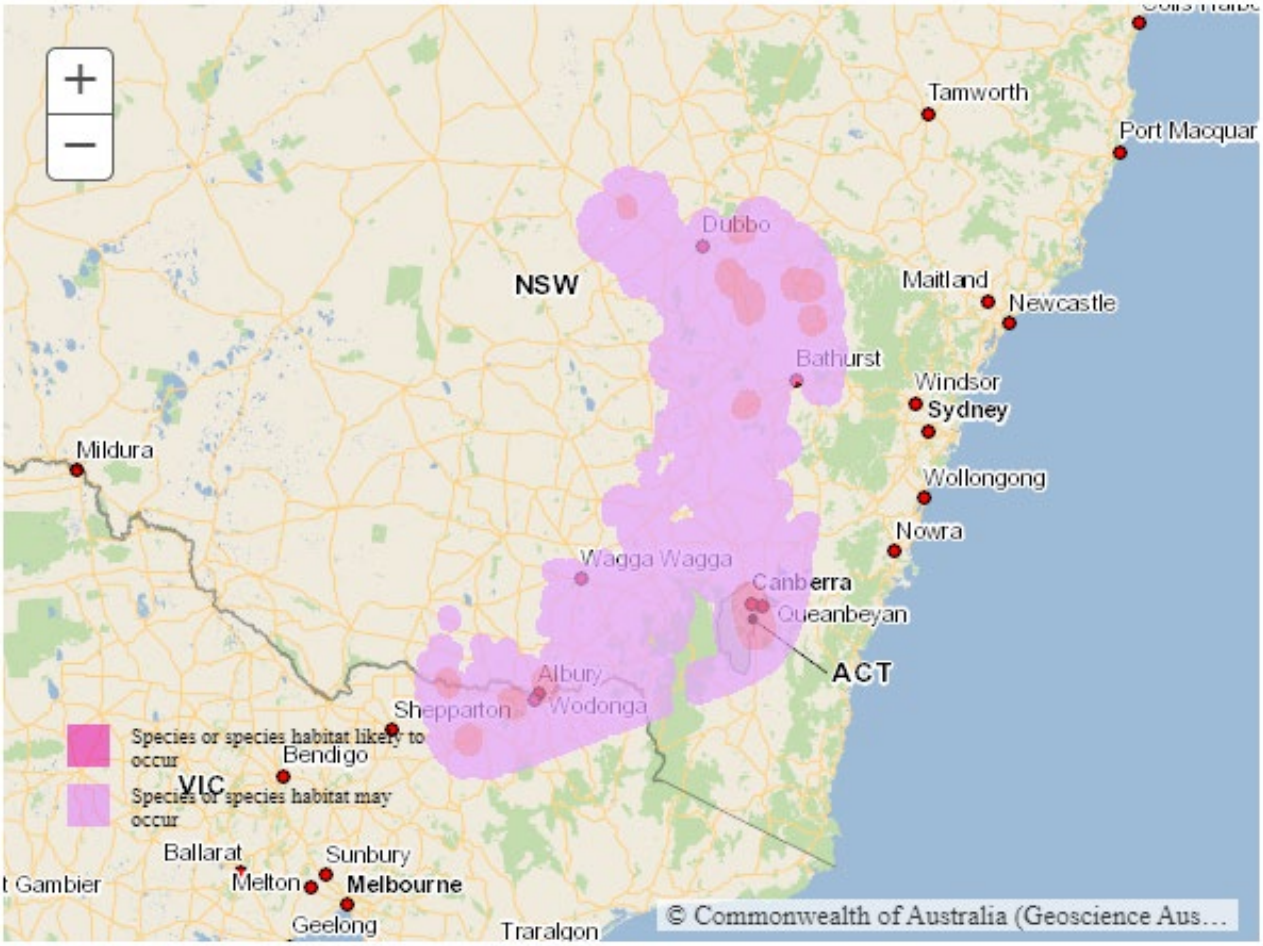

Figure C.12 Current distribution map for Swainsona recta
(Department of Climate Change Energy the Environment and Water, 2023p)

DETAILS OF THE SCOPE, TIMING AND METHODOLOGY FOR STUDIES OR SURVEYS USED AND HOW THEY ARE CONSISTENT WITH (OR JUSTIFICATION FOR DIVERGENCE FROM) PUBLISHED AUSTRALIAN GOVERNMENT GUIDELINES AND POLICY STATEMENTS

Prior to surveys, a review of habitat constraints, geographic limitations and microhabitats for candidate threatened flora (species credit) species as listed within the NSW Threatened Biodiversity Data Collection (TBDC) was undertaken. A number of existing BDARs and other biodiversity reports were reviewed to obtain existing information on biodiversity in the locality with specific focus placed on areas assessed in previous BDARs that overlap with the Project.

Field survey techniques were used to undertake targeted seasonal surveys in general accordance with *Surveying threatened plants and their habitats; NSW guide for the Biodiversity Assessment Method* (Department of Planning Industry and Environment 2020):

- two-phase grid-based systematic survey
- parallel field traverses of microhabitats.

Further details of these surveys are provided in in Section 2.3 of the BDAR.

The field survey techniques used to undertake surveys were also in general accordance with the *NSW Biodiversity Assessment Method* (Department of Planning Industry and Environment 2020) with a detailed field verification method provided in Section 2.3 of the BDAR. Where a species could not be positively identified in the field and was suspected of being a threatened species, a voucher specimen was collected and preserved for later identification. These samples were sent to the Royal Botanic Gardens in Sydney and/or the Australian National Botanic Gardens for confirmation of identification.

DESCRIPTION OF THE SPECIFIC IMPACTS AND ITS REGARD TO THE FULL NATIONAL EXTENT OF THE SPECIES OR COMMUNITY'S RANGE

The direct impacts to this species include impact on 3.9 ha. Figure C.12 shows the current known generalised distribution, with the estimated habitat extent unknown.

DESCRIPTION OF THE SPECIFIC PROPOSED AVOIDANCE AND MITIGATION MEASURES TO DEAL WITH RELEVANT IMPACTS OF THE ACTION

The proposed avoidance and mitigation measures are outlined in Section 7 and section 8.3 of the BDAR. Regarding specific measures for *this species*, the following relevant mitigation measures are recommended for any related residual impacts:

- positioning of the impact area to minimise clearance of habitat
- establishment of no-go zones to protect mapped patches of habitat during construction.

IDENTIFICATION OF SIGNIFICANT RESIDUAL ADVERSE IMPACTS LIKELY TO OCCUR AFTER THE PROPOSED ACTIVITIES TO AVOID AND MITIGATE ALL IMPACTS ARE TAKEN INTO ACCOUNT

The residual direct impacts to *Swainsona recta* include at least 3.9 ha of assumed habitat removal for this species (total removal of vegetation).

A DESCRIPTION OF ANY OFFSETS PROPOSED TO ADDRESS RESIDUAL ADVERSE SIGNIFICANT IMPACTS AND HOW THESE OFFSETS WILL BE ESTABLISHED

Details of offset requirements and obligations for this community as a result of residual impacts due the project is addressed in Section 10 of the BDAR.

DETAILS OF HOW THE CURRENT PUBLISHED NSW BIODIVERSITY ASSESSMENT METHOD (BAM) HAS BEEN APPLIED IN ACCORDANCE WITH THE OBJECTS OF THE EPBC ACT TO OFFSET SIGNIFICANT RESIDUAL ADVERSE IMPACTS

The BDAR specifically addresses Section 10 of the BAM and provides information on the application of the no net loss standard and the project biodiversity offset obligations.

DETAILS OF THE OFFSET PACKAGE TO COMPENSATE FOR SIGNIFICANT RESIDUAL IMPACTS INCLUDING DETAILS OF THE CREDIT PROFILES REQUIRED TO OFFSET THE ACTION IN ACCORDANCE WITH THE BAM AND/OR MAPPING AND DESCRIPTIONS OF THE EXTENT AND CONDITION OF THE RELEVANT HABITAT AND/OR THREATENED COMMUNITIES OCCURRING ON PROPOSED OFFSET SITES

Section 11 of the BDAR outlines the biodiversity credit requirements for the project. The offset obligations will be met through implementing a combination of the following offset delivery options, being:

- the purchase and retirement of existing biodiversity credits currently available on the biodiversity credit register
- establishing a biodiversity stewardship site(s) on lands with like for like biodiversity values to those impacted by the project
- through making a payment into the Biodiversity Conservation Fund.

Thesium australe

Thesium australe is listed as Vulnerable under the EPBC Act and the BC Act.

Description

Thesium australe (Austral Toadflax, family Santalaceae) is a small, hairless straggling herb, growing up to 40 cm tall, with pale green to yellow-green leaves. The leaves are 1-4 cm long and 0.5 -1.5 mm wide. The plant's white, small flowers emerge where the leaves meet the stems. Flowering predominantly occurs in spring and summer. Fruit develops in summer, and is small and nut-like. It is semi-parasitic on roots of grassland species, notably kangaroo grass. The species occurs in grassland on coastal headlands, or grassland and grassy woodland away from the coast. It is often found in association with Kangaroo Grass.

Threats to the species include:

- overgrazing by cattle and sheep, with particularly heavy grazing in summer
- weed invasion from morning glory, asparagus fern and buffalo grass
- habitat loss through road widening, straightening and maintenance.

Distribution

This species has small populations scattered across the East coast of Australia, including New South Wales, The Australian Capital Territory, Queensland and Victoria. It has been recorded once in Tasmania, but has been considered locally extinct since. In New South specifically, *Thesium australe* can be found from the Northern to Southern Tablelands. While originally found in the Southwest Sydney area, no populations have been found here recently.

There is one ALA record of the species within 10 km of the Subject land, dating from 1959. This record is located East of the most eastern arm of the Subject land, in the Liverpool Range IBRA subregion. More records exist within 100 km of the Subject land, predominantly located East of the Subject land.

Relevant Commonwealth guidelines and policy statements including listing advice, conservation advice and recovery plan

A summary of the relevant Commonwealth guidelines and policy statements available for this species is as follows:

- Approved conservation advice: *Approved Conservation Advice for* Thesium australe (Department of the Environment 2013)
- Listing assessment information may be available in the approved Conservation Advice
- There is no adopted or made Recovery Plan for this species
- Threat abatement plan for competition and land degradation by rabbits. (Department of the Environment and Energy 2016)

Specific impacts

Thesium australe was not recorded within the Subject land and there is one ALA records within 10 km of the Subject land. Despite the scarcity of records near the Subject land, and the species not being located during surveys, the species was retained, as potential habitat is present in the Subject land. The species is largely confined to grasslands, grassy woodlands, or sub-alpine grassy heathlands (Scarlett et al., 2003), Further, *Thesium australe* also occurs in cleared paddocks. Associated PCTs have been assumed to be habitat for the species.

In total the project is estimated to impact on 2.2 ha of assumed habitat for this species in the form of the following PCTs:

- PCT 599 (Moderate_Good, Thinned and Derived Native Grassland).

Is this part of an important population?

Under the Act, important populations are:

- likely to be key source populations either for breeding or dispersal
- likely to be necessary for maintaining genetic diversity
- at or near the limit of the species range.

Thesium australe occurs within the Australian Alps, Brigalow Belt South, Nandewar, New England Tablelands, NSW North Coast, South East Corner, South Eastern Highlands, South Eastern Queensland and Sydney Basin IBRA Bioregions (ALA, 2013) and the Border Rivers-Gwydir, Central West, Hawkesbury-Nepean, Hunter-Central Rivers, Murray, Murrumbidgee, Namoi, Northern Rivers, Southern Rivers, East Gippsland, Border Rivers Maranoa-Balonne, Burnett Mary, Condamine, Fitzroy and South East Queensland Natural Resource Management Regions (ALA, 2013).The Subject land thus does not likely occur at or near the limit of the species range.

Further, given that the assumed habitat that is being cleared is a total of 2.2 ha, it is unlikely that it would affect genetic diversity, or breeding and dispersal. It is thus not likely to be a part of an important population.

Significant impact criteria

An action is likely to have a significant impact on a Vulnerable species if there is a real chance or possibility that it will:

LEAD TO A LONG-TERM DECREASE IN THE SIZE OF AN IMPORTANT POPULATION

Given the Subject land is unlikely to contain an important population, impact on the assumed habitat is unlikely to lead to a long-term decrease in the size of an important population.

REDUCE THE AREA OF OCCUPANCY OF AN IMPORTANT POPULATION

Given the Subject land is unlikely to contain an important population, impact on the assumed habitat is unlikely to reduce the area of occupancy of an important population.

FRAGMENT AN EXISTING IMPORTANT POPULATION INTO TWO OR MORE POPULATIONS

Given the Subject land is unlikely to contain an important population, impact on the assumed habitat is unlikely to lead to fragmentation of an important population.

ADVERSELY AFFECT HABITAT CRITICAL TO THE SURVIVAL OF A SPECIES

No Critical Habitat as defined under section 207A of the EPBC Act has been identified for *Thesium australe* or included in the Register of Critical Habitat. Habitat critical to the survival of a species or ecological community' refers to areas that are necessary:

- for activities such as foraging, breeding, roosting, or dispersal
- for the long-term maintenance of the species or ecological community (including the maintenance of species essential to the survival of the species or ecological community, such as pollinators)
- to maintain genetic diversity and long-term evolutionary development, or
- for the reintroduction of populations or recovery of the species or ecological community (Department of the Environment Heritage Water and the Arts 2009)

DISRUPT THE BREEDING CYCLE OF AN IMPORTANT POPULATION

Given the Subject land is unlikely to contain an important population, impact on the assumed habitat is unlikely to disrupt the breeding cycle of an important population.

MODIFY, DESTROY, REMOVE OR ISOLATE OR DECREASE THE AVAILABILITY OR QUALITY OF HABITAT TO THE EXTENT THAT THE SPECIES IS LIKELY TO DECLINE

Given the Subject land is unlikely to contain an important population, impact on the assumed habitat is unlikely to lead to a decline in the species.

RESULT IN INVASIVE SPECIES THAT ARE HARMFUL TO A VULNERABLE SPECIES BECOMING ESTABLISHED IN THE VULNERABLE SPECIES' HABITAT

Mitigation measures are recommended in the BDAR to limit the spread of weeds, pathogens and disease. Given these measures, the project is unlikely to significantly contribute to the introduction or spread of invasive species not currently present in surrounding areas.

INTRODUCE DISEASE THAT MAY CAUSE THE SPECIES TO DECLINE

There are no known diseases that are specific to *Thesium australe.*

Mitigation measures are recommended in the BDAR, such as weed and pest management plans, vegetation clearing protocols, installation vehicle wash stations and sediment and control measures. These will help to minimise the likelihood of introduction or spread of pathogens into the site. Consequently, the project is unlikely to introduce disease or pathogens that may contribute to the decline of the species.

INTERFERE SUBSTANTIALLY WITH THE RECOVERY OF THE SPECIES

No Recovery plan has been prepared for this species at this stage. The approved conservation advice for the species outlines a number of local and regional priority recovery and threat abatement actions can be done to support the recovery of *Thesium australe.*

CONCLUSION

The Subject land thus does not likely occur at or near the limit of the species range. Further, given that the assumed habitat that is being cleared is a total of 2.2 ha, it is unlikely that it would affect genetic diversity, or breeding and dispersal. It is thus not likely to be a part of an important population. The project is unlikely to directly impact on an important population.

NSW Assessment Bilateral requirements

For each of the EPBC Act listed threatened species and communities and migratory species likely to be impacted by the action the EIS must provide a separate*:*

DESCRIPTION OF THE HABITAT (INCLUDING IDENTIFICATION AND MAPPING OF SUITABLE BREEDING HABITAT, SUITABLE FORAGING HABITAT, IMPORTANT POPULATIONS AND HABITAT CRITICAL FOR SURVIVAL), WITH CONSIDERATION OF, AND REFERENCE TO, ANY RELEVANT COMMONWEALTH GUIDELINES AND POLICY STATEMENTS INCLUDING LISTING ADVICE, CONSERVATION ADVICE AND RECOVERY PLAN

A description of habitat for this species, important populations, habitat critical for survival and relevant Commonwealth documents are provided in section above, with a map showing the modelled distribution of the species provided in Figure C.13.

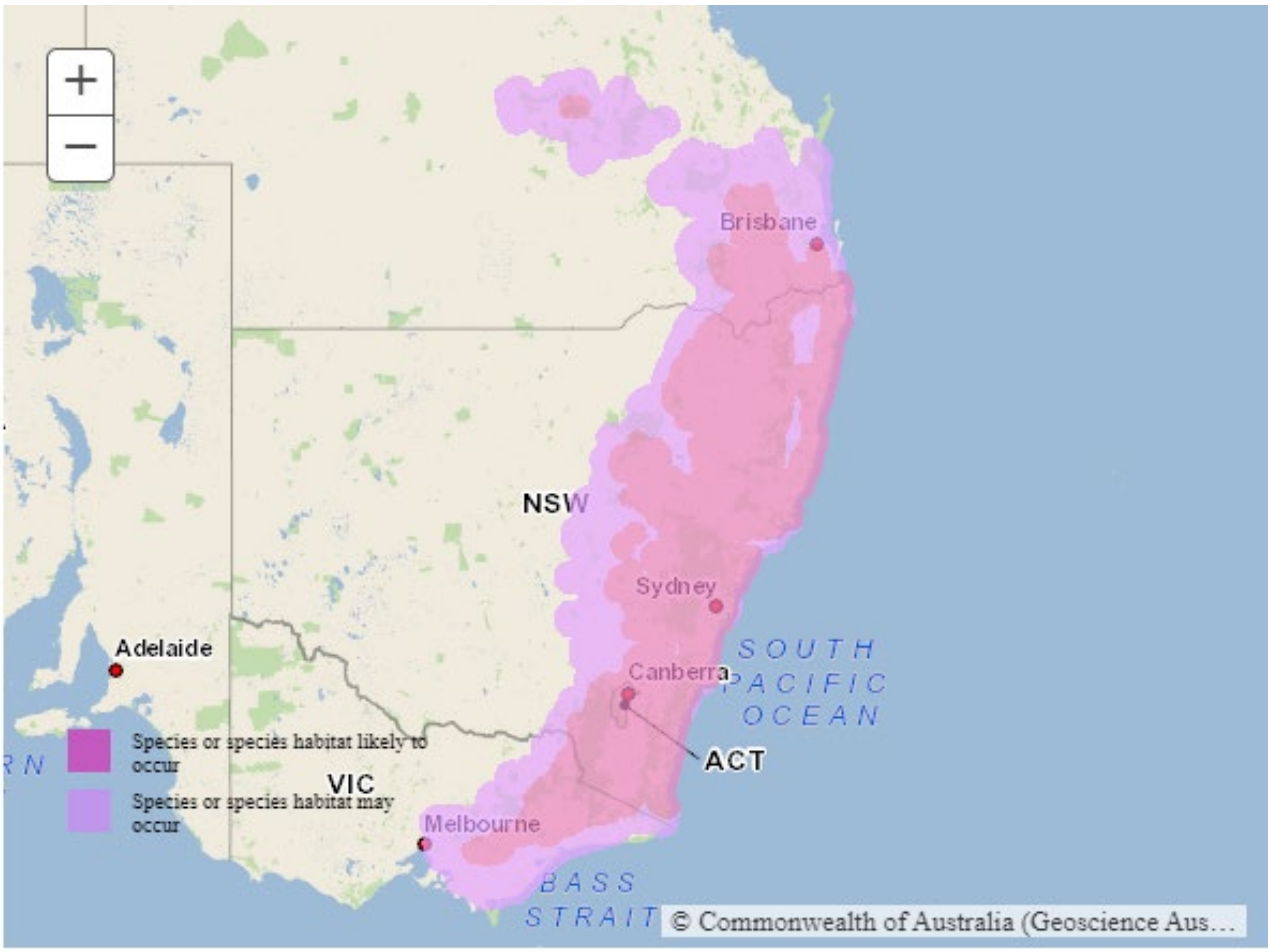

Figure C.13 Current distribution map for Thesium australe (Department of the Environment, 2013a)

DETAILS OF THE SCOPE, TIMING AND METHODOLOGY FOR STUDIES OR SURVEYS USED AND HOW THEY ARE CONSISTENT WITH (OR JUSTIFICATION FOR DIVERGENCE FROM) PUBLISHED AUSTRALIAN GOVERNMENT GUIDELINES AND POLICY STATEMENTS

Prior to surveys, a review of habitat constraints, geographic limitations and microhabitats for candidate threatened flora (species credit) species as listed within the NSW Threatened Biodiversity Data Collection (TBDC) was undertaken. A number of existing BDARs and other biodiversity reports were reviewed to obtain existing information on biodiversity in the locality with specific focus placed on areas assessed in previous BDARs that overlap with the Project.

Field survey techniques were used to undertake targeted seasonal surveys in general accordance with *Surveying threatened plants and their habitats; NSW guide for the Biodiversity Assessment Method* (Department of Planning Industry and Environment 2020):

- two-phase grid-based systematic survey
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Further details of these surveys are provided in in Section 2.3 of the BDAR.

The field survey techniques used to undertake surveys were also in general accordance with the *NSW Biodiversity Assessment Method* (Department of Planning Industry and Environment 2020) with a detailed field verification method provided in Section 2.3 of the BDAR. Where a species could not be positively identified in the field and was suspected of being a threatened species, a voucher specimen was collected and preserved for later identification. These samples were sent to the Royal Botanic Gardens in Sydney and/or the Australian National Botanic Gardens for confirmation of identification.

DESCRIPTION OF THE SPECIFIC IMPACTS AND ITS REGARD TO THE FULL NATIONAL EXTENT OF THE SPECIES OR COMMUNITY'S RANGE

The direct impacts to this species include impact to 2.2 ha of assumed habitat. Figure C.13 shows the current known generalised distribution.

DESCRIPTION OF THE SPECIFIC PROPOSED AVOIDANCE AND MITIGATION MEASURES TO DEAL WITH RELEVANT IMPACTS OF THE ACTION

The proposed avoidance and mitigation measures are outlined in Section 7 and section 8.3 of the BDAR. Regarding specific measures for *Thesium australe* the following relevant mitigation measures are recommended for any related residual impacts:

- do not increase grazing pressures on sites where populations persist – reduce grazing pressures where possible
- undertake weed control in and adjacent to populations, taking care to spray or dig out only target weeds.

Mark sites and potential habitat onto maps used for planning.

IDENTIFICATION OF SIGNIFICANT RESIDUAL ADVERSE IMPACTS LIKELY TO OCCUR AFTER THE PROPOSED ACTIVITIES TO AVOID AND MITIGATE ALL IMPACTS ARE TAKEN INTO ACCOUNT

The residual direct impacts to *Thesium australe* include impact to 2.2 ha of assumed habitat.

A DESCRIPTION OF ANY OFFSETS PROPOSED TO ADDRESS RESIDUAL ADVERSE SIGNIFICANT IMPACTS AND HOW THESE OFFSETS WILL BE ESTABLISHED

Details of offset requirements and obligations for this community as a result of residual impacts due the project is addressed in Section 10 of the BDAR.

DETAILS OF HOW THE CURRENT PUBLISHED NSW BIODIVERSITY ASSESSMENT METHOD (BAM) HAS BEEN APPLIED IN ACCORDANCE WITH THE OBJECTS OF THE EPBC ACT TO OFFSET SIGNIFICANT RESIDUAL ADVERSE IMPACTS

The BDAR specifically addresses Section 10 of the BAM and provides information on the application of the no net loss standard and the project biodiversity offset obligations.

DETAILS OF THE OFFSET PACKAGE TO COMPENSATE FOR SIGNIFICANT RESIDUAL IMPACTS INCLUDING DETAILS OF THE CREDIT PROFILES REQUIRED TO OFFSET THE ACTION IN ACCORDANCE WITH THE BAM AND/OR MAPPING AND DESCRIPTIONS OF THE EXTENT AND CONDITION OF THE RELEVANT HABITAT AND/OR THREATENED COMMUNITIES OCCURRING ON PROPOSED OFFSET SITES

Section 11 of the BDAR outlines the biodiversity credit requirements for the project. The offset obligations will be met through implementing a combination of the following offset delivery options, being:

- the purchase and retirement of existing biodiversity credits currently available on the biodiversity credit register
- establishing a biodiversity stewardship site(s) on lands with like for like biodiversity values to those impacted by the project
- through making a payment into the Biodiversity Conservation Fund.

Tylophora linearis

Tylophora linearis is listed as Vulnerable under the EPBC Act and the BC Act.

Description

Tylophora linearis, family Asclepiadaceae, is a slender, almost hairless herbaceous climber with clear sap, growing to about 2 m long. The stems are cylindrical and up to 3 mm in diameter. Its linear leaves are a dark green and are 1-5 centimetres long and 0.5 – 3 mm wide. The species' flowers are arranged in radiating groups of 3-8. Individual flowers are 3-6 mm in diameter and the petals are olive-green externally and dark purple internally. Flowers have been recorded in November and May and flowering is suspected to be related to rainfall. Fruiting occurs approximately 2-3 months after flowering. The fruit is cigar shaped and up to 100 mm long and 5 mm in diameter.

The species occurs in dry scrub, open forest and woodlands associated with *Melaleuca uncinate, Eucalyptus fibrosa, E. sideroxylon, E. albens, Callitris endlicheri, C. glaucophylla, Allocasuarina luehmannii, Acacia hakeoides, A. lineata, Myoporum spp.* and *Casuarina spp.*

Threats to the species include:

- forestry activities
- disturbance such as grazing and fire
- invasive species.

Distribution

This plant is distributed from Southern Queensland into central NSW. The majority of records occur in the central western region. There are records from Goonoo, Pilliga West, Pilliga East, Bibblewindi, Cumbil and Eura State Forests, Coolbaggie NR, Goobang NP and Beni SCA. Old records go up as far north as Crow Mountain. The species was collected from eight localities in the Dubbo area.

Relevant Commonwealth guidelines and policy statements including listing advice, conservation advice and recovery plan

A summary of the relevant Commonwealth guidelines and policy statements available for this species is as follows:

- Approved conservation advice: *Approved Conservation Advice for* Tylophora linearis (Department for Agriculture Water Heritage and the Arts 2008)
- Listing assessment information may be available in the approved Conservation Advice
- There is no adopted or made Recovery Plan for this species
- There are no threat abatement plans for this species

Specific impacts

Tylophora linearis was not recorded within the Subject land. There are no ALA records within 10 km of the Subject land, but further south, in the Kerrabee IBRA subregion the species was located in 2014. North of the Subject land, the species has been recorded in the Pilliga in 2003 and more recently in 2019.

Despite absence of records near the Subject land, and the species not being located during surveys, it was retained as potential habitat is present in the Subject land. The species is known to occur in dense shrublands occasionally overtopped by *Callitris glaucophylla.* Associated PCTs have been assumed to be habitat for the species.

In total the project is estimated to impact on 23.84 ha of assumed habitat for this species in the form of the following PCTs:

- PCT 440 (Moderate_Good and Thinned)
- PCT 461 (Moderate_Good and Thinned)
- PCT 479 (Moderate_Good and Thinned)

Is this part of an important population?

Under the Act, important populations are:

- likely to be key source populations either for breeding or dispersal
- likely to be necessary for maintaining genetic diversity
- at or near the limit of the species range.

Tylophora linearis is distributed from Southern Queensland into central NSW. The majority of records occur in the central western region. There are records from Goonoo, Pilliga West, Pilliga East, Bibblewindi, Cumbil and Eura State Forests, Coolbaggie NR, Goobang NP and Beni SCA. Old records go up as far north as Crow Mountain. The species was collected from eight localities in the Dubbo area (Department for Agriculture Water Heritage and the Arts 2008).

Given the locality of the project, near the edge of the possible distribution (refer Figure C.14), individuals occurring here would be near the limit of the species range. Using a precautionary approach, any individuals in this study area would thus be part of an important population.

Significant impact criteria

An action is likely to have a significant impact on a Vulnerable species if there is a real chance or possibility that it will:

LEAD TO A LONG-TERM DECREASE IN THE SIZE OF AN IMPORTANT POPULATION

Given the limited extent of assumed habitat for *Tylophora linearis* to be removed, the restricted distribution and lack of records from surveys to date, it is unlikely that the loss of this assumed habitat would be significant to the extent that it would lead to a long-term decrease in the size of a local population.

REDUCE THE AREA OF OCCUPANCY OF AN IMPORTANT POPULATION

If *Tylophora linearis* is present in the assumed habitat, the project will directly impact on an important population. Therefore, the project will reduce the area of occupancy for an important population.

FRAGMENT AN EXISTING IMPORTANT POPULATION INTO TWO OR MORE POPULATIONS

The project is likely to impact on up to 3.3 ha of assumed habitat for this species. Given the small area of assumed habitat that will be impacted (in relation to potential habitat in the locality), project it is considered unlikely to reduce the area of occupancy for an important population.

ADVERSELY AFFECT HABITAT CRITICAL TO THE SURVIVAL OF A SPECIES

No Critical Habitat as defined under section 207A of the EPBC Act has been identified for *Tylophora linearis* or included in the Register of Critical Habitat. Habitat critical to the survival of a species or ecological community' refers to areas that are necessary:

- for activities such as foraging, breeding, roosting, or dispersal
- for the long-term maintenance of the species or ecological community (including the maintenance of species essential to the survival of the species or ecological community, such as pollinators)
- to maintain genetic diversity and long-term evolutionary development, or
- for the reintroduction of populations or recovery of the species or ecological community (Department of the Environment Heritage Water and the Arts 2009)

DISRUPT THE BREEDING CYCLE OF AN IMPORTANT POPULATION

Tylophora linearis flowers in spring, and flowering is likely related to rainfall. Fruiting occurs approximately 2-3 months after flowering. There is no information on biotic interactions with this species, but like most asclepiads, it is assumed to be insect-pollinated (Forster, Binns et al. 2004). Little detail is known about the species' breeding cycle.

The project is generally unlikely to result in direct disruptions to the ecological processes and functions important for the life cycle of this species.

MODIFY, DESTROY, REMOVE OR ISOLATE OR DECREASE THE AVAILABILITY OR QUALITY OF HABITAT TO THE EXTENT THAT THE SPECIES IS LIKELY TO DECLINE

The project impacts a total of 23.84 ha of habitat and given the disjunct nature of known patches; it is difficult to discern if such impacts will cause the species to decline in the broader landscape.

Given the small extent of assumed habitat and lack of records or known occurrence in the locality it is considered unlikely that the project may modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline.

RESULT IN INVASIVE SPECIES THAT ARE HARMFUL TO A VULNERABLE SPECIES BECOMING ESTABLISHED IN THE VULNERABLE SPECIES' HABITAT

Mitigation measures are recommended in the BDAR to limit the spread of weeds, pathogens and disease. Given these measures, the project is unlikely to significantly contribute to the introduction or spread of invasive species not currently present in surrounding areas.

INTRODUCE DISEASE THAT MAY CAUSE THE SPECIES TO DECLINE

There are no known diseases that are specific to *Tylophora linearis.*

Mitigation measures are recommended in the BDAR, such as weed and pest management plans, vegetation clearing protocols, installation vehicle wash stations and sediment and control measures. These will help to minimise the likelihood of introduction or spread of pathogens into the site. Consequently, the project is unlikely to introduce disease or pathogens that may contribute to the decline of the species.

INTERFERE SUBSTANTIALLY WITH THE RECOVERY OF THE SPECIES

No Recovery plan has been prepared for this species at this stage. The approved conservation advice for the species outlines a number of local and regional priority recovery and threat abatement actions can be done to support the recovery of *Tylophora linearis.*

As the project involves removal of small area of assumed habitat for the species, the project is unlikely to interfere with the recovery of the species.

CONCLUSION

This species has not been recorded within the project study area however some areas were unable to be accessed for survey and in the absence of targeted survey, the project is likely to impact on up to 23.84 ha of assumed habitat for this species. The extent of assumed habitat to be removed for the project is small in comparison to the total potential habitat extent for the species and as such the project considered unlikely to significantly impact *Tylophora linearis.*

NSW Assessment Bilateral requirements

For each of the EPBC Act listed threatened species and communities and migratory species likely to be impacted by the action the EIS must provide a separate:

DESCRIPTION OF THE HABITAT (INCLUDING IDENTIFICATION AND MAPPING OF SUITABLE BREEDING HABITAT, SUITABLE FORAGING HABITAT, IMPORTANT POPULATIONS AND HABITAT CRITICAL FOR SURVIVAL), WITH CONSIDERATION OF, AND REFERENCE TO, ANY RELEVANT COMMONWEALTH GUIDELINES AND POLICY STATEMENTS INCLUDING LISTING ADVICE, CONSERVATION ADVICE AND RECOVERY PLAN

A description of habitat for this species, important populations, habitat critical for survival and relevant Commonwealth documents are provided in section above, with a map showing the modelled distribution of the species provided in Figure C.14.

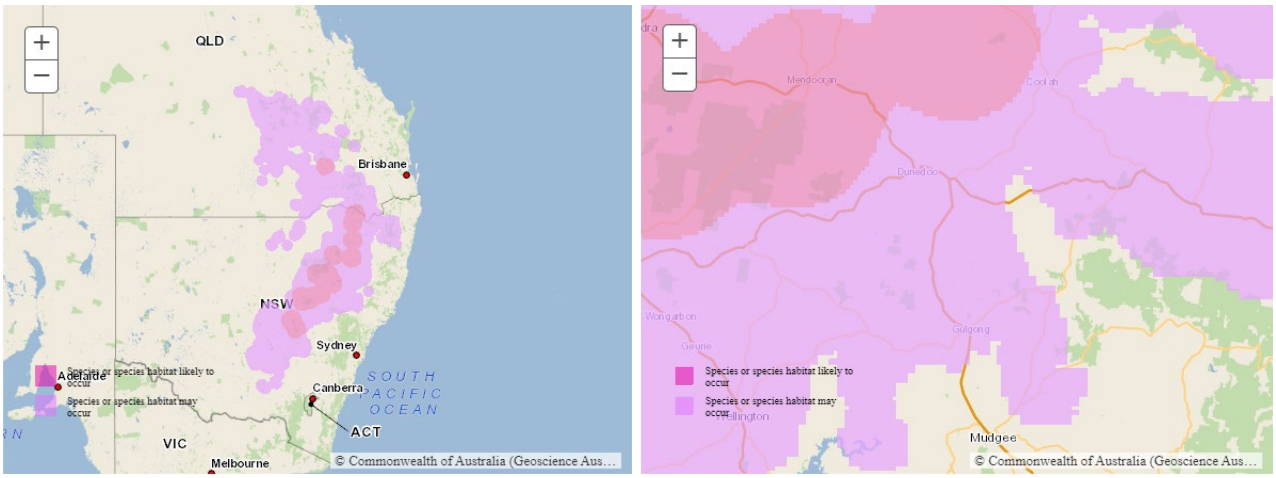

Figure C.14 Current distribution map for Tylophora linearis (Department for Agriculture Water Heritage and the Arts, 2008)

DETAILS OF THE SCOPE, TIMING AND METHODOLOGY FOR STUDIES OR SURVEYS USED AND HOW THEY ARE CONSISTENT WITH (OR JUSTIFICATION FOR DIVERGENCE FROM) PUBLISHED AUSTRALIAN GOVERNMENT GUIDELINES AND POLICY STATEMENTS

Prior to surveys, a review of habitat constraints, geographic limitations and microhabitats for candidate threatened flora (species credit) species as listed within the NSW Threatened Biodiversity Data Collection (TBDC) was undertaken. A number of existing BDARs and other biodiversity reports were reviewed to obtain existing information on biodiversity in the locality with specific focus placed on areas assessed in previous BDARs that overlap with the Project.

Field survey techniques were used to undertake targeted seasonal surveys in general accordance with *Surveying threatened plants and their habitats; NSW guide for the Biodiversity Assessment Method* (Department of Planning Industry and Environment 2020):

- two-phase grid-based systematic survey
- parallel field traverses of microhabitats.

Further details of these surveys are provided in in Section 2.3 of the BDAR.

The field survey techniques used to undertake surveys were also in general accordance with the *NSW Biodiversity Assessment Method* (Department of Planning Industry and Environment 2020) with a detailed field verification method provided in Section 2.3 of the BDAR. Where a species could not be positively identified in the field and was suspected of being a threatened species, a voucher specimen was collected and preserved for later identification. These samples were sent to the Royal Botanic Gardens in Sydney and/or the Australian National Botanic Gardens for confirmation of identification.

DESCRIPTION OF THE SPECIFIC IMPACTS AND ITS REGARD TO THE FULL NATIONAL EXTENT OF THE SPECIES OR COMMUNITY'S RANGE

The direct impacts include 23.84 ha of assumed habitat for this species. Figure C.14 shows the current known generalised distribution.

DESCRIPTION OF THE SPECIFIC PROPOSED AVOIDANCE AND MITIGATION MEASURES TO DEAL WITH RELEVANT IMPACTS OF THE ACTION

The proposed avoidance and mitigation measures are outlined in Section 7 and section 8.3 of the BDAR. Regarding specific measures for *Tylophora linearis*, the following relevant mitigation measures are recommended for any related residual impacts:

- Protect all known sites from disturbance until conservation status is fully established and recovery actions are better developed.
- Monitor the progress of recovery, including the effectiveness of management actions and the need to adapt them if necessary.
- Ensure local government, Department of Primary Industries, and other planning agencies are informed of all known populations in order to assist in planning decisions regarding clearing, forestry, and other development activities.
- Ensure track widening and maintenance activities (or other infrastructure or development activities) involving substrate or vegetation disturbance in areas where *T. linearis* occurs do not adversely impact on known populations.

IDENTIFICATION OF SIGNIFICANT RESIDUAL ADVERSE IMPACTS LIKELY TO OCCUR AFTER THE PROPOSED ACTIVITIES TO AVOID AND MITIGATE ALL IMPACTS ARE TAKEN INTO ACCOUNT

The residual direct impacts to *Tylophora linearis* include impact to 23.84 ha of assumed habitat.

A DESCRIPTION OF ANY OFFSETS PROPOSED TO ADDRESS RESIDUAL ADVERSE SIGNIFICANT IMPACTS AND HOW THESE OFFSETS WILL BE ESTABLISHED

Details of offset requirements and obligations for this community as a result of residual impacts due the project is addressed in Section 10 of the BDAR.

DETAILS OF HOW THE CURRENT PUBLISHED NSW BIODIVERSITY ASSESSMENT METHOD (BAM) HAS BEEN APPLIED IN ACCORDANCE WITH THE OBJECTS OF THE EPBC ACT TO OFFSET SIGNIFICANT RESIDUAL ADVERSE IMPACTS

The BDAR specifically addresses Section 10 of the BAM and provides information on the application of the no net loss standard and the project biodiversity offset obligations.

DETAILS OF THE OFFSET PACKAGE TO COMPENSATE FOR SIGNIFICANT RESIDUAL IMPACTS INCLUDING DETAILS OF THE CREDIT PROFILES REQUIRED TO OFFSET THE ACTION IN ACCORDANCE WITH THE BAM AND/OR MAPPING AND DESCRIPTIONS OF THE EXTENT AND CONDITION OF THE RELEVANT HABITAT AND/OR THREATENED COMMUNITIES OCCURRING ON PROPOSED OFFSET SITES

Section 11 of the BDAR outlines the biodiversity credit requirements for the project. The offset obligations will be met through implementing a combination of the following offset delivery options, being:

- the purchase and retirement of existing biodiversity credits currently available on the biodiversity credit register
- establishing a biodiversity stewardship site(s) on lands with like for like biodiversity values to those impacted by the project
- through making a payment into the Biodiversity Conservation Fund.

C3.3 Threatened fauna species subject to assessment

Appendix A of the SEARs outlines the original list of EPBC Act listed threatened fauna species likely to be impacted by the action. Combined with database searches (BioNet, BAM-C and PMST), there is predicted habitat or identified known habitat within the subject land for 22 threatened fauna species listed under the EPBC Act which have been identified to have a moderate likelihood of occurrence or higher (refer Table C.1). There is also impact on nine migratory species, none with moderate likelihood of occurrence of higher listed under the EPBC. Section 5 of the BDAR provides a description of the habitat requirements for each EPBC Act listed species, and the reasoning for inclusion and exclusion of EPBC Act listed species in this assessment.

Details of the scope, timing and methodology of the targeted surveys used for EPBC Act listed threatened fauna species and how they are consistent with (or justification for divergence from) published Australian Government guidelines and policy statements is provided in the significance assessments of each species in the provided below.

The EPBC Act listed threatened fauna species that were identified to have a moderate or higher likelihood of occurrence and were the subject of targeted surveys are outlined in Table C.1. Significance assessments for these species have been completed following the *Matters of National Environmental Significance - Significant Impact Guidelines 1.1* (Department of the Environment Water Heritage and the Arts 2013).

Table C.5 Listed EPBC Act threatened fauna species considered for assessment

Scientific name	Common name	EPBC Act	Direct impact (ha)	Significant impact?
Reptiles				
Aprasia parapulchella	Pink-tailed Worm-lizard	V	16.36	Species associated with: PCT 42, 266, 277, 281, 440, 461, 468, 477, 478, 618, 599, 1610, 1674, 1696 No – the project is unlikely to have a significant impact on the species
Delma impar	Striped Legless Lizard	V	83.4	Species associated with: PCT 42, 277, 618, 599, 1696 No – the project is unlikely to have a significant impact on the species
Hoplocephalus bungaroides	Broad-headed Snake	E	10.8 species credit habitat Foraging habitat impacts captured as part of ecosystem credits.	Species associated with: PCT 1674 No – the project is unlikely to have a significant impact on the species
Birds				
Anthochaera Phrygia	Regent Honeyeater	CE	95.8	Species associated with Mapped Important Habitat and PCTs: 42, 81, 202, 266, 277, 281, 461, 468, 479, 481, 483, 618, 599, 1610, 1696 Yes – the project is likely to have a significant impact on the species

Scientific name	Common name	EPBC Act	Direct impact (ha)	Significant impact?
Callocephalon fimbriatum	Gang-gang Cockatoo	E	No breeding habitat assumed present. Foraging habitat impacts captured as part of ecosystem credits.	Suitable habitat recorded in the form of PCT 266, 277, 281, 440, 461, 478, 479, 618, 1177, 599. No – the project is unlikely to have a significant impact on the species
Calyptorhynchus lathami lathami	South-eastern Glossy Black-cockatoo	V	31.4 assumed breeding habitat Foraging habitat impacts captured as part of ecosystem credits.	Species associated with: PCT 42, 81, 202, 266, 440, 461, 468, 477, 599, 1674 No – the project is unlikely to have a significant impact on the species
Climacteris picumnus victoriae	Brown Treecreeper (south-eastern)	V	Ecosystem credit species. Impacts captured as part of ecosystem credits.	No – the project is unlikely to have a significant impact on the species
Grantiella picta	Painted Honeyeater	V	Ecosystem credit species. Impacts captured as part of ecosystem credits.	Species associated with: 42, 81, 202, 266, 277, 281, 440, 461, 468, 477, 478, 479, 481, 483, 618, 1177, 599, 1610, 1674, 1696 No – the project is unlikely to have a significant impact on the species
Hirundapus caudacutus	White-throated Needletail	V	Ecosystem credit species. Impacts captured as part of ecosystem credits.	No – the project is unlikely to have a significant impact on the species
Lathamus discolor	Swift Parrot	CE	Ecosystem credit species. Impacts captured as part of ecosystem credits.	Species associated with: 42, 81, 202, 266, 277, 281, 440, 461, 468, 477, 478, 479, 481, 483, 618, 1177, 599, 1610, 1661, 1674, 1696 No – the project is unlikely to have a significant impact on the species
Leipoa ocellata	Malleefowl	V	Ecosystem credit species. Impacts captured as part of ecosystem credits.	No – the project is unlikely to have a significant impact on the species
Melanodryas cucullata cucullata	South-eastern Hooded Robin	E	Ecosystem credit species. Impacts captured as part of ecosystem credits.	No – the project is unlikely to have a significant impact on the species

Scientific name	Common name	EPBC Act	Direct impact (ha)	Significant impact?
Polytelis swainsonii	Superb Parrot	V	2.63 assumed breeding habitat Foraging habitat impacts captured as part of ecosystem credits.	Species associated with: 81, 202, 266, 277, 281, 440, 461, 477 No – the project is unlikely to have a significant impact on the species
Stagonopleura guttata	Diamond Firetail	V	Ecosystem credit species. Impacts captured as part of ecosystem credits.	No – the project is unlikely to have a significant impact on the species
Mammals				
Chalinolobus dwyeri	Large-eared Pied Bat	V	130.03	Species associated with: PCT 42, 202, 277, 281, 440, 461, 468, 477, 599, 1674 Species recorded in: PCT 1610 No – the project is unlikely to have a significant impact on the species
Nyctophilus corbeni	Corben's Long-eared Bat	V	Ecosystem credit species. Impacts captured as part of ecosystem credits.	No – the project is unlikely to have a significant impact on the species
Petaurus australis	Yellow-bellied Glider	V	Ecosystem credit species. Impacts captured as part of ecosystem credits.	No – the project is unlikely to have a significant impact on the species
Petrogale penicillata	Brush-tailed Rock-wallaby	E	19.9	Species associated with: PCT 81, 202, 266, 277, 281, 440, 477, 1177, 1674 No – the project is unlikely to have a significant impact on the species
Phascolarctos cinereus	Koala	E	608.8	Species associated with: PCT 42, 81, 202, 266, 277, 281, 440, 461, 468, 477, 478, 479, 481, 483, 618, 1177, 599, 1610, 1661, 1674, 1696 No – the project is unlikely to have a significant impact on the species
Dasyurus maculatus maculatus	Spotted-tailed Quoll (SE Mainland Population)	E	Ecosystem credit species. Impacts captured as part of ecosystem credits.	No – the project is unlikely to have a significant impact on the species

Scientific name	Common name	EPBC Act	Direct impact (ha)	Significant impact?
Pseudomys novaehollandiae	New Holland Mouse	V	Ecosystem credit species. Impacts captured as part of ecosystem credits.	No – the project is unlikely to have a significant impact on the species
Pteropus poliocephalus	Grey-headed Flying Fox	V	Ecosystem credit species. Impacts captured as part of ecosystem credits	Species associated with: 42, 81, 202, 266, 277, 281, 440, 461, 468, 477, 1177, 599, 1674 No – the project is unlikely to have a significant impact on the species

(1) Threat status under the EPBC Act: V = vulnerable, E = endangered, CE = critically endangered

Pink-tailed Legless Lizard

The Pink-tailed Legless Lizard is listed as Vulnerable under the EPBC Act and Vulnerable under the BC Act.

Description

The Pink-tailed Legless Lizard (also known as the Pink-tailed Worm-lizard) is worm-like, with a dark-brown head and nape, gradually merging with the pale grey or grey-brown body.

The Pink-tailed Legless Lizard is only known from the Central and Southern Tablelands, and the South Western Slopes. There is a concentration of populations in the Canberra/Queanbeyan Region. Inhabits sloping, open woodland areas with predominantly native grassy ground layers, particularly those dominated by Kangaroo Grass (*Themeda australis*). Sites are typically well-drained, with rocky outcrops or scattered, partially-buried rocks (Department of Environment and Energy 2017).

Relevant Commonwealth guidelines and policy statements including listing advice, conservation advice and recovery plan

A summary of the relevant Commonwealth guidelines and policy statements available for this species is as follows:

- Conservation Advice (Threatened Species Scientific Committee 2015) in effect under the EPBC Act from 01-Oct-2015
- No specific listing advice, listing assessment information is available in the approved Conservation Advice
- There is no adopted or made Recovery Plan for this species.
- Threat abatement plan for competition and land degradation by rabbits (Department of the Environment and Energy 2016).
- Survey guidelines for Australia's threatened reptiles, EPBC Act survey guidelines 6.6 (Department of Sustainability 2011).

Specific impacts

Pink-tailed Legless Lizard habitat is restricted to being within 50 m of rocky areas. Potential habitat has been located within the project study area in the form of PCTs 42, 266, 277, 281, 440, 461, 468, 477, 478, 618, 599, 1610, 1674 and 1696. Impacts have been restricted to 16.36 ha of potential habitat.

However targeted surveys for the species failed to locate any individuals, and overall, the project is considered unlikely to impact upon habitats in which this species is most likely to occur. Nevertheless, this assessment has been completed as a precautionary measure as records do occur within localities associated with the study Area.

Is this part of an important population?

In accordance with the *Matters of National Environmental Significance - Significant Impact Guidelines 1.1* (Department of the Environment Water Heritage and the Arts 2013), the presence of an important population must be identified prior to addressing the significance impact criteria. An important population is defined in the Significant Impact Guidelines as a population that is necessary for a species' long-term survival and recovery. Under the Act, important populations are:

- likely to be key source populations either for breeding or dispersal
- likely to be necessary for maintaining genetic diversity
- at or near the limit of the species range.

There are no records of this species within the project study area however, this species has been recorded in the locality north of Wollar approximately 10km from the project. Potential habitat for this species occurred within the study area as disjunct remnant patches of highly modified woodland/grassland with the presence of bush rock. Potential habitat has been previously disturbed by agricultural cropping and grazing.

The Pink-tailed Legless Lizard has a wide but patchy distribution within NSW along the western slopes and Great Dividing Range. Its main stronghold is known to be located within the central & southern tablelands and south-western slopes including areas in ACT. Local occurrences of this species are unlikely to be part of key source populations for breeding and dispersal. Therefore, individuals that occur within the area are not considered as part of 'an important population'.

Significant impact criteria

An action is likely to have a significant impact on a vulnerable species if there is a real chance or possibility that it will:

LEAD TO A LONG-TERM DECREASE IN THE SIZE OF AN IMPORTANT POPULATION

Not applicable – Pink-tailed Legless Lizard occurring within the study area is not part of an important population.

REDUCE THE AREA OF OCCUPANCY OF AN IMPORTANT POPULATION

Not applicable – Pink-tailed Legless Lizard occurring within the study area is not part of an important population.

FRAGMENT AN EXISTING IMPORTANT POPULATION INTO TWO OR MORE POPULATIONS

Not applicable – Pink-tailed Legless Lizard occurring within the study area is not part of an important population.

ADVERSELY AFFECT HABITAT CRITICAL TO THE SURVIVAL OF A SPECIES

Habitat critical to the survival of a species refers to areas that are necessary:

- for activities such as foraging, breeding, roosting, or dispersal
- for the long-term maintenance of the species or ecological community (including the maintenance of species essential to the survival of the species or ecological community, such as pollinators)
- to maintain genetic diversity and long-term evolutionary development, or
- for the reintroduction of populations or recovery of the species or ecological community. (Department of the Environment Water Heritage and the Arts 2013)

The project would impact potential habitat in the form of remnant patches of highly modified woodland/grassland with the presence of bush rock. Potential habitat has been previously disturbed by agricultural cropping and grazing. Due to the disturbed and limited extent of habitat within the project it unlikely that the habitat within the survey area would meet the above criteria for the Pink-tailed Legless Lizard.

DISRUPT THE BREEDING CYCLE OF AN IMPORTANT POPULATION

Not applicable – Pink-tailed Legless Lizard occurring within the study area is not part of an important population.

MODIFY, DESTROY, REMOVE OR ISOLATE OR DECREASE THE AVAILABILITY OR QUALITY OF HABITAT TO THE EXTENT THAT THE SPECIES IS LIKELY TO DECLINE

Potential impacts would involve removal of woodland/grassland habitat, and displacement of bush rock that provides potential foraging and sheltering habitat for the species. The potential habitat to be impacted is already disturbed in nature due to historic practices in the area. It is unlikely that the habitat to be impacted is important to a potential local population. It is unlikely that potential habitat to be impacted would isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline.

RESULT IN INVASIVE SPECIES THAT ARE HARMFUL TO A VULNERABLE SPECIES BECOMING ESTABLISHED IN THE VULNERABLE SPECIES' HABITAT

It is not likely that invasive species (such as introduced predators) that are harmful to this species would become further established as a result of the project.

INTRODUCE DISEASE THAT MAY CAUSE THE SPECIES TO DECLINE

No. There are no known diseases that are likely to increase in the area as a result of the project.

INTERFERE SUBSTANTIALLY WITH THE RECOVERY OF THE SPECIES

Recovery actions have been prepared for this species under the Environment Protection Biodiversity Act 1999 (Threatened Species Scientific Committee, 2015). Of the conservation actions identified under the Conservation Advice, the project is contrary to one being "habitat loss, disturbance and modifications".

Management actions under the NSW Saving Our Species (SOS) program have identified critical actions for the species that would be applicable to this species. Of the seven identified actions under SOS, the project is contrary to one action being: retain imbedded and surface rock in suitable habitat throughout the species range; protect rocky habitat through management agreements and incentives.

Works will not disturb significant amounts of key habitats and will retain imbedded surface rock in suitable habitats and will therefore not interfere substantially with the recovery of this species.

CONCLUSION

For the following reasons the project is unlikely to significantly affect Pink-tailed Legless Lizard or their habitat:

- individuals that occur within the area are not considered as part of 'an important population'
- habitat affected is of marginal quality and is not of significant importance
- the habitat affected is a small proportion of potential habitat for these species in the locality
- management measures would be implemented to minimise potential impacts during works
- the works are unlikely to significantly fragment and/or isolate these species that would place it them at risk of extinction in the locality.

NSW Assessment Bilateral requirements

DESCRIPTION OF THE HABITAT (INCLUDING IDENTIFICATION AND MAPPING OF SUITABLE BREEDING HABITAT, SUITABLE FORAGING HABITAT, IMPORTANT POPULATIONS AND HABITAT CRITICAL FOR SURVIVAL), WITH CONSIDERATION OF, AND REFERENCE TO, ANY RELEVANT COMMONWEALTH GUIDELINES AND POLICY STATEMENTS INCLUDING LISTING ADVICE, CONSERVATION ADVICE AND RECOVERY PLAN

A description of habitat for this species, important populations, habitat critical for survival and relevant Commonwealth documents are provided above, with a map showing the modelled distribution of the species provided in Figure C.15.

DETAILS OF THE SCOPE, TIMING AND METHODOLOGY FOR STUDIES OR SURVEYS USED AND HOW THEY ARE CONSISTENT WITH (OR JUSTIFICATION FOR DIVERGENCE FROM) PUBLISHED AUSTRALIAN GOVERNMENT GUIDELINES AND POLICY STATEMENTS

Threatened reptile surveys completed within the project study area were carried out in accordance with the Survey guidelines for Australia's threatened reptiles Ver.6.6 (Department of Sustainability 2011). Habitat assessments were undertaken to assess the likelihood of threatened species of animal (those species known or predicted to occur within the locality from the literature and database review) occurring within the project study area. Fauna habitat assessments were the primary assessment tool in assessing whether threatened species were likely to occur within the project study area. Details on the survey methods undertaken for this species are outlined in Section 2 of the BDAR.

Figure C.15 shows the current known generalised distribution which is an indicative distribution map of the species based on best available knowledge. Any population of Pink-tailed Legless Lizard within the study area would be west of the central-western extent of the known distribution of the species. Potential habitat is widespread but known occurrences of the species are rare.

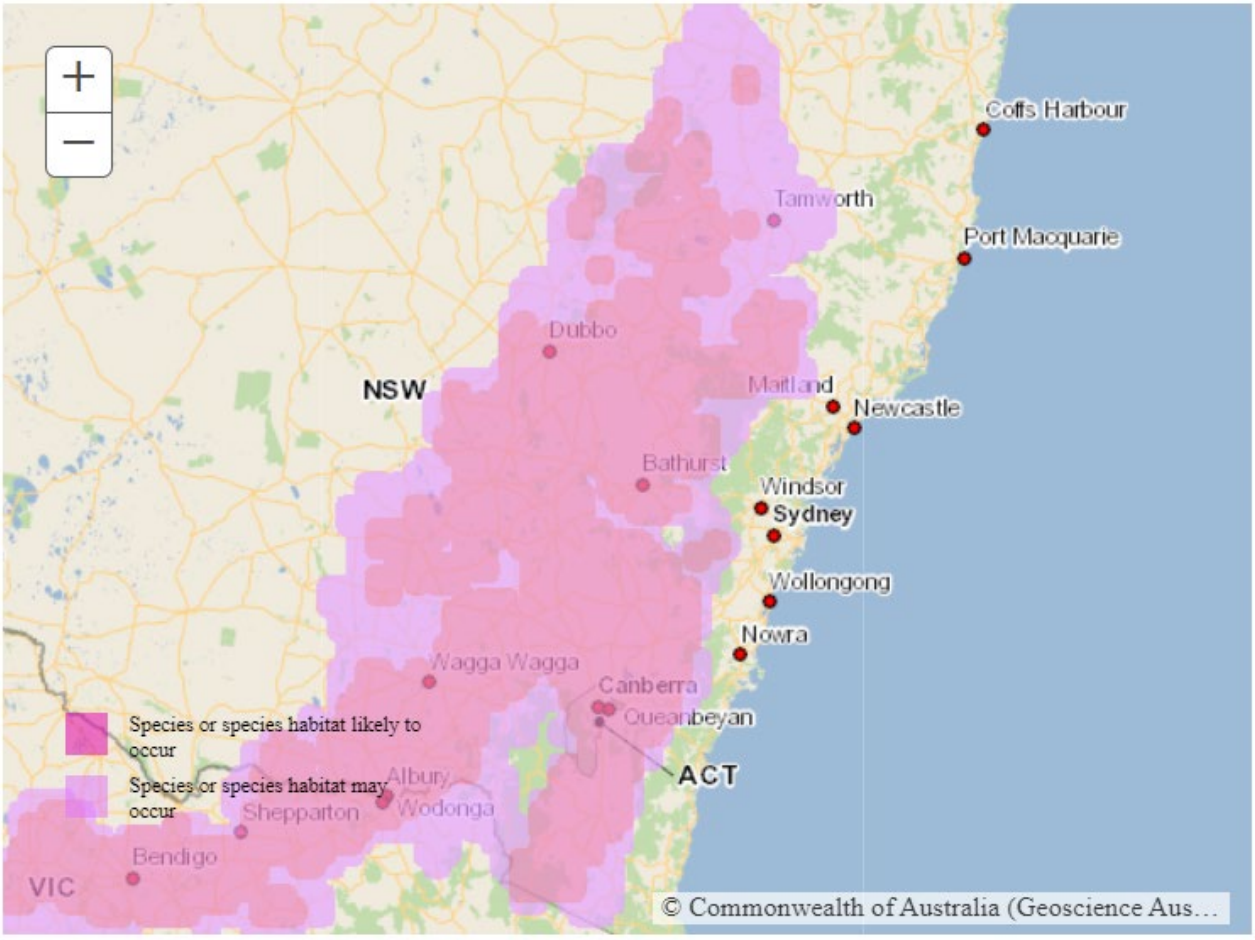

Figure C.15 Current distribution map for Pink-tailed Legless Lizard (refer SPRAT profile)

DESCRIPTION OF THE SPECIFIC IMPACTS AND ITS REGARD TO THE FULL NATIONAL EXTENT OF THE SPECIES OR COMMUNITY'S RANGE

The direct impacts include 16.36 ha of assumed habitat for this species. Figure C.15 shows the current known generalised distribution.

DESCRIPTION OF THE SPECIFIC PROPOSED AVOIDANCE AND MITIGATION MEASURES TO DEAL WITH RELEVANT IMPACTS OF THE ACTION

The proposed avoidance and mitigation measures are outlined in Section 7 & 8 of the BDAR. Detailed avoidance description for impacts relating to biodiversity values (including threatened species) are outlined in Section 7. Mitigation measures to be implemented are outlined in Section 8.

IDENTIFICATION OF SIGNIFICANT RESIDUAL ADVERSE IMPACTS LIKELY TO OCCUR AFTER THE PROPOSED ACTIVITIES TO AVOID AND MITIGATE ALL IMPACTS ARE TAKEN INTO ACCOUNT

Residual impacts to Pink-tailed Legless Lizard are limited to 16.36 ha of potential habitat removal.

A DESCRIPTION OF ANY OFFSETS PROPOSED TO ADDRESS RESIDUAL ADVERSE SIGNIFICANT IMPACTS AND HOW THESE OFFSETS WILL BE ESTABLISHED

Details of offset requirements and obligations for this species as a result of residual impacts due the project is addressed in Section 10 of the BDAR.

DETAILS OF HOW THE CURRENT PUBLISHED NSW BIODIVERSITY ASSESSMENT METHOD (BAM) HAS BEEN APPLIED IN ACCORDANCE WITH THE OBJECTS OF THE EPBC ACT TO OFFSET SIGNIFICANT RESIDUAL ADVERSE IMPACTS

The BDAR specifically addresses Section 10 of the BAM and provides information on the application of the no net loss standard and the proposed biodiversity offset obligations.

DETAILS OF THE OFFSET PACKAGE TO COMPENSATE FOR SIGNIFICANT RESIDUAL IMPACTS INCLUDING DETAILS OF THE CREDIT PROFILES REQUIRED TO OFFSET THE ACTION IN ACCORDANCE WITH THE BAM AND/OR MAPPING AND DESCRIPTIONS OF THE EXTENT AND CONDITION OF THE RELEVANT HABITAT AND/OR THREATENED COMMUNITIES OCCURRING ON PROPOSED OFFSET SITES

Section 11 of the BDAR outlined the biodiversity offset strategy for the project. Offset obligations will be met through implementing a combination of the following offset delivery options, being:

- the purchase and retirement of existing biodiversity credits currently available on the biodiversity credit register
- establishing a biodiversity stewardship site(s) on lands with like for like biodiversity values to those impacted by the project
- through making a payment into the Biodiversity Conservation Fund.

Striped Legless Lizard

The Striped Legless Lizard is listed as Vulnerable under the EPBC Act and BC Act.

Description

Striped Legless Lizard differs most obviously from a snake in having external ear openings, small scaly flaps for hind limbs, a long tail and a broad, undivided tongue. it is pale grey-brown above, with a darker head, and almost white below. The most distinguishing characteristic is a pattern of light and dark parallel lines running along the length of the body.

The Striped Legless Lizard occurs in the Southern Tablelands, the South West Slopes, the Upper Hunter and possibly on the Riverina. Populations are known in the Goulburn, Yass, Queanbeyan, Cooma, Muswellbrook and Tumut areas.

Found mainly in Natural Temperate Grassland but has also been captured in grasslands that have a high exotic component. Also found in secondary grassland near Natural Temperate Grassland and occasionally in open Box-Gum Woodland. Habitat is where grassland is dominated by perennial, tussock-forming grasses.

Relevant Commonwealth guidelines and policy statements including listing advice, conservation advice and recovery plan

A summary of the relevant Commonwealth guidelines and policy statements available for this species is as follows:

- Approved Conservation Advice: Conservation Advice Delma impar Striped Legless Lizard (Threatened Species Scientific Committee 2015). In effect under the EPBC Act from 16-Dec-2016.
- Listing Advice: Listing assessment information may be available in the approved Conservation Advice
- Adopted/Made Recovery Plans: National Recovery Plan for the Striped Legless Lizard (Delma impar) 1999-2003. NSW (Smith and Robertson 1999)
- threat abatement plan for competition and land degradation by rabbits (Department of the Environment and Energy 2016)
- threat abatement plan for predation by feral cats (Department of the Environment 2015)
- threat abatement plan for predation by the European red fox (Department of the Environment Water Heritage and the Arts 2008).
- survey guidelines for Australia's threatened reptiles, EPBC Act survey guidelines 6.6 (Department of Sustainability 2011)
- referral guidelines for the Striped legless lizard, *Delma impar* (Department of Sustainability 2011).

Specific impacts

Striped Legless Lizard has potential habitat within the project study area in the form of including 49.77 ha of associated PCT 483, and 618 (Kerrabee and Liverpool ranges), of which 18.67 ha would be cleared completely, and 31.10 ha would have the canopy removed.

Targeted surveys for the species failed to locate any individuals, and overall, the project is considered unlikely to impact upon habitats in which this species is most likely to occur. Additionally, there are no local records within ten kilometres of the Subject land, the nearest records are approximately 90 kilometres away and occur in the Hunter subregion. Mapping for the species does not extend into areas where the project occurs. This assessment has been completed as a precautionary measure despite the likelihood that the species is not present, due to the presence of suitable habitat.

Is this part of an important population?

In accordance with the *Matters of National Environmental Significance - Significant Impact Guidelines 1.1* (Department of the Environment Water Heritage and the Arts 2013), the presence of an important population must be identified prior to addressing the significance impact criteria. An important population is defined in the Significant Impact Guidelines as a population that is necessary for a species' long-term survival and recovery. Under the Act, important populations are:

- likely to be key source populations either for breeding or dispersal
- likely to be necessary for maintaining genetic diversity
- at or near the limit of the species range.

There are no records of this species within the Subject land or within the wider locality. Although this species was not recorded during the field surveys, suitable habitat would be impacted by the project.

The Striped Legless Lizard has a wide but patchy distribution within NSW from the Southern Tablelands, the South West Slopes, the Upper Hunter and possibly on the Riverina. Local occurrences of this species are unlikely to be part of key source populations for breeding and dispersal. Therefore, individuals that occur within the area are not considered as part of 'an important population'.

Significant impact criteria

An action is likely to have a significant impact on a vulnerable species if there is a real chance or possibility that it will:

LEAD TO A LONG-TERM DECREASE IN THE SIZE OF AN IMPORTANT POPULATION

Not applicable – Striped Legless Lizard occurring within the study area is not part of an important population.

REDUCE THE AREA OF OCCUPANCY OF AN IMPORTANT POPULATION

Not applicable – Striped Legless Lizard occurring within the study area is not part of an important population.

FRAGMENT AN EXISTING IMPORTANT POPULATION INTO TWO OR MORE POPULATIONS

Not applicable – Striped Legless Lizard occurring within the study area is not part of an important population.

ADVERSELY AFFECT HABITAT CRITICAL TO THE SURVIVAL OF A SPECIES

Habitat critical to the survival of a species refers to areas that are necessary:

- for activities such as foraging, breeding, roosting, or dispersal
- for the long-term maintenance of the species or ecological community (including the maintenance of species essential to the survival of the species or ecological community, such as pollinators)
- to maintain genetic diversity and long-term evolutionary development, or
- for the reintroduction of populations or recovery of the species or ecological community. (Department of the Environment Water Heritage and the Arts 2013).

Neither the recovery plan for this species (Smith and Robertson 1999) nor the referral guideline (Department of Sustainability 2011) list or describe habitat critical for the survival of this species.

The project would impact PCTs preferred by this species in the form of remnant patches of highly modified woodland/grassland and potential habitat has been previously disturbed by agricultural cropping and grazing. Due to the disturbed and limited extent of habitat within the study area is it unlikely that the habitat within the survey area would meet the above criteria for the Striped Legless Lizard.

DISRUPT THE BREEDING CYCLE OF AN IMPORTANT POPULATION

Not applicable – Striped Legless Lizard occurring within the study area is not part of an important population.

MODIFY, DESTROY, REMOVE OR ISOLATE OR DECREASE THE AVAILABILITY OR QUALITY OF HABITAT TO THE EXTENT THAT THE SPECIES IS LIKELY TO DECLINE

Potential impacts would involve removal of woodland/grassland habitat. The potential habitat to be impacted is already disturbed in nature due to historic practices in the area. It is unlikely that the habitat to be impacted is important to the species (if present). It is unlikely that potential habitat to be impacted would isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline.

RESULT IN INVASIVE SPECIES THAT ARE HARMFUL TO A VULNERABLE SPECIES BECOMING ESTABLISHED IN THE VULNERABLE SPECIES' HABITAT

It is not likely that invasive species (such as introduced predators) that are harmful to the Striped Legless Lizard would become further established as a result of the project. Adhering to mitigation measures such as weed and pest management plans, and vehicle weed hygiene, would prevent invasive weeds and pests such establishing in wetland habitat areas.

INTRODUCE DISEASE THAT MAY CAUSE THE SPECIES TO DECLINE

No. There are no known diseases that are likely to increase in the area as a result of the project.

INTERFERE SUBSTANTIALLY WITH THE RECOVERY OF THE SPECIES

Recovery actions have been prepared within the recovery plan for this species (Smith and Robertson 1999). The project will not interfere with any of the projects within this plan.

Works will not disturb significant amounts of key habitats and will retain imbedded surface rock in suitable habitats and will therefore not interfere substantially with the recovery of this species.

CONCLUSION

For the following reasons the project is unlikely to significantly affect Striped Legless Lizard or their habitat:

- the known range of the species does not extend to the project study area
- there are no records for the species within the wider locality of the study area
- individuals that occur within the area are not considered as part of 'an important population'
- habitat affected is of marginal quality and is not of significant importance
- the habitat affected is a small proportion of potential habitat for these species in the locality
- management measures would be implemented to minimise potential impacts during works
- the works are unlikely to significantly fragment and/or isolate these species that would place it them at risk of extinction in the locality.

NSW Assessment Bilateral requirements

DESCRIPTION OF THE HABITAT (INCLUDING IDENTIFICATION AND MAPPING OF SUITABLE BREEDING HABITAT, SUITABLE FORAGING HABITAT, IMPORTANT POPULATIONS AND HABITAT CRITICAL FOR SURVIVAL), WITH CONSIDERATION OF, AND REFERENCE TO, ANY RELEVANT COMMONWEALTH GUIDELINES AND POLICY STATEMENTS INCLUDING LISTING ADVICE, CONSERVATION ADVICE AND RECOVERY PLAN

The Striped Legless Lizard occurs in the Southern Tablelands, the South West Slopes, the Upper Hunter and possibly on the Riverina. Populations are known in the Goulburn, Yass, Queanbeyan, Cooma, Muswellbrook and Tumut areas.

Found mainly in Natural Temperate Grassland but has also been captured in grasslands that have a high exotic component. Also found in secondary grassland near Natural Temperate Grassland and occasionally in open Box-Gum Woodland. Habitat is where grassland is dominated by perennial, tussock-forming grasses.

This species was not observed during field surveys and proposed disturbance of habitat has been applied on a precautionary basis only.

DETAILS OF THE SCOPE, TIMING AND METHODOLOGY FOR STUDIES OR SURVEYS USED AND HOW THEY ARE CONSISTENT WITH (OR JUSTIFICATION FOR DIVERGENCE FROM) PUBLISHED AUSTRALIAN GOVERNMENT GUIDELINES AND POLICY STATEMENTS

Threatened reptile surveys completed within the project study area were carried out in accordance with the *Survey guidelines for Australia's threatened reptiles Ver.6.6* (Department of Sustainability 2011). Habitat assessments were undertaken to assess the likelihood of threatened species of animal (those species known or predicted to occur within the locality from the literature and database review) occurring within the project study area. Fauna habitat assessments were the primary assessment tool in assessing whether threatened species were likely to occur within the project study area. Targeted surveys, using the Artificial shelter site survey method was employed over a three month period in hilly grassy woodland with embedded rocky substrates. Surveys were conducted over 22 days in September 2021, August, November and December 2022, and February 2023.

DESCRIPTION OF THE SPECIFIC IMPACTS AND ITS REGARD TO THE FULL NATIONAL EXTENT OF THE SPECIES OR COMMUNITY'S RANGE

This species has not been recorded within the project study area. Associated PCTs within the study area are limited to 83.4 ha of PCT 483 and 618 (Kerrabee and Inland Slopes IBRA subregions).

Canopy strata will likely be removed from patches, but grassy understorey layers will be maintained. Therefore, habitat quality for the species is unlikely to be significantly diminished beyond the grazing pressures currently being brought to bear on existing habitat.

Figure C.16 shows the current known generalised distribution which is an indicative distribution map of the species based on best available knowledge. Any population of Striped Legless Lizard within the study area would be west of the central-western extent of the known distribution of the species. Potential habitat is widespread but known occurrences of the species are rare.

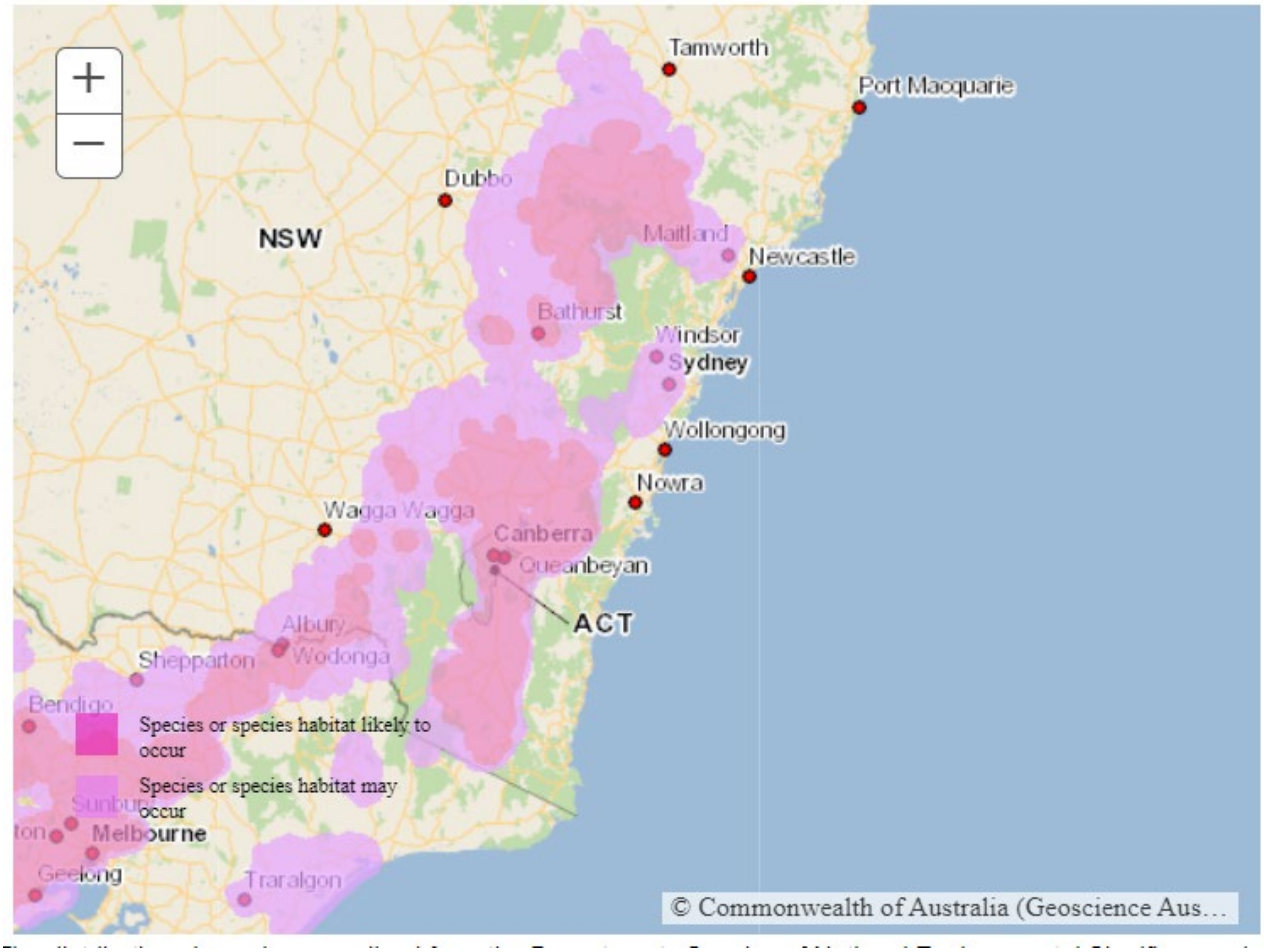

Figure C.16 Current distribution map for Striped Legless Lizard (refer SPRAT profile)

DESCRIPTION OF THE SPECIFIC PROPOSED AVOIDANCE AND MITIGATION MEASURES TO DEAL WITH RELEVANT IMPACTS OF THE ACTION

The proposed avoidance and mitigation measures are outlined in Section 7 & 8 of the BDAR. Detailed avoidance description for impacts relating to biodiversity values (including threatened species) are outlined in Section 7. Mitigation measures to be implemented are outlined in Section 8.

IDENTIFICATION OF SIGNIFICANT RESIDUAL ADVERSE IMPACTS LIKELY TO OCCUR AFTER THE PROPOSED ACTIVITIES TO AVOID AND MITIGATE ALL IMPACTS ARE TAKEN INTO ACCOUNT

Residual impacts to the Striped Legless Lizard are limited to 83.4 ha of potential habitat removal.

A DESCRIPTION OF ANY OFFSETS PROPOSED TO ADDRESS RESIDUAL ADVERSE SIGNIFICANT IMPACTS AND HOW THESE OFFSETS WILL BE ESTABLISHED

Details of offset requirements and obligations for this species as a result of residual impacts due the project is addressed in Section 10 of the BDAR.

DETAILS OF HOW THE CURRENT PUBLISHED NSW BIODIVERSITY ASSESSMENT METHOD (BAM) HAS BEEN APPLIED IN ACCORDANCE WITH THE OBJECTS OF THE EPBC ACT TO OFFSET SIGNIFICANT RESIDUAL ADVERSE IMPACTS

The BDAR specifically addresses Section 10 of the BAM and provides information on the application of the no net loss standard and the proposed biodiversity offset obligations.

DETAILS OF THE OFFSET PACKAGE TO COMPENSATE FOR SIGNIFICANT RESIDUAL IMPACTS INCLUDING DETAILS OF THE CREDIT PROFILES REQUIRED TO OFFSET THE ACTION IN ACCORDANCE WITH THE BAM AND/OR MAPPING AND DESCRIPTIONS OF THE EXTENT AND CONDITION OF THE RELEVANT HABITAT AND/OR THREATENED COMMUNITIES OCCURRING ON PROPOSED OFFSET SITES

Section 11 of the BDAR outlined the biodiversity offset strategy for the project. Offset obligations will be met through implementing a combination of the following offset delivery options, being:

- the purchase and retirement of existing biodiversity credits currently available on the biodiversity credit register
- establishing a biodiversity stewardship site(s) on lands with like for like biodiversity values to those impacted by the project
- through making a payment into the Biodiversity Conservation Fund.

Broad-headed Snake

The Broad-head Snake is listed as Vulnerable under the EPBC Act and BC Act.

Description

The Broad-headed snake can be identified by a black back with yellow spots forming narrow, irregular cross-bands that laterally form a straight or zigzagged stripe along the body. The broad-headed snake has an identifiable flattened head, which is distinct from the body.

The Broad-headed snake occurs in New South Wales from Wollemi National Park in the north to the Clyde River catchment (south-west of Nowra) in the south, east to Royal National Park and the Illawarra, and west to the upper Blue Mountains at Blackheath and Newness (2014) Broad-headed Snake inhabit rocky outcrops and the adjacent sclerophyll forest and woodland. The most suitable sites occur in sandstone ridgetops with a west to north-west aspect. This species is predominately found in rocks and crevasse during cooler months but are known to retreat to higher elevations with woodland forests during the hotter months. Within the woodland area, Broad-headed snakes will in habit hollow trees.

Threats to Broad-headed snakes include:

- habitat disturbance by feral goats
- predation by European red foxes and cats
- vehicle strike
- intentional and unintentional killing of snakes during bush rock collection and other activities
- the loss of habitat caused by climate change and
- illegal collection.

Atlas of Living Australia and BioNet species records indicate no occurrences of Broad-headed snake within the project area. This species range is typically east of the project study area.

Relevant Commonwealth guidelines and policy statements including listing advice, conservation advice and recovery plan

A summary of the relevant Commonwealth guidelines and policy statements available for this species is as follows:

- Approved Conservation Advice for *Hoplocephalus bungaroides* (broad-headed snake) (Threatened Species Scientific Committee 2015). In effect under the EPBC Act from 11-Apr-2014.
- Listing Advice: Listing assessment information may be available in the approved Conservation Advice
- there are no Adopted/Made Recovery Plans
- threat abatement plan for predation by feral cats (Department of the Environment 2015)
- threat abatement plan for predation by the European red fox (Department of the Environment Water Heritage and the Arts 2008).

Specific impacts

Broad-headed snake has potential habitat within the Kerrabee IBRA subregion the project study area. Approximately 10.8 ha of associated PCT 1674 is expected to be removed as a result of the project.

Targeted surveys for the species failed to locate any individuals, and overall, the project is considered unlikely to impact upon habitats in which this species is most likely to occur. Mapping for the species does not extend into areas where the project area occurs, however, individuals have been recorded just outside of the project area, 25 km east of Gulgong and 13 km southeast of Ulan. Although it is not likely a substantial population of this species will be located in project area, an assessment has been completed as a precautionary measure. Foraging and dispersal habitat impacts have been captured as part of ecosystem credits. Refer to Section 11 of the BDAR for the Biodiversity credit report.

Is this part of an important population?

In accordance with the *Matters of National Environmental Significance - Significant Impact Guidelines 1.1* (Department of the Environment Water Heritage and the Arts 2013), the presence of an important population must be identified prior to addressing the significance impact criteria. An important population is defined in the Significant Impact Guidelines as a population that is necessary for a species' long-term survival and recovery. Under the Act, important populations are:

- likely to be key source populations either for breeding or dispersal
- likely to be necessary for maintaining genetic diversity
- at or near the limit of the species range.

This species distribution range is not within the project areas, the closest occurrence was recorded 25 km east of Gulgong and 13 km southeast of Ulan.

Broad-headed snake is located in New South Wales from Wollemi National Park in the north to the Clyde River catchment (south-west of Nowra) in the south, east to Royal National Park and the Illawarra, and west to the upper Blue Mountains at Blackheath and Newness. Local occurrences of this species are unlikely to be part of key source populations for breeding and dispersal. Therefore, individuals that occur within the area are not considered as part of 'an important population'.

Significant impact criteria

An action is likely to have a significant impact on a vulnerable species if there is a real chance or possibility that it will:

LEAD TO A LONG-TERM DECREASE IN THE SIZE OF AN IMPORTANT POPULATION

Not applicable – Broad-headed snake occurring within the study area is not part of an important population.

REDUCE THE AREA OF OCCUPANCY OF AN IMPORTANT POPULATION

Not applicable – Broad-headed snake occurring within the study area is not part of an important population.

FRAGMENT AN EXISTING IMPORTANT POPULATION INTO TWO OR MORE POPULATIONS

Not applicable – Broad-headed snake occurring within the study area is not part of an important population.

ADVERSELY AFFECT HABITAT CRITICAL TO THE SURVIVAL OF A SPECIES

Habitat critical to the survival of a species is not listed in Approved Conservation Advice for *Hoplocephalus bungaroides* (broad-headed snake)(2014)

The project would impact PCTs preferred by this species in the form of remnant patches of highly modified woodland/grassland and potential habitat has been previously disturbed by agricultural cropping and grazing. Due to the disturbed and limited extent of habitat within the study area is it unlikely that the habitat within the study area would meet the above criteria for the Broad-headed snake.

DISRUPT THE BREEDING CYCLE OF AN IMPORTANT POPULATION

Not applicable – Broad-headed snake occurring within the study area is not part of an important population.

MODIFY, DESTROY, REMOVE OR ISOLATE OR DECREASE THE AVAILABILITY OR QUALITY OF HABITAT TO THE EXTENT THAT THE SPECIES IS LIKELY TO DECLINE

Potential impacts would involve removal of woodland/grassland habitat. The potential habitat to be impacted is already disturbed in nature due to historic practices in the area. It is unlikely that the habitat to be impacted is important to the species (if present). It is unlikely that potential habitat to be impacted would isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline.

RESULT IN INVASIVE SPECIES THAT ARE HARMFUL TO A VULNERABLE SPECIES BECOMING ESTABLISHED IN THE VULNERABLE SPECIES' HABITAT

It is not likely that invasive species (such as introduced predators) that are harmful to the Broad-headed snake would become further established as a result of the project. Adhering to mitigation measures such as weed and pest management plans, and vehicle weed hygiene, would prevent invasive weeds and pests such establishing in wetland habitat areas.

INTRODUCE DISEASE THAT MAY CAUSE THE SPECIES TO DECLINE

There are no known diseases that are likely to increase in the area as a result of the project.

INTERFERE SUBSTANTIALLY WITH THE RECOVERY OF THE SPECIES

Works will not disturb significant amounts of key habitats and will retain imbedded surface rock in suitable habitats and will therefore not interfere substantially with the recovery of this species.

CONCLUSION

For the following reasons the project is unlikely to significantly affect Broad-headed snake or their habitat:

- the known range of the species does not extend to the project study area
- there is one record for the species 10 km outside of the study area
- individuals that occur within the area are not considered as part of 'an important population'
- habitat affected is of marginal quality and is not of significant importance
- management measures would be implemented to minimise potential impacts during works
- the works are unlikely to significantly fragment and/or isolate these species that would place it them at risk of extinction in the locality.

NSW Assessment Bilateral requirements

DESCRIPTION OF THE HABITAT (INCLUDING IDENTIFICATION AND MAPPING OF SUITABLE BREEDING HABITAT, SUITABLE FORAGING HABITAT, IMPORTANT POPULATIONS AND HABITAT CRITICAL FOR SURVIVAL), WITH CONSIDERATION OF, AND REFERENCE TO, ANY RELEVANT COMMONWEALTH GUIDELINES AND POLICY STATEMENTS INCLUDING LISTING ADVICE, CONSERVATION ADVICE AND RECOVERY PLAN

The Broad-headed snake occurs New South Wales from Wollemi National Park in the north to the Clyde River catchment (south-west of Nowra) in the south, east to Royal National Park and the Illawarra, and west to the upper Blue Mountains at Blackheath and Newness (2014)

Broad-headed Snake inhabit rocky outcrops and the adjacent sclerophyll forest and woodland. The most suitable sites occur in sandstone ridgetops with a west to north-west aspect. This species is predominately found in rocks and crevasse during cooler months but are known to retreat to higher elevations with woodland forests during the hotter months. Within the woodland area, Broad-headed snakes will in habit hollow trees.

This species was not observed during field surveys and proposed disturbance of habitat has been applied on a precautionary basis only.

DETAILS OF THE SCOPE, TIMING AND METHODOLOGY FOR STUDIES OR SURVEYS USED AND HOW THEY ARE CONSISTENT WITH (OR JUSTIFICATION FOR DIVERGENCE FROM) PUBLISHED AUSTRALIAN GOVERNMENT GUIDELINES AND POLICY STATEMENTS

Threatened reptile surveys completed within the project study area were carried out in accordance with the *Survey guidelines for Australia's threatened reptiles Ver.6.6* (Department of Sustainability 2011). Habitat assessments were undertaken to assess the likelihood of threatened species of animal (those species known or predicted to occur within the locality from the literature and database review) occurring within the project study area. Fauna habitat assessments were the primary assessment tool in assessing whether threatened species were likely to occur within the project study area. Targeted surveys, using the Artificial shelter site survey method was employed over a three-month period in hilly grassy woodland with embedded rocky substrates. Surveys were conducted over 13 days in August and December 2022, and February 2023

DESCRIPTION OF THE SPECIFIC IMPACTS AND ITS REGARD TO THE FULL NATIONAL EXTENT OF THE SPECIES OR COMMUNITY'S RANGE

This species has not been recorded and its mapped range does not extend west of the project study area. Associated PCTs within the study area are limited to 10.8 ha of PCT 1627. It is not expected that rocky outcrops will be impacted by the project therefore, habitat quality for the species is unlikely to be significantly diminished beyond the grazing pressures currently being brought to bear on existing habitat.

Figure C.17 shows the current known generalised distribution which is an indicative distribution map of the species based on best available knowledge.

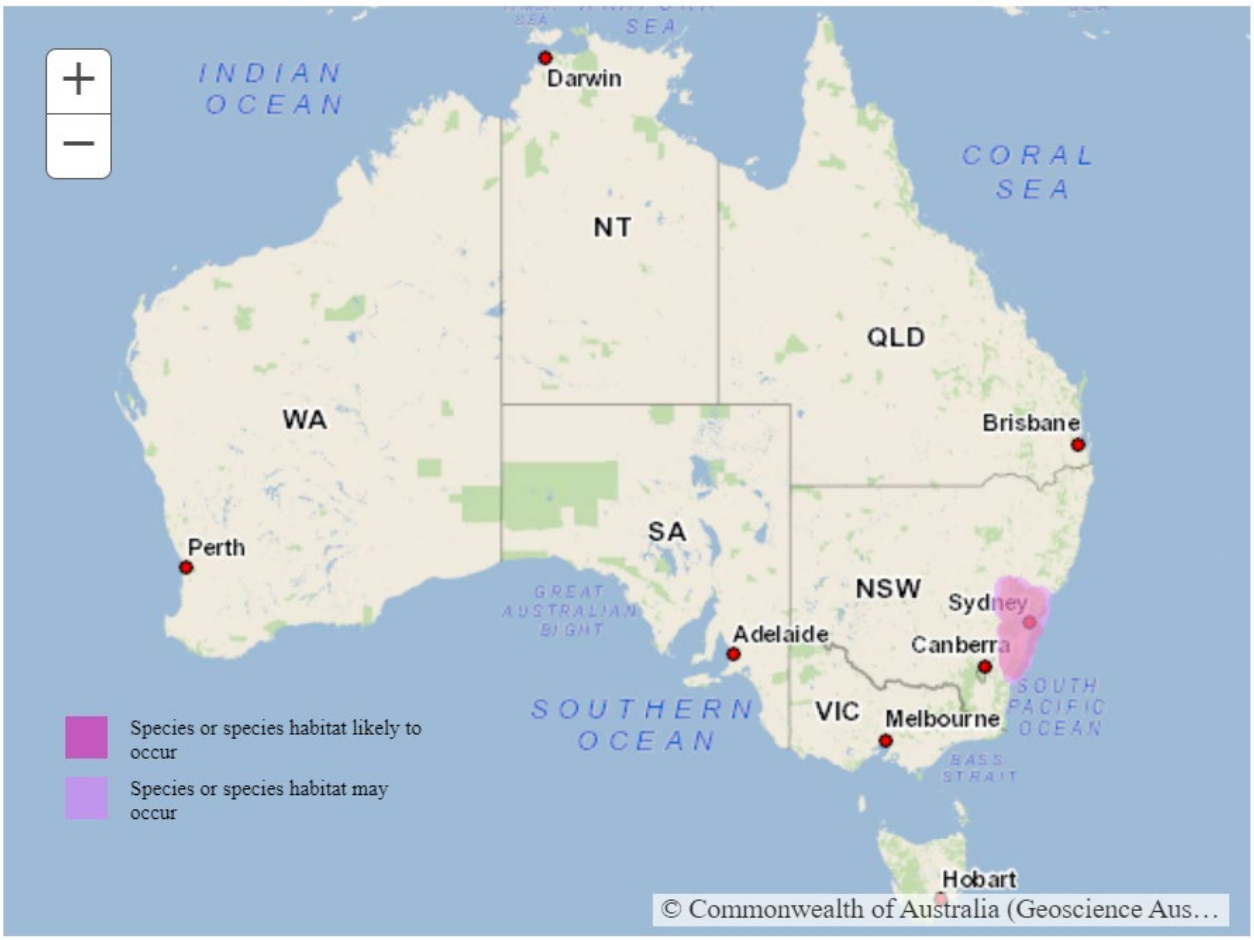

Figure C.17 Current distribution map for Broad-headed snake taken from the SPRAT

DESCRIPTION OF THE SPECIFIC PROPOSED AVOIDANCE AND MITIGATION MEASURES TO DEAL WITH RELEVANT IMPACTS OF THE ACTION

The proposed avoidance and mitigation measures are outlined in Section 7 & 8 of the BDAR. Detailed avoidance description for impacts relating to biodiversity values (including threatened species) are outlined in Section 7. Mitigation measures to be implemented are outlined in Section 8.

IDENTIFICATION OF SIGNIFICANT RESIDUAL ADVERSE IMPACTS LIKELY TO OCCUR AFTER THE PROPOSED ACTIVITIES TO AVOID AND MITIGATE ALL IMPACTS ARE TAKEN INTO ACCOUNT

Residual impacts to the Broad-headed snake are limited to 10.8 ha of potential habitat removal.

A DESCRIPTION OF ANY OFFSETS PROPOSED TO ADDRESS RESIDUAL ADVERSE SIGNIFICANT IMPACTS AND HOW THESE OFFSETS WILL BE ESTABLISHED

Details of offset requirements and obligations for this species as a result of residual impacts due the project is addressed in Section 10 of the BDAR.

DETAILS OF HOW THE CURRENT PUBLISHED NSW BIODIVERSITY ASSESSMENT METHOD (BAM) HAS BEEN APPLIED IN ACCORDANCE WITH THE OBJECTS OF THE EPBC ACT TO OFFSET SIGNIFICANT RESIDUAL ADVERSE IMPACTS

The BDAR specifically addresses Section 10 of the BAM and provides information on the application of the no net loss standard and the proposed biodiversity offset obligations.

DETAILS OF THE OFFSET PACKAGE TO COMPENSATE FOR SIGNIFICANT RESIDUAL IMPACTS INCLUDING DETAILS OF THE CREDIT PROFILES REQUIRED TO OFFSET THE ACTION IN ACCORDANCE WITH THE BAM AND/OR MAPPING AND DESCRIPTIONS OF THE EXTENT AND CONDITION OF THE RELEVANT HABITAT AND/OR THREATENED COMMUNITIES OCCURRING ON PROPOSED OFFSET SITES

Section 11 of the BDAR outlined the biodiversity offset strategy for the project. Offset obligations will be met through implementing a combination of the following offset delivery options, being:

- the purchase and retirement of existing biodiversity credits currently available on the biodiversity credit register
- establishing a biodiversity stewardship site(s) on lands with like for like biodiversity values to those impacted by the project
- through making a payment into the Biodiversity Conservation Fund.

Regent Honeyeater

The Regent Honeyeater is listed as Critically Endangered under the EPBC Act and BC Act.

Description

The Regent Honeyeater is a nomadic and partially migratory woodland bird, which has a patchy distribution between south-east Queensland and central Victoria. Within NSW, the species is confined to two key breeding regions, at Capertee Valley and the Bundarra-Barraba region, as well as fragmented woodlands in the surrounding area (Department of Planning and Environment 2022). Some predictable seasonal movements have been observed, and breeding varies between regions and corresponds with flowering of key eucalypt and mistletoe species.

The species is predominantly found along inland slopes of the Great Dividing Range in areas containing moist, fertile soils. It prefers box-ironbark eucalypt woodland and dry sclerophyll forest, but also inhabits riparian vegetation including She-oak (*Casuarina* spp.). Lowland coastal forest may also act as a refuge habitat during periods of drought, and they may also be found in remnant patches of farmland and urban areas (Department of Environment 2015). the Regent Honeyeater shows a preference for woodland that features a high canopy cover, significantly high numbers of mature trees, and an abundance of mistletoe (Department of Planning and Environment 2022).

The species' National Recovery Plan identifies the following as key tree and mistletoe species for the Regent Honeyeater; Mugga (or Red) Ironbark (*Eucalyptus sideroxylon*) Yellow Box (*E. melliodora*) White Box (*E. albens*) Yellow Gum (*E. leucoxylon*) Spotted Gum (*Corymbia maculata*) Swamp Mahogany (*E. robusta*) Needle-leaf Mistletoe (*Amyema cambagei*) on River She-oak (*Casuarina cunninghamiana*) Box Mistletoe (*A. miquelii*) Long-flower Mistletoe (*Dendrophthoe vitellina*). The Regent Honeyeater's diet consists primarily of nectar from the aforementioned key species, however it can include invertebrates and their exudates as well as occasionally fruit. As taller and larger diameter trees typically produce more nectar these are preferred for foraging, while tall mature Eucalypts and She-oaks are selected for nesting as well as occasionally the haustoria of mistletoe (Department of Planning and Environment 2022).

This species roosts communally in small groups or large flocks, in trees with dense foliage, and foraging trees are rarely used for roosting (Department of Environment 2015). Breeding appears to correspond with the flowering of key eucalypt and mistletoe species and varies between regions, usually occurring from August to January. Cup shapes nests are constructed usually in the canopy of mature trees with rough bark, and a clutch consists of 2 to 3 eggs (Department of Environment 2015).

Listed threats include:

- clearing, fragmentation and degradation of habitat, particularly the removal of large mature trees important for feeding or breeding
- competition for resources with birds such as the Noisy Minor and (*Manorina melanocephala*) and Noisy Friarbird (*Philemon corniculatus*), and nest predation by Pied Currawongs (*Strepera graculina*) (Department of Environment 2015).

Relevant commonwealth guidelines and policy statements including listing advice, conservation advice and recovery plan

A summary of the relevant Commonwealth guidelines and policy statements available for this species is as follows:

- The approved *Conservation Advice* Anthochaera phrygia *Regent Honeyeater* (Department of Environment 2015) was reviewed as part of this assessment.
- There is no Listing Advice for this species.
- The *National Recovery Plan for the Regent Honeyeater* (Anthochaera phrygia) (Department of the Environment 2016) was reviewed as part of this assessment.

Relevant adopted/made threat abatement plans include:

- Threat abatement plan for competition and land degradation by rabbits (Department of Environment and Energy 2016)

Relevant survey guidelines for this species include:

- *Survey Guidelines for Australia's Threatened Birds* (Department of the Environment Water Heritage and the Arts 2010)

Specific impacts

Regent Honeyeater Important Habitat Mapping has potential habitat associations within the Inland Slopes subregion of the project study area in the form of PCT 281 (totalling 2.4 ha) and the Kerrabee subregion in the form of PCT 277, 281, 478, 618, 599, 1610 and 618 (totalling 93.4ha). This species was not recorded within the study area despite targeted surveys and the project will not impact any areas mapped as important habitat for the species. Direct impacts on White Box Yellow Box Blakely's Red Gum Woodland and Derived Native Grassland (Box Gum Woodland) have been avoided where possible through design refinement. Direct impact can be further avoided through careful placement of compound sites and construction zones. Indirect impacts will be managed through mitigation measures. Foraging habitat impacts have been captured as part of ecosystem credits. Refer to Section 11 of the BDAR for the Biodiversity credit report.

Significant impact criteria

An action is likely to have a significant impact on a Critically Endangered Species if there is a real chance or possibility that it will:

LEAD TO A LONG-TERM DECREASE IN THE SIZE OF A POPULATION

Any identified population Regent Honeyeater in the area would not be restricted to habitat within the project study area. Due to the species' large home range, nomadic nature and the occurrence of higher quality foraging habitat elsewhere in the locality and region, the project is considered unlikely to significantly contribute to a long-term decline in the size of a population of these species.

Avoidance of large tracts of suitable woodland habitat through project design refinement would reduce potential impacts to this species. Therefore, if further field studies had recorded this species, the avoidance of large tracts of woodland habitat during vegetation clearing means that the project is unlikely to cause a long-term decrease in the size of a population, or significantly reduce the area of occupancy for the species.

The project will impact 95.8 ha of Regent Honeyeater important habitat.

REDUCE THE AREA OF OCCUPANCY OF THE SPECIES

This habitat is highly modified by previous land uses in this area (i.e. cropping and agricultural grazing). Although the project would result in the loss of potential foraging habitat, it is of marginal quality and is likely to only represent a small component of locally occurring resources accessible to this species.

The project will impact 95.8 ha of Regent Honeyeater important habitat.

FRAGMENT AN EXISTING POPULATION INTO TWO OR MORE POPULATIONS

The project study area is already largely fragmented, and habitat remaining occurs as disjunct remnant patches and as scattered paddock trees within the locality. Furthermore, this species is highly mobile and is known to disperse widely (Higgins, Peter et al. 2001), the project would not present a significant barrier to these species. It is considered unlikely that the project would fragment an existing population into two or more populations given the ecology of the species and current fragmented state of potential habitat.

ADVERSELY AFFECT HABITAT CRITICAL TO THE SURVIVAL OF A SPECIES

The *National Recovery Plan for the Regent Honeyeater* (Anthochaera phrygia) (Department of the Environment 2016) states that habitat critical to the survival of the regent honeyeater includes: 1) Any breeding or foraging areas where the species is likely to occur and 2) Any newly discovered breeding or foraging locations.

Key areas of critical habitat listed for the species includes the Bundarra-Barraba, Pilliga Woodlands, Mudgee-Wollar and the Capertee Valley and Hunter Valley areas in New South Wales, and the Chiltern and Lurg-Benalla regions of north-east Victoria, inclusive of a number of subsidiary areas within these regions. The study area does not occur within any known areas of critical habitat.

The project will impact 95.8 ha of potential Regent Honeyeater important habitat. Hence it is likely that this project would adversely affect habitat critical to the survival of these species.

DISRUPT THE BREEDING CYCLE OF A POPULATION

The project does not impact upon the any of the known areas of critical habitat for this species. These are the Bundarra-Barraba, Capertee Valley and Hunter Valley districts in New South Wales, and the Chiltern area in north-east Victoria. The study area does not occur within these areas which are the only currently known breeding areas. As such the project is unlikely to affect their breeding cycle.

MODIFY, DESTROY, REMOVE OR ISOLATE OR DECREASE THE AVAILABILITY OR QUALITY OF HABITAT TO THE EXTENT THAT THE SPECIES IS LIKELY TO DECLINE

Potential habitat occurred within the survey area as disjunct remnant patches of highly modified woodland, scattered across a fragmented landscape. Potential habitat has been previously and/or currently disturbed by agricultural cropping and grazing. The higher quality habitat occurred along road reserves and areas were grazing has been excluded. Given the highly modified nature of observed habitats, land uses of these areas (i.e. cropping and agricultural grazing) and the poor condition of Woodland habitat observed it is unlikely that the project would modify, destroy, remove or isolate habitat for this species to the extent that is likely to cause the species to decline.

The project will impact 95.8 ha of Regent Honeyeater important habitat.

RESULT IN INVASIVE SPECIES THAT ARE HARMFUL TO A CRITICALLY ENDANGERED OR ENDANGERED SPECIES BECOMING ESTABLISHED IN THE ENDANGERED OR CRITICALLY ENDANGERED SPECIES' HABITAT

Adhering to mitigation measures such as weed and pest management plans, and vehicle weed hygiene, would prevent invasive weeds and vertebrate pests such as rabbits, cats and foxes establishing in wetland habitat areas.

INTRODUCE DISEASE THAT MAY CAUSE THE SPECIES TO DECLINE

It is unlikely that disease would be increased by the project. Mitigation measures would be prepared to minimise the likelihood of spread of pathogens into the habitat of these species.

INTERFERE SUBSTANTIALLY WITH THE RECOVERY OF THE SPECIES

The Action Plan for Australian Birds (Garnett and Crowley 2000) addresses the need for further ecological research on the species and the conservation and protection of roosting habitat and identification of specific breeding requirements.

Recovery strategies outlined in Regent Honeyeater Recovery Plan (Department of the Environment 2016) include:

- improve the extent and quality of regent honeyeater habitat
- bolster the wild population with captive-bred birds until the wild population becomes self-sustaining
- increase understanding of the size, structure, trajectory and viability of the wild population
- maintain and increase community awareness, understanding and involvement in the recovery program.

Based on the potential impacts of the project on this species, as discussed above, it is likely that the project would be in conflict with the first objective above to a small extent, by not improving the extent of habitat for the Regent Honeyeater.

CONCLUSION

The project will impact on 95.8 ha of mapped important habitat for the Regent Honeyeater. Given this impact to mapped important habitat, the project is considered likely to have a significant impact on the Regent Honeyeater.

NSW Assessment Bilateral requirements

For each of the EPBC Act listed threatened species and communities and migratory species likely to be impacted by the action the EIS must provide a separate*:*

DESCRIPTION OF THE HABITAT (INCLUDING IDENTIFICATION AND MAPPING OF SUITABLE BREEDING HABITAT, SUITABLE FORAGING HABITAT, IMPORTANT POPULATIONS AND HABITAT CRITICAL FOR SURVIVAL), WITH CONSIDERATION OF, AND REFERENCE TO, ANY RELEVANT COMMONWEALTH GUIDELINES AND POLICY STATEMENTS INCLUDING LISTING ADVICE, CONSERVATION ADVICE AND RECOVERY PLAN

There is no listing advice available for this species. According to the *National Recovery Plan for the Regent Honeyeater* (*Anthochaera phrygia*) (Department of the Environment 2016) states that habitat critical to the survival of the regent honeyeater includes: 1) Any breeding or foraging areas where the species is likely to occur and 2) Any newly discovered breeding or foraging locations.

Key areas of critical habitat include the Bundarra-Barraba, Pilliga Woodlands, Mudgee-Wollar and the Capertee Valley and Hunter Valley areas in New South Wales, and the Chiltern and Lurg-Benalla regions of north-east Victoria. These include both critical foraging and breeding areas. Habitat critical to the survival of the Regent Honeyeater occurs across a range of tenures, including private land, travelling stock routes and reserves, state forests and state reserves, and National Parks (Department of the Environment 2016). Breeding areas for the species are shown on Figure C.18. Regent Honeyeaters are commonly associated with box-ironbark eucalypt woodland and dry sclerophyll forest, though also use riparian vegetation such as she oak (*Casuarina spp*.). It also occasionally uses lowland coastal forest (often a refuge during drought) as well as a range of other habitats including remnant patches in farmland and urban areas, roadside reserves and travelling stock routes (Department of Environment 2015).

Potential foraging habitat in the form of associated PCTs 5, 7, 74, 75, 267, 277 & 319 and Riparian and Box woodlands are available within the project study area, however, this species was not recorded during targeted surveys and records within the area are rare and intermittent. Additionally, clearing of large tracts of suitable woodland habitat for this species would be minimised or avoided during design refinement to prevent significant loss of habitat in the case that the species is found in the project study area during future targeted surveys. Additional areas of higher quality habitat will persist within the locality. The project is considered unlikely to have a significant impact on the Regent Honeyeater.

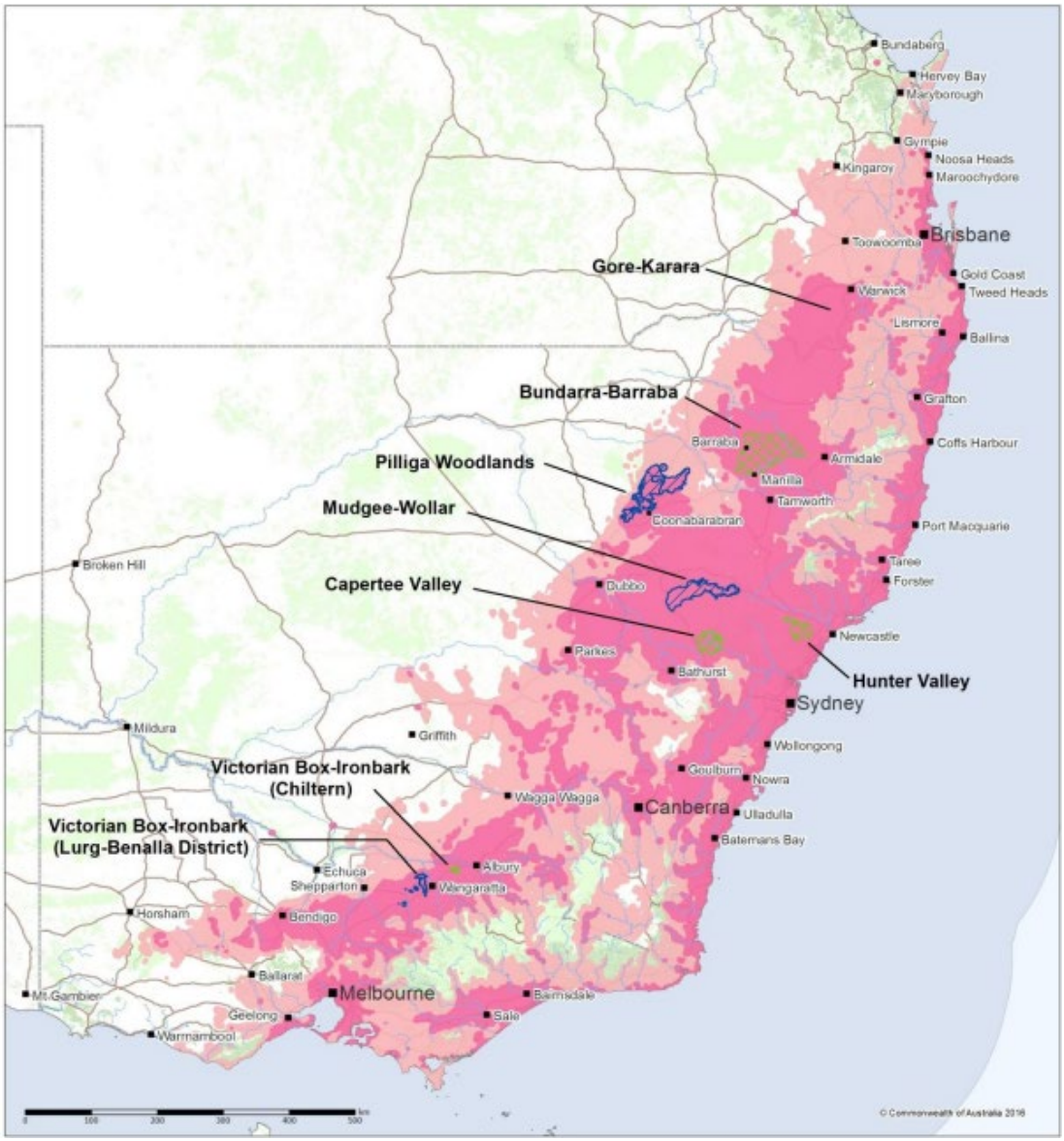

Figure C.18 Current distribution map for Regent Honeyeater (Department of the Environment 2016)

DETAILS OF THE SCOPE, TIMING AND METHODOLOGY FOR STUDIES OR SURVEYS USED AND HOW THEY ARE CONSISTENT WITH (OR JUSTIFICATION FOR DIVERGENCE FROM) PUBLISHED AUSTRALIAN GOVERNMENT GUIDELINES AND POLICY STATEMENTS

Field survey techniques used to undertake surveys were in general accordance with the *NSW guide for the BAM* (Department of Planning, Industry and Environment, 2020) with a detailed field verification method provided in Section 2 of the BDAR. Mapping of native vegetation and habitat extent for the project is required under section 4.1 of the BAM, with detailed requirements outlined in section 3.2 of the BAM 2020 Operational Manual. Field data was used to assign condition classes for any given observed habitat patch, where relevant.

Specific search methodologies, relevant surveyed habitats and survey effort for this species include:

The species is highly nomadic and now currently reduced to very few in number. The species is most likely to be encountered where there is an abundance of resources and higher quality habitat types persist. At any given location, when abundances of resources are high, the extent of resources may be such that nectarivorous bird species, including Regent Honeyeaters, which are attracted to such events, signifying local resources are of significance beyond bird populations in the local region. Within such events, influxes of honeyeater species, such as Friarbirds, Yellow-faced Honeyeaters, White-naped Honeyeaters, Scarlet Honeyeaters, Lorikeets and other nectarivorous species noticeably

inflate. During such events it is most likely that rare nectarivorous species, such as the Regent Honeyeater and Swift Parrot (in season) are to appear in otherwise marginal areas of habitat. The diversity and number of nectarivorous bird species throughout the study was assessed during targeted avian fieldwork as well as opportunistically throughout all other fieldwork activities. During surveys conducted throughout the eastern sections of the project study area, avian diversity and densities were generally low, with the fragmented nature of the landscape largely favouring those species which have adapted to an agricultural dominance of the landscape. The eastern study area habitats, where Regent Honeyeaters are most likely to occur, are limited to small, isolated fragments, often dominated by Cypress Pine, and showed no indications that there might be times when it would offer sufficient resources to be important to nomadic nectarivorous species beyond resident species, including the Regent Honeyeater.

No visual observations of the Regent Honeyeater were made during survey periods. Due to its distinctive black and yellow colouring, as well as its characteristic patch of dark pink or cream-coloured facial-skin around the eye, it was unlikely to have been incorrectly identified as another honeyeater species. As Regent Honeyeaters undertake large-scale nomadic movements this highly mobile species may only occur as a vagrant, and it remains a consideration as it has previously been highly recorded within the wider study site region (Atlas of Living Australia 2023, Department of Planning and Environment 2023).

DESCRIPTION OF THE SPECIFIC IMPACTS AND ITS REGARD TO THE FULL NATIONAL EXTENT OF THE SPECIES OR COMMUNITY'S RANGE

The direct impacts of the project on *Regent Honeyeater* include removal of approximately 95.8 ha of potential habitat, which amounts to <0.1% of the species' estimated geographic range. The eastern portion of the project study area falls within the range of the Regent Honeyeater outside of the area it is likely to occur and where it only "may" occur. There will be localised fragmentation of habitat due to the linear nature of the project. However, the population is not currently considered to be severely fragmented based on Criterion 2 of the EPBC Act criteria and regulations (see (Department of Environment 2015). There is no evidence to suggest that the population would become unviable.

The total population size (as of 2010) was estimated at 350-400 mature individuals; however, the distribution of the species is patchy across the landscape and current distribution is based mostly of re-sightings of banded birds. The species has a small number of known breeding sites. Movement through the landscape is associated with flowering of certain eucalypt species. It is nomadic and partly migratory, with some predictable seasonal movements observed.

DESCRIPTION OF THE SPECIFIC PROPOSED AVOIDANCE AND MITIGATION MEASURES TO DEAL WITH RELEVANT IMPACTS OF THE ACTION

The proposed avoidance and mitigation measures are outlined in Section 7 & 8 of the BDAR. Detailed avoidance description for impacts relating to biodiversity values (including threatened species) are outlined in Section 7. Important habitat for this species which resides within subject land has been mapped and is subject to Serious and Irreversible Impact (SAII) assessment, which is outlined in Section 9 of the BDAR. No other specific measures for Regent Honeyeater are identified.

A DESCRIPTION OF ANY OFFSETS PROPOSED TO ADDRESS RESIDUAL ADVERSE SIGNIFICANT IMPACTS AND HOW THESE OFFSETS WILL BE ESTABLISHED

Details of offset requirements and obligations for this species as a result of residual impacts due the project is addressed in Section 10 of the BDAR. No species credits are required to offset the residual impacts to *Regent Honeyeater.*

A DESCRIPTION OF ANY OFFSETS PROPOSED TO ADDRESS RESIDUAL ADVERSE SIGNIFICANT IMPACTS AND HOW THESE OFFSETS WILL BE ESTABLISHED

Details of offset requirements and obligations for this species as a result of residual impacts due the project is addressed in Section 10 of the BDAR.

All impact on the species' habitat occurs during the RNI2 stage. A total of 2.4 hectares of the mapped impacted habitat occurs in the Inland Slopes IBRA subregion, accounting for 112 credits. In this area, the habitat consists of the following PCTs: 281_DNG, 281_Mod_Good and 281_Thinned. A total of 93.4 hectares of the mapped impacted habitat occurs in the Kerrabee IBRA subregion, accounting for 3200 credits.

In this area, the habitat consists of the following PCTs: 277_Mod_Good, 277_Thinned, 281_DNG, 281_Mod_Good, 281_Thinned, 478_Mod_Good, 618_DNG, 618_Mod_Good, 599_Mod_Good, 1610_DNG, 1610_Mod_Good, 1610_Thinned, 618_Thinned. The impacts surmount to a total of 3312 credits.

DETAILS OF HOW THE CURRENT PUBLISHED NSW BIODIVERSITY ASSESSMENT METHOD (BAM) HAS BEEN APPLIED IN ACCORDANCE WITH THE OBJECTS OF THE EPBC ACT TO OFFSET SIGNIFICANT RESIDUAL ADVERSE IMPACTS

The BDAR specifically addresses Section 10 of the BAM and provides information on the application of the no net loss standard and the proposed biodiversity offset obligations.

DETAILS OF THE OFFSET PACKAGE TO COMPENSATE FOR SIGNIFICANT RESIDUAL IMPACTS INCLUDING DETAILS OF THE CREDIT PROFILES REQUIRED TO OFFSET THE ACTION IN ACCORDANCE WITH THE BAM AND/OR MAPPING AND DESCRIPTIONS OF THE EXTENT AND CONDITION OF THE RELEVANT HABITAT AND/OR THREATENED COMMUNITIES OCCURRING ON PROPOSED OFFSET SITES

Section 11 of the BDAR outlines the biodiversity credit requirements for the project. The offset obligations will be met through implementing a combination of the following offset delivery options, being:

- the purchase and retirement of existing biodiversity credits currently available on the biodiversity credit register
- establishing a biodiversity stewardship site(s) on lands with like for like biodiversity values to those impacted by the project
- through making a payment into the Biodiversity Conservation Fund.

Gang-gang Cockatoo

The Gang-Gang Cockatoo is listed as Endangered under the EPBC Act and Vulnerable the BC Act.

Description

The Gang-Gang Cockatoo is distributed from central-eastern NSW occurring in the Central Tablelands, South-West slopes and Hunter region, down to southern Victoria. In the summer months, Gang-Gang Cockatoos generally occur in tall mountain forests and woodlands - often in secluded valleys. During winter months, Gang-gang Cockatoos rely on drier more open eucalypt forests and woodland assemblages at lower altitudes (Higgins 1999). Open eucalypt assemblages such as box-ironbark make up their habitat during this period. Habitat critical to the survival of the Gang-gang Cockatoo includes all foraging habitat during both the breeding and non-breeding season however no Critical Habitat has been specifically identified (DAWE, 2022d). Although considered rare at the extremities of its known range, this species has been observed as west as Mudgee.

This species mainly forages arboreally in small groups up to 25 individuals occurring in the canopy of woodland assemblages, usually eucalypts and less commonly in Acacia midstories. (DAWE, 2022d).

Threats to the Gang-Gang Cockatoo include:

- Reduction in extent and quality of habitat due to fire, land clearing, native forest timber harvesting
- Impacts of climate change altering rainfall patterns and increasing the number of hot days impacting water requirements in low altitudes
- Competition for nest hollows with other species
- Nest predation by Common Brushtail Possums
- Psittacine beak and feather disease (PBFD)

Atlas of Living Australia, eBird, Birdata and BioNet species records indicate some species records surrounding the southern arm of the alignment extending towards bushland north of Ulan Coal Mine and several recent (2021) records around Munghorn Gap Nature Reserve. The majority of records occur in the Kerrabee subregion. The alignment crosses remnant bushland connected to the locations of some of these records where seasonal migrations may occur regularly.

Relevant commonwealth guidelines and policy statements including listing advice, conservation advice and recovery plan

A summary of the relevant Commonwealth guidelines and policy statements available for this species is as follows:

- The Conservation Advice *Callocephalon fimbriatum* Gang-gang Cockatoo (Threatened Species Scientific Committee, 2022) was reviewed as part of this assessment.
- Listing assessment information for this species may be available in the approved Conservation Advice.
- There is no adopted or made Recovery Plan for this species.
- The Draft referral guideline for 14 birds listed as migratory species under the EPBC Act (Department of the Environment, 2015d) was reviewed as part of this assessment.
- No threat abatement plan has been identified as being relevant for this species.

Specific impacts

Habitat for this species is assumed within the project study area in PCT 42, 81, 202, 266, 277, 281, 440, 461, 468, 477, 478, 479, 1177, 599 and 1647.

Significant impact assessment

An action is likely to have a significant impact on an Endangered species if there is a real chance or possibility that it will:

LEAD TO A LONG-TERM DECREASE IN THE SIZE OF A POPULATION

The project would potentially impact areas where this species has been mapped as presumed present with consideration of the eastern extent of the project study area where this species has been recorded. Avoidance of large tracts of suitable woodland habitat through project design refinement would reduce potential impacts to this species. Therefore, if further field studies had recorded this species, the avoidance of large tracts of woodland habitat during vegetation clearing aid in reducing the impact to this species. Overall, the potential impact to habitat would not be to the extent that the project would lead to a long-term decrease in the size of a population given remaining available habitat for this species to forage and reproduce in the locality.

REDUCE THE AREA OF OCCPANCY OF THE SPECIES

A significant proportion of the associated PCTs within the study area are highly modified by previous land uses in this area (i.e., cropping and agricultural grazing). The project would contribute to the loss of potential foraging habitat by approximately 140.2 ha which would reduce the area of habitat available, while the area of occupancy is estimated at 3,000,000 ha (DAWE, 2022d). Though this is an incremental loss of suitable foraging resources available to the species, this area of potential foraging and breeding habitat only represents a small component of similar locally occurring resources accessible to these species. It is unlikely that the project would reduce the area of occupancy of this species given the better-quality habitat in the locality and greater region.

FRAGMENT AN EXISTING POPULATION INTO TWO OR MORE POPULATIONS

The project will result in the removal of potential habitat for this species. This removal will mostly occur within an already fragmented and degraded agricultural landscape and is unlikely to result in fragmentation of habitat for the Gang-Gang Cockatoo. Most importantly where the project is impacting remnant bushland particularly along Ulan and Wilpinjong Mines, the alignment mostly follows pre-existing clearings and patch edges. As such the project is considered unlikely to affect the movement of the Gang-Gang Cockatoo between habitat patches utilised by this species and unlikely to fragment an existing population into two or more populations.

ADVERSELY AFFECT HABITAT CRITICAL TO THE SURVIVAL OF A SPECIES

According to the Conservation Advice *Callocephalon fimbriatum* (Gang-gang Cockatoo), habitat critical to the survival of the Gang-Gang Cockatoo includes all foraging habitat during both the breeding and non-breeding season. This

includes box-ironbark assemblages impacted by the project. The project is considered unlikely to adversely affect habitat critical to the survival of a species.

DISRUPT THE BREEDING CYCLE OF A POPULATION

The project study area did not contain important breeding site for the Gang-Gang Cockatoo. Although the project will affect potentially suitable foraging habitat in the form of PCT 42, 81, 202, 266, 277, 281, 440, 461, 468, 477, 478, 479, 1177, 599 and 1647, the impact is considered unlikely to disrupt the breeding cycle of an important population.

MODIFY, DESTROY, REMOVE OR ISOLATE OR DECREASE THE AVAILABILITY OR QUALITY OF HABITAT TO THE EXTENT THAT THE SPECIES IS LIKELY TO DECLINE

Potential foraging habitat is present within in PCT 42, 81, 202, 266, 277, 281, 440, 461, 468, 477, 478, 479, 1177, 599 and 1647. The removal of Gang-Gang Cockatoo habitat for project is considered unlikely to modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline.

RESULT IN INVASIVE SPECIES THAT ARE HARMFUL TO A CRITICALLY ENDANGERED OR ENDANGERED SPECIES BECOMING ESTABLISHED IN THE ENDANGERED OR CRITICALLY ENDANGERED SPECIES' HABITAT

Vertebrate pests and weeds are already established in the habitat. Adhering to mitigation measures such as weed and pest management plans, and vehicle weed hygiene, would prevent further invasive weeds and vertebrate pests such as cats and foxes establishing in the project study area.

INTRODUCE DISEASE THAT MAY CAUSE THE SPECIES TO DECLINE

It is unlikely that disease would be increased by the project. Mitigation measures would be prepared to minimise the likelihood of spread of pathogens into the habitat of these species.

INTERFERE SUBSTANTIALLY WITH THE RECOVERY OF THE SPECIES

There is no adopted or made Recovery Plan for this species. No key management sites are known to occur within the project study area.

CONCLUSION

Potential foraging habitat for the Gang-Gang Cockatoo is present within the project study area in PCT 42, 81, 202, 266, 440, 461, 468, 477, 599 and 1647. Based on the information presented above the project is considered unlikely to significantly impact upon Gang-Gang Cockatoo.

NSW Assessment Bilateral requirements

DESCRIPTION OF THE HABITAT (INCLUDING IDENTIFICATION AND MAPPING OF SUITABLE BREEDING HABITAT, SUITABLE FORAGING HABITAT, IMPORTANT POPULATIONS AND HABITAT CRITICAL FOR SURVIVAL), WITH CONSIDERATION OF, AND REFERENCE TO, ANY RELEVANT COMMONWEALTH GUIDELINES AND POLICY STATEMENTS INCLUDING LISTING ADVICE, CONSERVATION ADVICE AND RECOVERY PLAN

There is no listing advice for this species. The *Conservation Advice Callocephalon fimbriatum Gang-Gang Cockatoo* (Department of the Environment, 2022) indicates that the species inhabits mature, wet sclerophyll forests, typically dominated by eucalypts with dense, shrubby acacia, wattle and banksia understory in the summer months. In the winter months they occur in open eucalypt assemblages ranging beyond montane forests to inhabit woodland assemblages at lower, drier altitudes. There is no adopted or made Recovery Plan for this species.

Potential foraging habitat is present within in PCT 42, 81, 202, 266, 277, 281, 440, 461, 468, 477, 478, 479, 1177, 599 and 1647.

A map of suitable habitat for this species is provided in Figure C.19.

DETAILS OF THE SCOPE, TIMING AND METHODOLOGY FOR STUDIES OR SURVEYS USED AND HOW THEY ARE CONSISTENT WITH (OR JUSTIFICATION FOR DIVERGENCE FROM) PUBLISHED AUSTRALIAN GOVERNMENT GUIDELINES AND POLICY STATEMENTS

Threatened bird surveys completed within the project study area were carried out in accordance with the *Survey Guidelines for Australia's Threatened Birds* (Department of the Environment Water Heritage and the Arts 2010). Habitat assessments were undertaken to assess the likelihood of threatened species of animal (those species known or predicted to occur within the locality from the literature and database review) occurring within the project study area. Fauna habitat assessments were the primary assessment tool in assessing whether threatened species were likely to occur within the project study area. The primary technique used for surveying birds were 20-minute diurnal bird searches. Searches occurred over 30 days in September 2021, Augustus, November and December 2022 and February 2023.

DESCRIPTION OF THE SPECIFIC IMPACTS AND ITS REGARD TO THE FULL NATIONAL EXTENT OF THE SPECIES OR COMMUNITY'S RANGE

The project would potentially clear vegetation within suitable habitat. Development will impact 140.2 hectares of potential habitat. The impacts are captured in Section 10 of the BDAR.

Figure C.19 shows the current known generalised distribution from the Departments Species of National Environmental Significance dataset which is an indicative distribution map of the present distribution of the species based on best available knowledge. The project study area is not at the limit of the known distribution of this species.

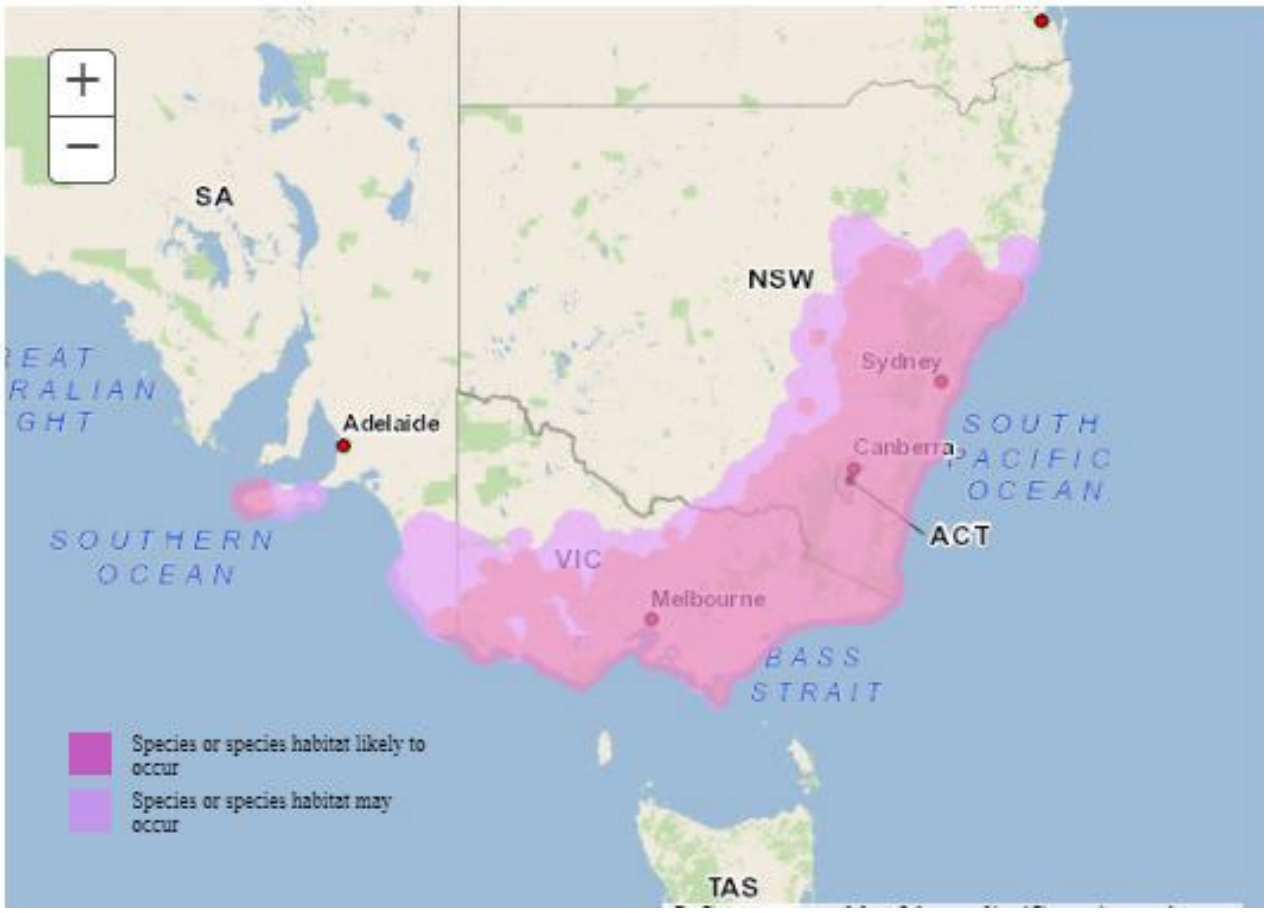

Figure C.19 Current distribution map for Gang-Gang Cockatoo taken from the SPRAT

DESCRIPTION OF THE SPECIFIC PROPOSED AVOIDANCE AND MITIGATION MEASURES TO DEAL WITH RELEVANT IMPACTS OF THE ACTION

The proposed avoidance and mitigation measures are outlined in Section 7 & 8 of the BDAR. Detailed avoidance description for impacts relating to biodiversity values (including threatened species) are outlined in Section 7. No specific measures for the Gang-Gang Cockatoo are identified. As an ecosystem credit species, it will benefit from mitigation measures targeted at all habitats.

IDENTIFICATION OF SIGNIFICANT RESIDUAL ADVERSE IMPACTS LIKELY TO OCCUR AFTER THE PROPOSED ACTIVITIES TO AVOID AND MITIGATE ALL IMPACTS ARE TAKEN INTO ACCOUNT

The residual impact to the Gang-Gang Cockatoo is likely to be minimal. The project would potentially clear vegetation within suitable habitat.

A DESCRIPTION OF ANY OFFSETS PROPOSED TO ADDRESS RESIDUAL ADVERSE SIGNIFICANT IMPACTS AND HOW THESE OFFSETS WILL BE ESTABLISHED

Details of offset requirements and obligations for this species as a result of residual impacts due the project is addressed in Section 10 of the BDAR.

DETAILS OF HOW THE CURRENT PUBLISHED NSW BIODIVERSITY ASSESSMENT METHOD (BAM) HAS BEEN APPLIED IN ACCORDANCE WITH THE OBJECTS OF THE EPBC ACT TO OFFSET SIGNIFICANT RESIDUAL ADVERSE IMPACTS

The BDAR specifically addresses Section 10 of the BAM and provides information on the application of the no net loss standard and the proposed biodiversity offset obligations.

DETAILS OF THE OFFSET PACKAGE TO COMPENSATE FOR SIGNIFICANT RESIDUAL IMPACTS INCLUDING DETAILS OF THE CREDIT PROFILES REQUIRED TO OFFSET THE ACTION IN ACCORDANCE WITH THE BAM AND/OR MAPPING AND DESCRIPTIONS OF THE EXTENT AND CONDITION OF THE RELEVANT HABITAT AND/OR THREATENED COMMUNITIES OCCURRING ON PROPOSED OFFSET SITES

Section 11 of the BDAR outlined the biodiversity offset strategy for the project. The offset obligations will be met through implementing a combination of the following offset delivery options, being:

- the purchase and retirement of existing biodiversity credits currently available on the biodiversity credit register
- establishing a biodiversity stewardship site(s) on lands with like for like biodiversity values to those impacted by the project
- through making a payment into the Biodiversity Conservation Fund.

South-eastern Glossy Black-cockatoo

The Glossy Black-Cockatoo is listed as Vulnerable under the EPBC Act and the BC Act.

Description

The Glossy Black-cockatoo is currently listed as Vulnerable under both the NSW BC Act and Commonwealth EPBC Act. It has a widespread distribution from Mallacoota in Victoria to Eungella in eastern Queensland, and inland to the central western plains and southern tablelands of New South Wales (Department of Environment & Conservation, 2004; Office of Environment & Heritage, 2022). Suitable habitats all feature the Glossy Black-cockatoos preferred food trees, She-oaks *(Allocasuarina* spp.), yet vary from coastal dry eucalypt forests and woodlands, to forested watercourses and open inland woodlands.

Black She-oak *(A. littoralis*) and Forest She-oak *(A. torulosa*) are important foods coastally, with inland populations feeding on Drooping She-oak (*A. verticillata*) and Belah (*Casuarina cristata*) while the shrubbier *A. gymnanthera* and *A. diminuta* are particularly important within the cypress / ironbark forests of the north-west (Department of Environment &

Conservation, 2004; Office of Environment & Heritage, 2022). Glossy Black-cockatoos feed almost exclusively on the seeds of these She-oak species. Due to the Glossy Black-cockatoos dependence on She-oaks, it is important that habitat containing She-oaks within the study area be maintained where possible for foraging opportunities. Additionally, further habitat fragmentation may have negative consequences for foraging efficiency due to an increase in distance between potential nesting and food areas which could lead to a population decline (NSW Scientific Committee, 2008).

While the presence of She-oaks is a determining factor for habitat selection, Glossy Black-cockatoos also require large tree hollows in Eucalypts, both living or dead, for nesting (Department of Environment & Conservation, 2004). These nesting hollows are on average 26 cm wide and up to 1.4 m deep, commonly in a living tree within a dead spout (NSW Scientific Committee, 2008). In autumn or winter, an individual egg is usually laid, with a single chick raised per clutch annually (NSW Scientific Committee, 2008). For this reason, all suitable hollow-bearing trees were documented within the survey area and will be incorporated into autumn/winter survey periods for targeted Glossy Black-cockatoo breeding surveys.

Visual observations during diurnal bird surveys, as well as opportunistically, were undertaken to determine presence of Glossy-black Cockatoos within the study area. This species can be distinguished from other similar looking birds including the Red-tailed Black-Cockatoo and the Yellow-tailed Black Cockatoo as it has a shorter crest and a quieter call (NSW Scientific Committee, 2008). During field surveys particular attention was paid to stands of She-oaks for evidence of Glossy Black-cockatoo feeding, which is characterised by chewed cones littering the ground underneath these trees with chewed cones located south of the Merotherie hub (Inland Slopes IBRA subregion) (Department of Environment & Conservation, 2004). Despite such evidence, no individuals were observed during diurnal bird surveys. However, the alignment resides within land mapped as a priority management area for Glossy Black Cockatoos – thus the assessment of Glossy Black Cockatoos in this BDAR has taken a precautionary approach, until targeted field surveys are completed. Threats to the Glossy Black-Cockatoo include:

- Reduction in extent and quality of habitat due to fire, land clearing, native forest timber harvesting and grazing
- Impacts of climate change increasing drought, bushfire and heatwaves and altering resource availability
- Competition for nest hollows with other species
- Predation by Common Brushtail Possums, feral cats and foxes
- Psittacine beak and feather disease (PBFD)
- Illegal bird and egg collection for avian trade

There are no publicly available records of this species in the locality of the project, however the subject land is partially mapped as potential habitat with presumed presence in areas. The closest public record is found in Goulburn National Park (2017).

Relevant commonwealth guidelines and policy statements including listing advice, conservation advice and recovery plan

A summary of the relevant Commonwealth guidelines and policy statements available for this species is as follows:

- The Conservation Advice *Calyptorhynchus lathami lathami* (South-eastern Glossy Black-Cockatoo) Threatened Species Scientific Committee, 2022) was reviewed as part of this assessment.
- Listing assessment information for this species may be available in the approved Conservation Advice.
- There is no adopted or made Recovery Plan for this species.
- The Draft referral guideline for 14 birds listed as migratory species under the EPBC Act (Department of the Environment, 2015d) was reviewed as part of this assessment.
- No threat abatement plan has been identified as being relevant for this species.

Specific impacts

Habitat for this species is assumed within the project study area in PCT 42, 81, 202, 266, 440, 461, 468, 477, 599 and 1674. A total of 31.4 ha of assumed habitat has been identified for this species.

Is this an important population?

In accordance with the Significant Impact Guidelines, the presence of an important population must be identified prior to addressing the significance impact criteria. An important population is defined in the guidelines as a population that is necessary for a species' long-term survival and recovery (Department of the Environment, 2013). Under the EPBC Act, important populations are:

- Likely to be key source populations either for breeding or dispersal
- Likely to be necessary for maintaining genetic diversity
- At or near the limit of the species range.
- There are records of this species within the locality of project study area.

As the core range for the Glossy Black-Cockatoo is predominantly found in the habitats east of the slopes including tablelands and coast, it is unlikely populations present in the locality of the subject land are a stronghold population. If any population is present, they are unlikely to be key source populations for dispersal or for maintaining genetic diversity. Also, this location is not at the limit of this species known range. As such any individual or population recorded within the project study area would not be considered part of an important population.

Significant impact criteria

An action is likely to have a significant impact on a vulnerable species if there is a real chance or possibility that it will:

LEAD TO A LONG-TERM DECREASE IN THE SIZE OF AN IMPORTANT POPULATION

Not applicable. Not considered an important population.

REDUCE THE AREA OF OCCPANCY OF AN IMPORTANT POPULATION

Not applicable. Not considered an important population.

FRAGMENT AN EXISTING IMPORTANT POPULATION INTO TWO OR MORE POPULATIONS

Not applicable. Not considered an important population.

ADVERSELY AFFECT HABITAT CRITICAL TO THE SURVIVAL OF A SPECIES

Conservation advice does not list any habitat critical to the survival of this species. Therefore, the project is not considered likely to adversely affect habitat critical to the survival of the species.

DISRUPT THE BREEDING CYCLE OF AN IMPORTANT POPULATION

Not applicable. Not considered an important population.

MODIFY, DESTROY, REMOVE OR ISOLATE OR DECREASE THE AVAILABILITY OR QUALITY OF HABITAT TO THE EXTENT THAT THE SPECIES IS LIKELY TO DECLINE

The project would decrease the availability of potential habitat by 31.4 ha in the form of PCT 42, 81, 202, 266, 440, 461, 468, 477, 599 and 1674. Although removal of Gang-Gang Cockatoo habitat for transmission towers and associated infrastructure is likely to be required, the availability of surrounding suitable open eucalypt woodland habitat provides extensive habitat. Therefore, the project is considered unlikely to modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline.

RESULT IN INVASIVE SPECIES THAT ARE HARMFUL TO A VULNERABLE SPECIES BECOMING ESTABLISHED IN THE VULNERABLE SPECIES' HABITAT

Vertebrate pests and weeds are already established in the habitat. Adhering to mitigation measures such as weed and pest management plans, and vehicle weed hygiene, would prevent further invasive weeds and vertebrate pests such as cats and foxes establishing in the project study area.

INTRODUCE DISEASE THAT MAY CAUSE THE SPECIES TO DECLINE

It is unlikely that disease would be increased by the project. Mitigation measures would be prepared to minimise the likelihood of spread of pathogens into the habitat of these species.

INTERFERE SUBSTANTIALLY WITH THE RECOVERY OF THE SPECIES

There is no adopted or made Recovery Plan for this species. No key management sites are known to occur within the project study area.

CONCLUSION

The action is considered unlikely to significantly impact upon Glossy Black-Cockatoo. This species is presumed present within the subject land in PCT 42, 81, 202, 266, 440, 461, 468, 477, 599 and 1674. The project will impact 31.4 ha of available habitat for this species. This represents a small proportion of available habitat for local populations and importantly unlikely to disrupt the breeding cycle of an important population or fragment a population and is unlikely lead to a decrease in the size of an important population of Glossy Black-Cockatoos.

NSW Assessment Bilateral requirements

DESCRIPTION OF THE HABITAT (INCLUDING IDENTIFICATION AND MAPPING OF SUITABLE BREEDING HABITAT, SUITABLE FORAGING HABITAT, IMPORTANT POPULATIONS AND HABITAT CRITICAL FOR SURVIVAL), WITH CONSIDERATION OF, AND REFERENCE TO, ANY RELEVANT COMMONWEALTH GUIDELINES AND POLICY STATEMENTS INCLUDING LISTING ADVICE, CONSERVATION ADVICE AND RECOVERY PLAN

There is no listing advice for this species. The *Conservation Advice Calyptorhynchus lathami lathami South-eastern Glossy Black Cockatoo* (Department of the Environment, 2022) indicates that the species inhabits eucalypt open forest and woodland with hollow-bearing trees and a midstory of She oaks. They are distributed across the eastern one-third of NSW from the coast to the tablelands, with populations on the western slopes and plains (e.g. Pilliga-Goonoo to Weddin Mtns) tenuously (if at all) connected to those on the tablelands. The small population in the Riverina is isolated.

This species is assumed present within the project study area in PCT 42, 81, 202, 266, 440, 461, 468, 477, 599 and 1674.

A map of suitable habitat for this species is provided in Figure C.20.

DETAILS OF THE SCOPE, TIMING AND METHODOLOGY FOR STUDIES OR SURVEYS USED AND HOW THEY ARE CONSISTENT WITH (OR JUSTIFICATION FOR DIVERGENCE FROM) PUBLISHED AUSTRALIAN GOVERNMENT GUIDELINES AND POLICY STATEMENTS

Threatened bird surveys completed within the project study area were carried out in accordance with the *Survey Guidelines for Australia's Threatened Birds* (Department of the Environment Water Heritage and the Arts 2010). Habitat assessments were undertaken to assess the likelihood of threatened species of animal (those species known or predicted to occur within the locality from the literature and database review) occurring within the project study area. Fauna habitat assessments were the primary assessment tool in assessing whether threatened species were likely to occur within the project study area. The primary technique used for surveying birds were 20-minute diurnal bird searches. Bird searches were conducted on 38 days in September 2021, August, November and December 2022, and February 2023.

DESCRIPTION OF THE SPECIFIC IMPACTS AND ITS REGARD TO THE FULL NATIONAL EXTENT OF THE SPECIES OR COMMUNITY'S RANGE

The project would potentially clear vegetation within suitable habitat. The project will impact 31.4 hectares of potential habitat. The impacts are captured in Section 9 and 10 of the BDAR.

Figure C.20 shows the current known generalised distribution from the Departments Species of National Environmental Significance dataset which is an indicative distribution map of the present distribution of the species based on best available knowledge. The project study area is not at the limit of the known distribution of this species.

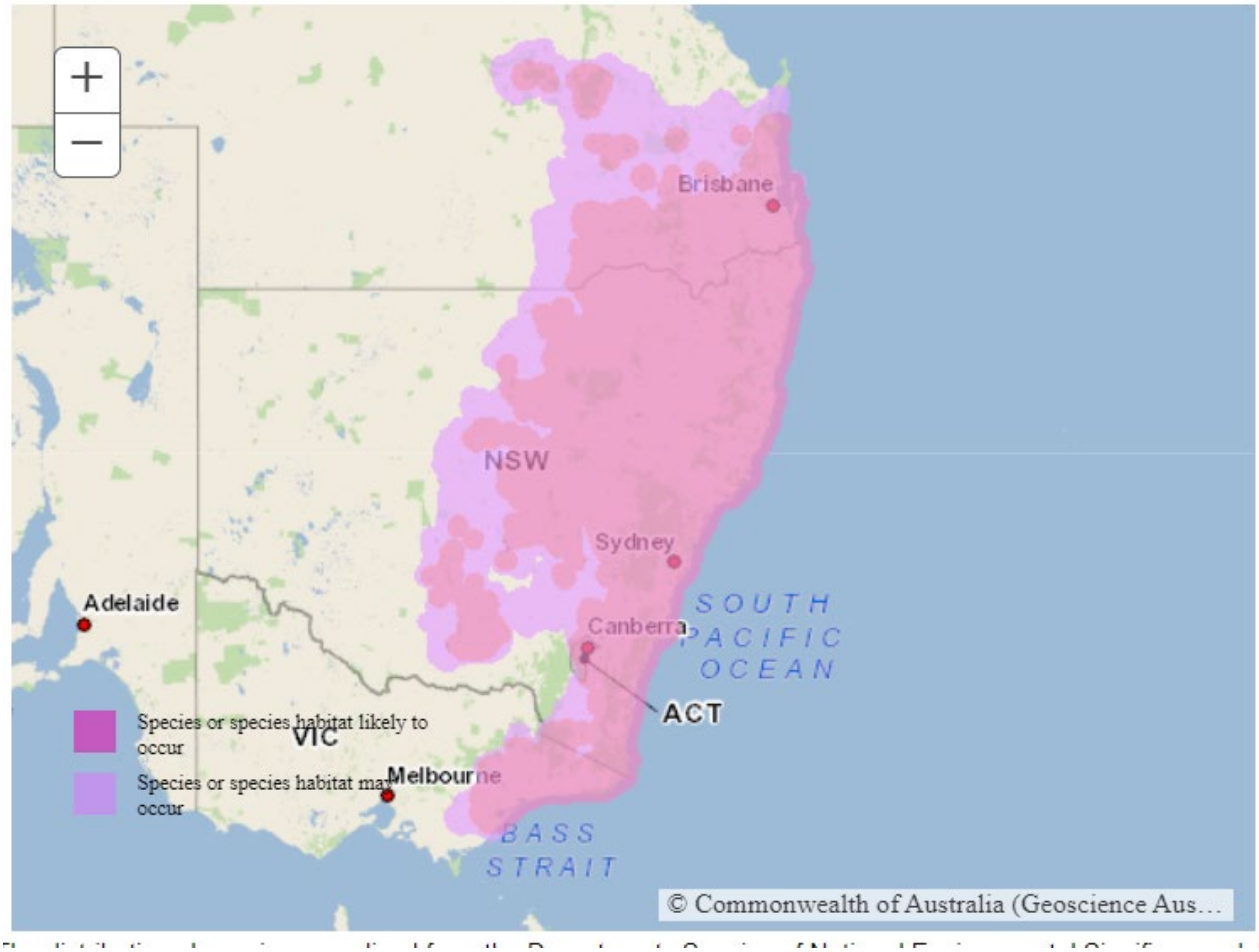

Figure C.20 Current distribution map for Glossy Black-Cockatoo taken from the SPRAT

DESCRIPTION OF THE SPECIFIC PROPOSED AVOIDANCE AND MITIGATION MEASURES TO DEAL WITH RELEVANT IMPACTS OF THE ACTION

The proposed avoidance and mitigation measures are outlined in Section 7 & 8 of the BDAR. Detailed avoidance description for impacts relating to biodiversity values (including threatened species) are outlined in Section 7. Mitigation measures to be implemented are outlined in Section 8. No specific measures for the Glossy Black-Cockatoo are identified. As an ecosystem credit species, it will benefit from mitigation measures targeted at all habitats.

IDENTIFICATION OF SIGNIFICANT RESIDUAL ADVERSE IMPACTS LIKELY TO OCCUR AFTER THE PROPOSED ACTIVITIES TO AVOID AND MITIGATE ALL IMPACTS ARE TAKEN INTO ACCOUNT

The residual impact to the Glossy Black-Cockatoo is likely to be minimal. The project would potentially clear vegetation within suitable habitat.

A DESCRIPTION OF ANY OFFSETS PROPOSED TO ADDRESS RESIDUAL ADVERSE SIGNIFICANT IMPACTS AND HOW THESE OFFSETS WILL BE ESTABLISHED

Details of offset requirements and obligations for this species as a result of residual impacts due the project is addressed in Section 10 of the BDAR.

DETAILS OF HOW THE CURRENT PUBLISHED NSW BIODIVERSITY ASSESSMENT METHOD (BAM) HAS BEEN APPLIED IN ACCORDANCE WITH THE OBJECTS OF THE EPBC ACT TO OFFSET SIGNIFICANT RESIDUAL ADVERSE IMPACTS

The BDAR specifically addresses Section 10 of the BAM and provides information on the application of the no net loss standard and the project biodiversity offset obligations.

DETAILS OF THE OFFSET PACKAGE TO COMPENSATE FOR SIGNIFICANT RESIDUAL IMPACTS INCLUDING DETAILS OF THE CREDIT PROFILES REQUIRED TO OFFSET THE ACTION IN ACCORDANCE WITH THE BAM AND/OR MAPPING AND DESCRIPTIONS OF THE EXTENT AND CONDITION OF THE RELEVANT HABITAT AND/OR THREATENED COMMUNITIES OCCURRING ON PROPOSED OFFSET SITES

Section 11 of the BDAR outlined the biodiversity offset strategy for the project. The offset obligations will be met through implementing a combination of the following offset delivery options, being:

- the purchase and retirement of existing biodiversity credits currently available on the biodiversity credit register
- establishing a biodiversity stewardship site(s) on lands with like for like biodiversity values to those impacted by the project
- through making a payment into the Biodiversity Conservation Fund.

Brown Treecreeper (south-eastern)

The Brown Treecreeper is listed as Vulnerable under the EPBC Act and the BC Act.

Description

Brown Treecreeper (south-eastern), is Australia's largest treecreeper. The species is grey-brown with black streaking on the lower breast and belly, and black bars on the undertail. Pale buff bands across the flight feathers are obvious in flight. The face is pale, with a dark line through the eye, and a dark crown. Sexes differ slightly in all plumages, with small patches of black and white streaking on the centre of the uppermost breast on males, while the females exhibit rufous and white streaking. Juveniles differ from adults mainly by the pattern of the under-body and by their pale bill and gape. Subspecies victoriae is distinguished from subspecies picumnus by colour differences on the face, body and tail markings. The two subspecies grade into each other through central New South Wales.

Brown treecreepers (south-eastern) occupy dry open eucalypt forests and woodlands. The subspecies mainly inhabits woodlands dominated by stringybarks or other rough-barked eucalypts, usually with an open grassy understorey, sometimes with one or more shrub species. They also occur in mallee, forests and woodlands subject to periodic inundation, e.g., river red gum (*Eucalyptus camaldulensis*) woodlands with an open understorey of acacias, saltbush, lignum, cumbungi and grasses in the upper Murray River. The subspecies is not usually found in woodlands with a dense shrub layer, and it is absent from heavily degraded woodlands and steep rocky hills. Optimal habitat for brown treecreeper (south-eastern) must experience some kind of ongoing disturbance regime (historically Indigenous burning practices) to keep the ground layer from becoming too dense and uniform.

The subspecies forages both on the ground and in mature live and dead trees and are terrestrial and arboreal in about equal proportions. The subspecies is described as sedentary, with birds occupying permanent territories. They are usually observed in pairs or small family groups of three.

Brown Treecreepers (south-eastern) nest and roost in naturally occurring tree cavities in a variety of eucalypt species. Breeding takes place from July to February across its range (Department of Climate Change Energy the Environment and Water 2023).

Distribution

Brown treecreepers (south-eastern) are endemic to south-eastern Australia from the Grampians in western Victoria, through central New South Wales to the Bunya Mountains in Queensland, and from the coast to the inland slopes of Great Dividing Range. In New South Wales the western boundary of the range runs approximately through Corowa, Wagga Wagga, Temora, Forbes, Dubbo and Inverell and along this line the subspecies intergrades with the arid zone subspecies of Brown Treecreeper C. p. picumnus. The subspecies is less commonly found on coastal plains and ranges (Department of Climate Change Energy the Environment and Water 2023).

Relevant Commonwealth guidelines and policy statements including listing advice, conservation advice and recovery plan

A summary of the relevant Commonwealth guidelines and policy statements available for this species is as follows:

- Approved conservation advice: *Conservation Advice for* Climacteris picumnus victoriae *(brown treecreeper (south-eastern))* (Department of Climate Change Energy the Environment and Water 2023)
- No relevant listing advice is available for this species. Listing assessment information for this species may be available in the approved Conservation Advice.
- There is no adopted or made Recovery Plan for this species.
- No threat abatement plan has been identified as being relevant for this species.

Specific impacts

Brown Treecreeper (south-eastern) was recorded in multiple locations through the study area, particularly in and around remnant vegetation associated with Goulburn River National Park and Tuckland State Forest. There are also multiple records for this species within the locality, as recent as 2021, similarly in the southern portion of the study area (RNI2 stage) and the west (RNI1 stage). Brown Treecreeper is associated with a number of PCTs in the subject land (including PCTs 42, 81, 202, 266, 277, 281, 440, 461, 468, 477, 1176, 1177, 599, 1610, 1661, 1674, 1696), with the exception of Derived Native Grassland condition classes as these do not provide suitable foraging habitat. Foraging habitat impacts have been captured as part of ecosystem credits. Refer to Section 11 of the BDAR for the Biodiversity credit report.

Brown Treecreeper (south-eastern) is likely to have movement corridors in Tuckland State Forest (and vegetation to the north) south through Goodiman State Conservation Area to Yarrobil National Park and potential movement corridors between the Munghorn Gap Nature Reserve and the Goulburn River National Park. The alignment is planned to go through some of these areas of vegetation, potentially marginally impeding the movements of this species. However, as the project will be highly permeable and is unlikely to result in substantial impacts to local or regional connectivity. Foraging habitat impacts have been captured as part of ecosystem credits. Refer to Section 11 of the BDAR for the Biodiversity credit report.

Is this an important population?

In accordance with the Significant Impact Guidelines, the presence of an important population must be identified prior to addressing the significance impact criteria. An important population is defined in the guidelines as a population that is necessary for a species' long-term survival and recovery (Department of the Environment 2013). Under the EPBC Act, important populations are:

- likely to be key source populations either for breeding or dispersal
- likely to be necessary for maintaining genetic diversity
- at or near the limit of the species range.

No important populations are currently listed for Brown Treecreeper (south-eastern) (Department of Climate Change Energy the Environment and Water 2023). Brown Treecreepers (south-eastern) are known to occur west to Dubbo, north to the Bunya Mountains in Queensland, east to the coast and south past the Grampians in western Victoria. Consequently, the location of the species within the subject land is unlikely to be significant in terms of range extension or dispersal. Though this species has a wide-ranging distribution, records throughout the subject land are infrequent and mostly associated with more intact remnant vegetation in the surrounding locality. However, given the extent of this vegetation in the locality where known records occur, and taking a precautionary approach, it is possible that substantial populations occur in these areas, which may be important in terms of genetic diversity or breeding. Consequently it is possible that individuals occurring in the subject land may be part of a larger important population.

Significant impact criteria

An action is likely to have a significant impact on a vulnerable species if there is a real chance or possibility that it will:

LEAD TO A LONG-TERM DECREASE IN THE SIZE OF AN IMPORTANT POPULATION

Brown Treecreeper (south-eastern) was recorded in several locations through the south and west of the study area, particularly in and around remnant vegetation associated with Goulburn River National Park and Tuckland State Forest. As an ecosystem credit species, the Brown Treecreeper (south-eastern) is assumed present in all associated PCTs 42, 81, 202, 266, 277, 281, 440, 461, 468, 477, 1176, 1177, 599, 1610, 1661, 1674, 1696. Marginal impacts to connectivity may occur through vegetation clearing but important habitat corridors will be avoided wherever possible, and connectivity may be enhanced through the development of proposed measures in the Fauna Connectivity Strategy for the project. Considering this, and the highly mobile nature of the species, it is considered unlikely that the project would lead to a long-term decrease in the size of an important population, however given the extent of habitat to be impacted, it is possible that the project may have some localised impacts on the movement and occurrence of individuals which are likely to be part of an important population.

REDUCE THE AREA OF OCCUPANCY OF AN IMPORTANT POPULATION

The *Conservation Advice for Climacteris picumnus victoriae (brown treecreeper (south-eastern))* (Department of Climate Change Energy the Environment and Water 2023) outlines that the current estimated area of occupancy (AOO) for the species is 30,000 km^2 . The project impacts are considered unlikely to reduce the area of occupancy of an important population of this species.

FRAGMENT AN EXISTING IMPORTANT POPULATION INTO TWO OR MORE POPULATIONS

Brown Treecreeper (south-eastern) is likely to have movement corridors in Tuckland State Forest (and vegetation to the north) south through Goodiman State Conservation Area to Yarrobil National Park and potential movement corridors between the Munghorn Gap Nature Reserve and the Goulburn River National Park. The alignment is planned to go through some of these areas of vegetation, potentially marginally impeding the movements through these areas. These impacts would likely be addressed through the Connectivity Strategy for the project which would be finalised prior to construction / vegetation clearing and will involve ongoing management of connectivity corridors. As part of this, 20-metre-wide connectivity corridors are to be established near tower locations that occur in woodland vegetation. In addition, many areas of the subject land currently occur in a already fragmented and disturbed landscape. Overall, the project will be highly permeable and is unlikely to result in substantial impacts to local or regional connectivity. Given these factors, it is unlikely that the project would fragment an existing important population of this species significantly beyond current fragmentation.

ADVERSELY AFFECT HABITAT CRITICAL TO THE SURVIVAL OF A SPECIES

No Critical Habitat as defined under section 207A of the EPBC Act has been identified for Brown Treecreeper or included in the Register of Critical Habitat (Department of Climate Change Energy the Environment and Water 2023). However, the *Conservation Advice for* Climacteris picumnus victoriae *(brown treecreeper (south-eastern))* (Department of Climate Change Energy the Environment and Water 2023) states that habitat critical to the survival of Brown Treecreeper includes areas of:

- relatively undisturbed grassy woodland with native understorey.
- habitat structure should be quite open at ground level so that birds are able to feed on or near the ground and maintain vigilance against predators
- the required degree of openness is mostly likely to be created by moderate levels of disturbance by fire and/or grazing
- large living and dead trees which are essential for roosting and nesting sites and for foraging
- fallen timber which provides essential foraging habitat and
- hollows in standing dead or live trees and tree stumps are also essential for nesting.

The advice also outlines that 'Habitat critical to the survival should not be cleared, fragmented or degraded. Any known or likely habitat (Figure C.21) should be considered as habitat critical to the survival of the subspecies. Additionally, areas that are not currently occupied by the subspecies due to recent disturbance (e.g. fire, grazing or human activity), but should became suitable again in the future, should also be considered habitat critical to the survival of the subspecies. Brown treecreeper (south-eastern) habitat also occurs in a wide range of land ownership arrangements, including on private land, travelling stock routes and reserves, state forests and state reserves, and National Parks. It is essential that the highest level of protection is provided to these areas and that enhancement and protection measures target these productive sites (Department of Climate Change Energy the Environment and Water 2023).

As an ecosystem credit species, the Brown Treecreeper (south-eastern) is presumed present in PCTs 42, 81, 202, 266, 277, 281, 440, 461, 468, 477, 1176, 1177, 599, 1610, 1661, 1674, 1696 and these habitats will be offset for all residual impacts. The project is considered unlikely to adversely affect habitat critical to the survival of a species.

DISRUPT THE BREEDING CYCLE OF AN IMPORTANT POPULATION

Brown treecreepers (south-eastern) nest and roost in naturally occurring tree cavities in a variety of eucalypt species. Hollows in standing dead or live trees and tree stumps are essential for nesting. Typically, birds breed cooperatively with the breeding group consisting of a breeding pair and a few subordinate males. Nests comprise cups of grass and bark lined with fur and feathers, built in a hollow limb or trunk. Building of the nest is undertaken by all members of the group over a period of 1–2 weeks. Breeding takes place from July to February across its range. Females typically lay 2–3 eggs. Pairs often have two broods during each breeding season. Immature females disperse but are reluctant to cross large tracts of open land. Brown treecreepers (south-eastern) have higher breeding success in territories with lower densities of shrubs, moderate levels of ground cover, greater amounts of foraging substrate and greater invertebrate biomass and substantial volumes of fallen timber (Department of Climate Change Energy the Environment and Water 2023).

Mitigation measures would be put in place as part of the project to minimise impacts to breeding birds, such as timing clearing works to avoid breeding season, pre-clearance surveys and installation of nest boxes. Given this the project is considered unlikely to disrupt the breeding cycle of an important population.

MODIFY, DESTROY, REMOVE OR ISOLATE OR DECREASE THE AVAILABILITY OR QUALITY OF HABITAT TO THE EXTENT THAT THE SPECIES IS LIKELY TO DECLINE

Although vegetation clearing may contribute to the decline of the population within the project study area, it is considered unlikely that the action would result in disturbance to the extent that the species would decline. There are large tracts of adjacent, higher quality habitat located in contiguous areas such as National Parks and reserves, where the species is known to occur.

RESULT IN INVASIVE SPECIES THAT ARE HARMFUL TO A VULNERABLE SPECIES BECOMING ESTABLISHED IN THE VULNERABLE SPECIES' HABITAT

Adhering to mitigation measures such as weed and pest management plans, and vehicle weed hygiene, would prevent invasive weeds and vertebrate pests such as cats and foxes establishing in Brown Treecreeper (south-eastern) habitat areas. The project is unlikely to significantly increase the spread of invasive weeds and pests beyond that currently occurring within the landscape.

INTRODUCE DISEASE THAT MAY CAUSE THE SPECIES TO DECLINE

There are no knows diseases causing potential species decline to Brown Treecreeper (south-eastern). Mitigation measures would be put in place as part of the project to minimise the potential for introduction or spread of pathogens. Consequently, it is unlikely that the project may introduce disease that could contribute to decline of the species.

INTERFERE SUBSTANTIALLY WITH THE RECOVERY OF THE SPECIES

There is currently no recovery plan in place for Brown Treecreeper (south-eastern). The approved conservation advice for the species outlines a number of conservation, research and recovery actions for the species with the primary conservation objective that 'Stable or increasing populations are observed across the range' (Department of Climate Change Energy the Environment and Water 2023).

The project is considered unlikely to likely to interfere substantially with the recovery of the species.

CONCLUSION

This species was recorded in multiple locations through the study area, particularly in and around remnant vegetation associated with Goulburn River National Park and Tuckland State Forest. There are also multiple records for this species within the locality, as recent as 2021, similarly in the southern portion of the study area (RNI2 stage) and the west (RNI1 stage).

As an ecosystem credit species, the Brown Treecreeper (south-eastern) is presumed present in PCTs 42, 81, 202, 266, 277, 281, 440, 461, 468, 477, 1176, 1177, 599, 1610, 1661, 1674, 1696 and these habitats will be offset for all residual impacts. In addition, mitigation measures would be put in place as part of the project to minimise impacts to breeding birds, such as timing clearing works to avoid breeding season, pre-clearance surveys and installation of nest boxes.

The project is considered unlikely to have a significant impact on the Brown Treecreeper (south-eastern).

NSW Assessment Bilateral requirements

DESCRIPTION OF THE HABITAT (INCLUDING IDENTIFICATION AND MAPPING OF SUITABLE BREEDING HABITAT, SUITABLE FORAGING HABITAT, IMPORTANT POPULATIONS AND HABITAT CRITICAL FOR SURVIVAL), WITH CONSIDERATION OF, AND REFERENCE TO, ANY RELEVANT COMMONWEALTH GUIDELINES AND POLICY STATEMENTS INCLUDING LISTING ADVICE, CONSERVATION ADVICE AND RECOVERY PLAN

A description of habitat for this species, important populations, habitat critical for survival and relevant Commonwealth documents are provided in the section above, with a map showing the modelled distribution of the species provided in Figure C.21.

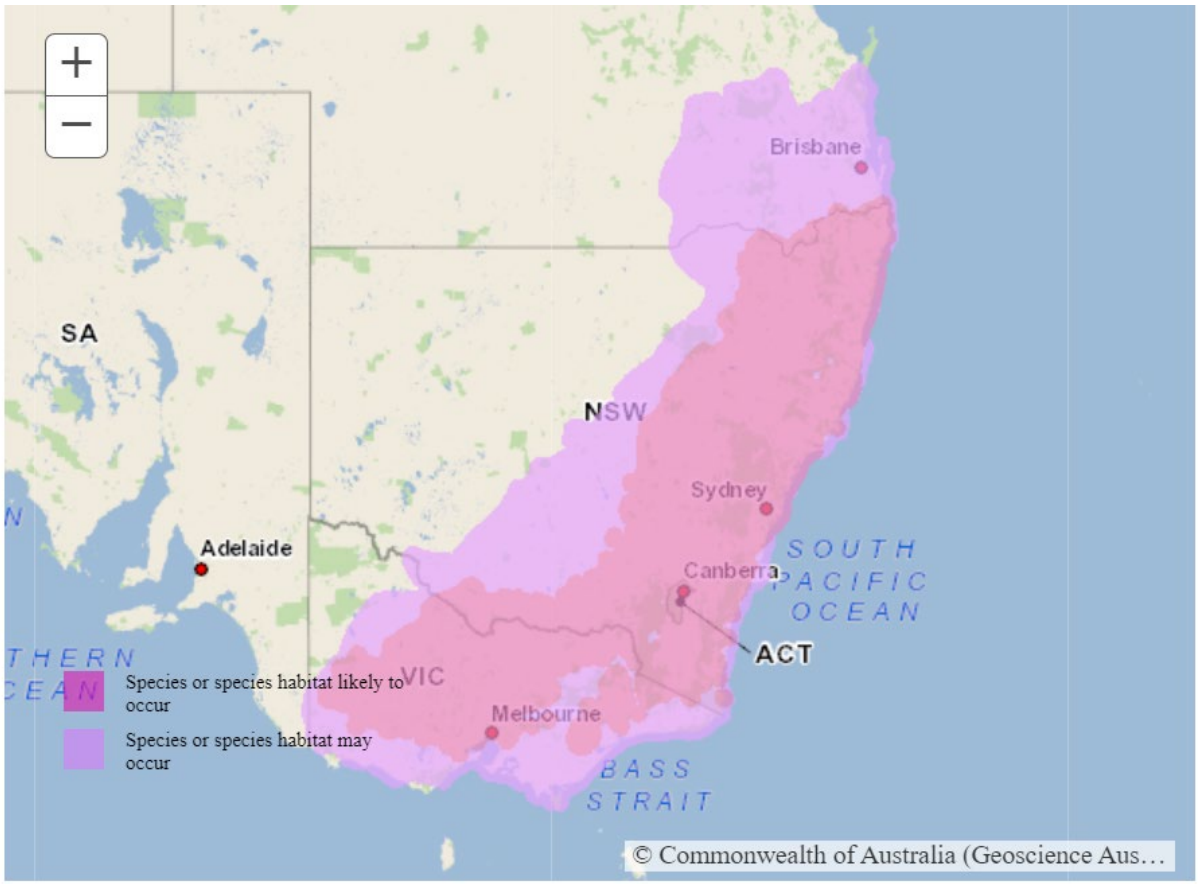

Figure C.21 Current distribution map for Brown Treecreeper (south-eastern) (Department of Climate Change Energy the Environment and Water 2023)

DETAILS OF THE SCOPE, TIMING AND METHODOLOGY FOR STUDIES OR SURVEYS USED AND HOW THEY ARE CONSISTENT WITH (OR JUSTIFICATION FOR DIVERGENCE FROM) PUBLISHED AUSTRALIAN GOVERNMENT GUIDELINES AND POLICY STATEMENTS

Threatened bird surveys completed within the project study area were carried out in general accordance with the *NSW Threatened Biodiversity Survey and Assessment: Guidelines for Developments and Activities (Working Draft)* (Department of Environment and Conservation 2004) and the *Survey Guidelines for Australia's Threatened Birds* (Department of the Environment Water Heritage and the Arts 2010). Habitat assessments, BAM-C and database searches were undertaken to assess the likelihood of threatened species of animal (those species known or predicted to occur within the locality from the literature and database review) occurring within the subject land. Fauna habitat assessments were the primary assessment tool in assessing whether threatened species were likely to occur within the subject land. The primary technique used for targeted bird surveys in the field were 20-minute diurnal bird searches.

DESCRIPTION OF THE SPECIFIC IMPACTS AND ITS REGARD TO THE FULL NATIONAL EXTENT OF THE SPECIES OR COMMUNITY'S RANGE

The project will clear vegetation within suitable habitat. As an ecosystem credit species, the Brown Treecreeper (south-eastern) is assumed present in all associated PCTs 42, 81, 202, 266, 277, 281, 440, 461, 468, 477, 1176, 1177, 599, 1610, 1661, 1674, 1696, and as such contributes to the offset requirements for these PCTs.

Figure C.21 provides the current known generalised distribution from the conservation advice and the SPRAT database which are indicative distribution maps of the present distribution of the species based on best available knowledge. The total extent of occurrence (EOO) for the species is estimated at 1,100,000 km^2. Refer to Section 11 of the BDAR for the Biodiversity credit report. Foraging habitat impacts have been captured as part of ecosystem credits.

DESCRIPTION OF THE SPECIFIC PROPOSED AVOIDANCE AND MITIGATION MEASURES TO DEAL WITH RELEVANT IMPACTS OF THE ACTION

The proposed avoidance and mitigation measures are outlined in Section 7 & 8 of the BDAR. Detailed avoidance description for impacts relating to biodiversity values (including threatened species) are outlined in Section 7. No specific measures for Brown Treecreeper (south-eastern) are identified. As an ecosystem credit species, it will benefit from mitigation measures targeted at all habitats.

IDENTIFICATION OF SIGNIFICANT RESIDUAL ADVERSE IMPACTS LIKELY TO OCCUR AFTER THE PROPOSED ACTIVITIES TO AVOID AND MITIGATE ALL IMPACTS ARE TAKEN INTO ACCOUNT

The residual impact to the Brown Treecreeper (south-eastern) have been captured as part of ecosystem credits is listed in Section 11 of the BDAR for the Biodiversity credit report.

A DESCRIPTION OF ANY OFFSETS PROPOSED TO ADDRESS RESIDUAL ADVERSE SIGNIFICANT IMPACTS AND HOW THESE OFFSETS WILL BE ESTABLISHED

Details of offset requirements and obligations for this species as a result of residual impacts due the project is addressed in Section 10 of the BDAR.

DETAILS OF HOW THE CURRENT PUBLISHED NSW BIODIVERSITY ASSESSMENT METHOD (BAM) HAS BEEN APPLIED IN ACCORDANCE WITH THE OBJECTS OF THE EPBC ACT TO OFFSET SIGNIFICANT RESIDUAL ADVERSE IMPACTS

The BDAR specifically addresses Section 10 of the BAM and provides information on the application of the no net loss standard and the proposed biodiversity offset obligations.

DETAILS OF THE OFFSET PACKAGE TO COMPENSATE FOR SIGNIFICANT RESIDUAL IMPACTS INCLUDING DETAILS OF THE CREDIT PROFILES REQUIRED TO OFFSET THE ACTION IN ACCORDANCE WITH THE BAM AND/OR MAPPING AND DESCRIPTIONS OF THE EXTENT AND CONDITION OF THE RELEVANT HABITAT AND/OR THREATENED COMMUNITIES OCCURRING ON PROPOSED OFFSET SITES

Section 11 of the BDAR outlined the biodiversity offset strategy for the project. The offset obligations will be met through implementing a combination of the following offset delivery options, being:

- the purchase and retirement of existing biodiversity credits currently available on the biodiversity credit register
- establishing a biodiversity stewardship site(s) on lands with like for like biodiversity values to those impacted by the project
- through making a payment into the Biodiversity Conservation Fund.

Painted Honeyeater

The Painted Honeyeater is listed as Vulnerable under the EPBC Act and the BC Act.

Distribution

The Painted Honeyeater is sparsely distributed from south-eastern Australia to north-western Queensland and eastern Northern Territory. The greatest concentrations and almost all records of breeding come from south of 26ºS, on inland slopes of the Great Dividing Range between the Grampians, Victoria and Roma, Queensland. Fruiting mistletoe primarily influences the Painted Honeyeater's seasonal north-south movements, with its breeding season closely matched. After breeding, many birds move into semi-arid regions such as north-eastern South Australia, central and western Queensland, and central Northern Territory. Breeding occurs from October to March when mistletoe fruits are most available (Department of the Environment 2015).

The species is a mistletoe specialist, and inhabits mistletoes in eucalypt forests/woodlands, riparian woodlands of Black Box and River Red Gum, Box-ironbark-yellow Gum woodlands, Acacia-dominated woodlands, Paperbarks, Casuarinas, Callitris, and trees on farmland or gardens. The species prefers woodlands which contain a higher number of mature trees, as these host more mistletoes, and is more common in wider blocks of remnant woodland than in narrower strips (Department of the Environment 2015).

Threats for this species include:

- habitat loss due to clearing
- grazing by livestock, macropods and rabbits, limiting new tree recruitment
- competition with the aggressive Noisy Miner (Manorina melanocephala), predation by invasive species such as Black Rats (*Rattus rattus*), and nest predation by over abundant Pied Currawongs (Strepera graculina), pied and grey butcherbirds (Cracticus nigrogularis and Cracticus torquatus), and crows and ravens (Corvidae). (Threatened Species Scientific Committee, 2015).

Strongholds for the species and breeding areas occur on the inland slopes of the Great Dividing Range in NSW, Victoria and Southern Queensland (OEH, 2019).

Relevant Commonwealth guidelines and policy statements including listing advice, conservation advice and recovery plan

A summary of the relevant Commonwealth guidelines and policy statements available for this species is as follows:

- The *Conservation Advice* Grantiella picta *painted honeyeater* (Department of the Environment 2015) was reviewed as part of this assessment.
- Listing assessment information for this species may be available in the approved Conservation Advice.
- There is no adopted or made Recovery Plan for this species.
- No threat abatement plan has been identified as being relevant for this species.

Relevant survey guidelines for this species include:

- *Survey Guidelines for Australia's Threatened Birds* (Department of the Environment Water Heritage and the Arts 2010).

Specific impacts

Painted Honeyeater is a predicted species in association with PCTs 42, 81, 202, 266, 277, 281, 440, 461, 468, 477, 478, 479, 481, 483, 618, 1176, 1177, 599, 1610, 1661, 1674 and 1696, with the exception of derived native grassland as this does not provide foraging habitat for the species. Foraging habitat impacts have been captured as part of ecosystem credits (refer to Section 11 of the BDAR).

The species will be at risk to vehicle strikes during and following development. The corridor alignment is located adjoining to or crosses major roads such as the Castlereagh Highway and Golden Highway and the smaller roads of Spring Ridge Road, Tucklan Road, Merotherie Road, Blue Springs Road, Cope Road, Ulan Road, Ulan-Wollar Road (and other smaller local roads). The project is likely to generate additional vehicular movements along these roads, mostly during construction but also during operation.

Is this an important population?

In accordance with the Significant Impact Guidelines, the presence of an important population must be identified prior to addressing the significance impact criteria. An important population is defined in the guidelines as a population that is necessary for a species' long-term survival and recovery (Department of the Environment, 2013). Under the EPBC Act, important populations are:

- likely to be key source populations either for breeding or dispersal
- likely to be necessary for maintaining genetic diversity
- at or near the limit of the species range.

As the core range for Painted Honeyeaters is inland south-eastern Australia where its natural habitat is subtropical or tropical dry forests, and species population strongholds and breeding areas occur on the inland slopes of the Great Dividing Range (outside of the project study area). If any population is present, they are unlikely to be key source populations for dispersal or for maintaining genetic diversity. Also, this location is not at the limit of this species known range. As such any individual or population recorded within the project study area would not be considered part of an important population.

Significant impact criteria

An action is likely to have a significant impact on a vulnerable species if there is a real chance or possibility that it will:

LEAD TO A LONG-TERM DECREASE IN THE SIZE OF AN IMPORTANT POPULATION

Not applicable. Not considered an important population.

REDUCE THE AREA OF OCCUPANCY OF AN IMPORTANT POPULATION

Not applicable. Not considered an important population.

FRAGMENT AN EXISTING IMPORTANT POPULATION INTO TWO OR MORE POPULATIONS

Not applicable. Not considered an important population.

ADVERSELY AFFECT HABITAT CRITICAL TO THE SURVIVAL OF A SPECIES

Conservation advice does not list any habitat critical to the survival of this species. Therefore, the project is not considered likely to adversely affect habitat critical to the survival of the species.

DISRUPT THE BREEDING CYCLE OF AN IMPORTANT POPULATION

Not applicable. Not considered an important population.

MODIFY, DESTROY, REMOVE OR ISOLATE OR DECREASE THE AVAILABILITY OR QUALITY OF HABITAT TO THE EXTENT THAT THE SPECIES IS LIKELY TO DECLINE

Although vegetation clearing may contribute to the decline of the population within the project study area, it is considered unlikely that the action would result in disturbance to the extent that the species would decline. There is adjacent habitat located in contiguous areas such as National Parks and reserves, where the species is known to occur

RESULT IN INVASIVE SPECIES THAT ARE HARMFUL TO A VULNERABLE SPECIES BECOMING ESTABLISHED IN THE VULNERABLE SPECIES' HABITAT

Adhering to mitigation measures such as weed and pest management plans, and vehicle weed hygiene, would prevent invasive weeds and vertebrate pests such as cats and foxes establishing in wetland habitat areas

INTRODUCE DISEASE THAT MAY CAUSE THE SPECIES TO DECLINE

There are no knows diseases causing potential species decline to the Painted Honeyeater, or diseases to its preferred food source, mistletoe.

INTERFERE SUBSTANTIALLY WITH THE RECOVERY OF THE SPECIES

The project the project is contrary to the recovery objectives and actions outlined in the Saving Our Species program and the National Recovery Program for the Painted Honeyeater. Contributing to the degradation and removal of habitat (i.e. mature trees containing mistletoe). Although sections of potential habitat are likely to be cleared, the maximum cleared area for a single tower footprint or laydown area would not exceed 0.5 ha, and the easement width of the transmission line would be a maximum of approximately 80 meters (with full clearing not always being required). The project study area is within an already fragmented landscape from agriculture and existing linear infrastructure, thereby limiting the potential for any substantial patches of habitat removal to occur. It is considered unlikely that the amount of potential clearing would interfere substantially with the recovery of the species.

CONCLUSION

Although potentially suitable woodland habitat has been mapped within the project study area, mitigation measures would ensure that clearing of large tracts of suitable woodland are minimised or avoided to prevent significant loss of habitat. As core populations, breeding areas, and the species stronghold do not occur within the locality of this project, it is considered unlikely that the project would have a significant impact on the Painted Honeyeater.

NSW Assessment Bilateral requirements

DESCRIPTION OF THE HABITAT (INCLUDING IDENTIFICATION AND MAPPING OF SUITABLE BREEDING HABITAT, SUITABLE FORAGING HABITAT, IMPORTANT POPULATIONS AND HABITAT CRITICAL FOR SURVIVAL), WITH CONSIDERATION OF, AND REFERENCE TO, ANY RELEVANT COMMONWEALTH GUIDELINES AND POLICY STATEMENTS INCLUDING LISTING ADVICE, CONSERVATION ADVICE AND RECOVERY PLAN

There is no listing advice for this species. The *Conservation Advice Grantiella picta painted honeyeater* (Department of the Environment, 2015c) indicates that the species inhabits mistletoes in eucalypt forests/woodlands, riparian woodlands of black box and river red gum, box-ironbark-yellow gum woodlands, acacia-dominated woodlands, paperbarks, casuarinas, Callitris, and trees on farmland or gardens. The species prefers woodlands which contain a higher number of mature trees, as these host more mistletoes. It is more common in wider blocks of remnant woodland than in narrower strips, although it breeds in quite narrow roadside strips if ample mistletoe fruit is available. There is no adopted or made Recovery Plan for this species.

DETAILS OF THE SCOPE, TIMING AND METHODOLOGY FOR STUDIES OR SURVEYS USED AND HOW THEY ARE CONSISTENT WITH (OR JUSTIFICATION FOR DIVERGENCE FROM) PUBLISHED AUSTRALIAN GOVERNMENT GUIDELINES AND POLICY STATEMENTS

Threatened bird surveys completed within the project study area were carried out in accordance with the *Survey Guidelines for Australia's Threatened Birds* (Department of the Environment Water Heritage and the Arts 2010). Habitat assessments were undertaken to assess the likelihood of threatened species of animal (those species known or predicted to occur within the locality from the literature and database review) occurring within the project study area. Fauna habitat assessments were the primary assessment tool in assessing whether threatened species were likely to occur within the project study area. The primary technique used for surveying birds were 20-minute diurnal bird searches.

DESCRIPTION OF THE SPECIFIC IMPACTS AND ITS REGARD TO THE FULL NATIONAL EXTENT OF THE SPECIES OR COMMUNITY'S RANGE

The project will clear vegetation within suitable habitat. As an ecosystem credit species, the Painted Honeyeater is predicted in all PCTs 42, 81, 202, 266, 277, 281, 440, 461, 468, 477, 478, 479, 481, 483, 618, 1176, 1177, 599, 1610, 1661, 1674 and 1696, and as such contributes to the offset requirements for these PCTs.

Figure C.22 shows the current known generalised distribution from the Departments Species of National Environmental Significance dataset which is an indicative distribution map of the present distribution of the species based on best available knowledge. The project study area is not at the limit of the known distribution of this species.

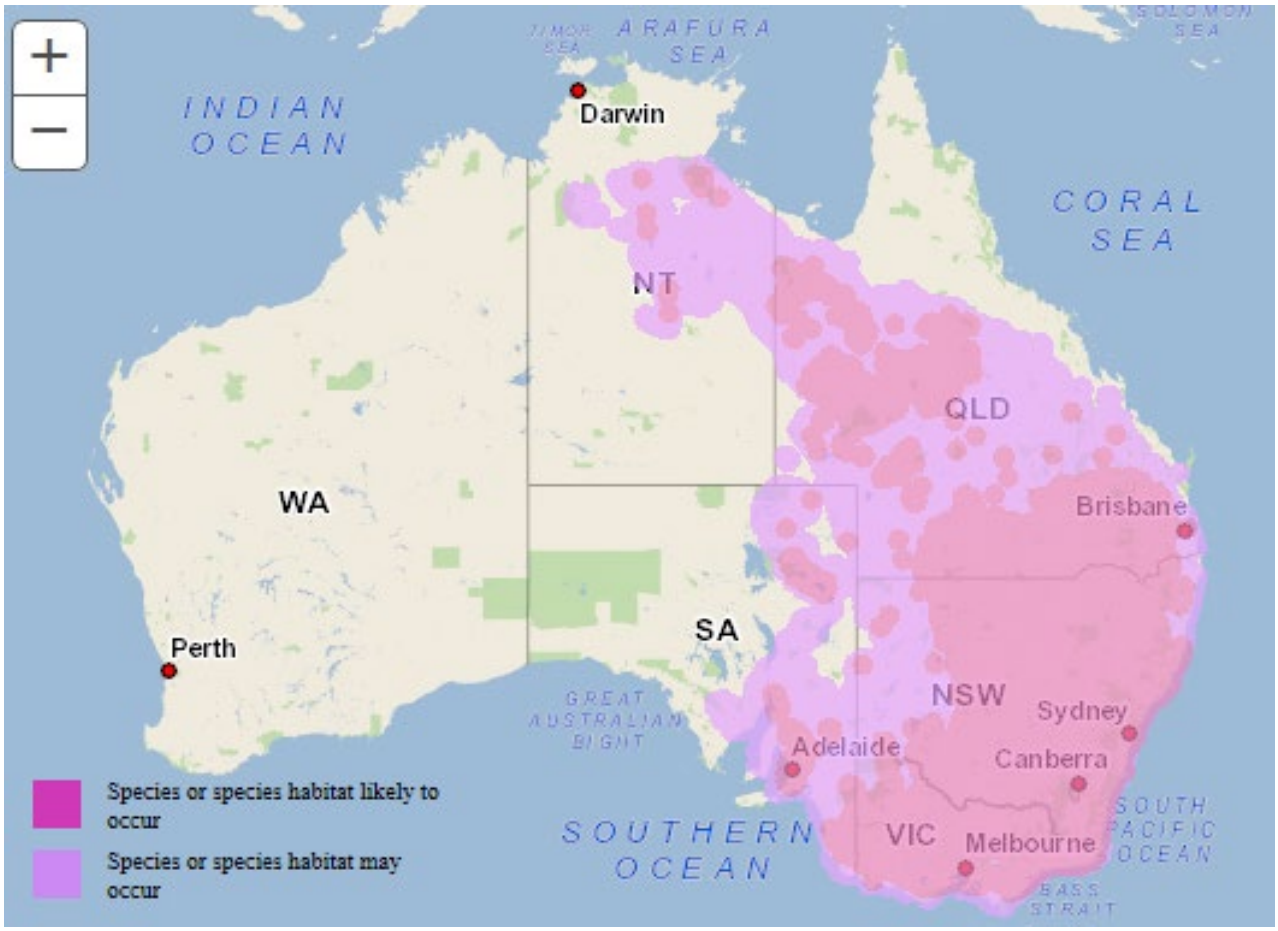

Figure C.22 Current distribution map for Painted Honeyeater taken from the SPRAT

DESCRIPTION OF THE SPECIFIC PROPOSED AVOIDANCE AND MITIGATION MEASURES TO DEAL WITH RELEVANT IMPACTS OF THE ACTION

The proposed avoidance and mitigation measures are outlined in Section 7 & 8 of the BDAR. Detailed avoidance description for impacts relating to biodiversity values (including threatened species) are outlined in Section 7. Mitigation measures to be implemented are outlined in Section 8. No specific measures for the Painted Honeyeater are identified. As an ecosystem credit species, it will benefit from mitigation measures targeted at all habitats.

IDENTIFICATION OF SIGNIFICANT RESIDUAL ADVERSE IMPACTS LIKELY TO OCCUR AFTER THE PROPOSED ACTIVITIES TO AVOID AND MITIGATE ALL IMPACTS ARE TAKEN INTO ACCOUNT

The residual impact to the Painted Honeyeater is likely to be minimal. The project will impact predicted habitat. In the form of PCTs 42, 81, 202, 266, 277, 281, 440, 461, 468, 477, 478, 479, 481, 483, 618, 1176, 1177, 599, 1610, 1661, 1674 and 1696. Ecosystem credits offsets will be provided for all residual impacts to these vegetation types (refer Section 10 of the BDAR).

A DESCRIPTION OF ANY OFFSETS PROPOSED TO ADDRESS RESIDUAL ADVERSE SIGNIFICANT IMPACTS AND HOW THESE OFFSETS WILL BE ESTABLISHED

Details of offset requirements and obligations for this species as a result of residual impacts due the project is addressed in Section 10 of the BDAR.

DETAILS OF HOW THE CURRENT PUBLISHED NSW BIODIVERSITY ASSESSMENT METHOD (BAM) HAS BEEN APPLIED IN ACCORDANCE WITH THE OBJECTS OF THE EPBC ACT TO OFFSET SIGNIFICANT RESIDUAL ADVERSE IMPACTS

The BDAR specifically addresses Section 10 of the BAM and provides information on the application of the no net loss standard and the proposed biodiversity offset obligations.

DETAILS OF THE OFFSET PACKAGE TO COMPENSATE FOR SIGNIFICANT RESIDUAL IMPACTS INCLUDING DETAILS OF THE CREDIT PROFILES REQUIRED TO OFFSET THE ACTION IN ACCORDANCE WITH THE BAM AND/OR MAPPING AND DESCRIPTIONS OF THE EXTENT AND CONDITION OF THE RELEVANT HABITAT AND/OR THREATENED COMMUNITIES OCCURRING ON PROPOSED OFFSET SITES

Section 11 of the BDAR outlined the biodiversity offset strategy for the project. The offset obligations will be met through implementing a combination of the following offset delivery options, being:

- the purchase and retirement of existing biodiversity credits currently available on the biodiversity credit register
- establishing a biodiversity stewardship site(s) on lands with like for like biodiversity values to those impacted by the project
- through making a payment into the Biodiversity Conservation Fund.

White-throated Needletail

The White-throated Needletail is listed as Vulnerable under the EPBC Act.

Description

White-throated Needletails only occur in Australia between late spring and early autumn, and are most likely to occur in summer, when they sometimes form large flocks, appearing as a swirling cloud of birds. White-throated Needletails often occur in large numbers over eastern and northern Australia. In eastern Australia, it is recorded in all coastal regions of Queensland and NSW, extending inland to the western slopes of the Great Divide and occasionally onto the adjacent inland plains. The White-throated Needletail feeds on flying insects, such as termites, ants, beetles and flies. They catch the insects in flight in their wide gaping beaks. Birds usually feed in rising thermal currents associated with storm fronts and bushfires.

Relevant commonwealth guidelines and policy statements including listing advice, conservation advice and recovery plan

A summary of the relevant Commonwealth guidelines and policy statements available for this species is as follows:

- The *Conservation Advice Hirundapus caudacutus White-throated Needletail* (Threatened Species Scientific Committee, 2019) was reviewed as part of this assessment.
- Listing assessment information for this species may be available in the approved Conservation Advice.
- There is no adopted or made Recovery Plan for this species.
- The *Draft referral guideline for 14 birds listed as migratory species under the EPBC Act* (Department of the Environment, 2015) was reviewed as part of this assessment.
- No threat abatement plan has been identified as being relevant for this species.

Relevant survey guidelines for this species include:

- *Survey Guidelines for Australia's Threatened Birds* (Department of the Environment, Water, Heritage and the Arts (DEWHA), 2010).

Specific impacts

Previous records of the species mainly occur in the east of the project study area, in the Kerrabee and Pilliga subregions.

Vegetation clearing of habitat occurs in areas which the species may be foraging above in aerial spaces on a seasonal basis.

Is this an important population?

In accordance with the Significant Impact Guidelines, the presence of an important population must be identified prior to addressing the significance impact criteria. An important population is defined in the guidelines as a population that is necessary for a species' long-term survival and recovery (Department of the Environment, 2013). Under the EPBC Act, important populations are:

- likely to be key source populations either for breeding or dispersal
- likely to be necessary for maintaining genetic diversity
- at or near the limit of the species range.

In Australia, the White-throated Needletail is almost exclusively aerial, from heights of less than 1 m up to more than 1000 m above the ground. Because they are aerial, it has been stated that conventional habitat descriptions are inapplicable, but there are, nevertheless, certain preferences exhibited by the species. Although they occur over most types of habitat, they are probably recorded most often above wooded areas, including open forest and rainforest, and may also fly between trees or in clearings, below the canopy, but they are less commonly recorded flying above woodland. They also commonly occur over heathland, but less often over treeless areas, such as grassland or swamps.

The project study area does not contain suitable habitat for breeding, as breeding takes place in Northern Asia. As the project does not contain key resources for breeding or dispersal, does not occur at the limit of the species distribution range and is unlikely to be necessary for maintaining genetic diversity, populations which may occur are not considered to form part of an 'important population'.

Significant impact criteria

An action is likely to have a significant impact on a vulnerable species if there is a real chance or possibility that it will:

LEAD TO A LONG-TERM DECREASE IN THE SIZE OF AN IMPORTANT POPULATION

Not applicable.

REDUCE THE AREA OF OCCUPANCY OF AN IMPORTANT POPULATION

Not applicable.

FRAGMENT AN EXISTING IMPORTANT POPULATION INTO TWO OR MORE POPULATIONS

Not applicable.

ADVERSELY AFFECT HABITAT CRITICAL TO THE SURVIVAL OF A SPECIES

No critical habitat is listed for this species under the EPBC Act.

DISRUPT THE BREEDING CYCLE OF AN IMPORTANT POPULATION

Not applicable.

MODIFY, DESTROY, REMOVE OR ISOLATE OR DECREASE THE AVAILABILITY OR QUALITY OF HABITAT TO THE EXTENT THAT THE SPECIES IS LIKELY TO DECLINE

Although vegetation clearing may contribute to the decline of available habitat within project study area, it is considered unlikely that the action would modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline.

RESULT IN INVASIVE SPECIES THAT ARE HARMFUL TO A VULNERABLE SPECIES BECOMING ESTABLISHED IN THE VULNERABLE SPECIES' HABITAT

It is unlikely that invasive species (such as introduced predators) that are harmful to the White-throated Needletail would become further established because of the project.

INTRODUCE DISEASE THAT MAY CAUSE THE SPECIES TO DECLINE

There are no known diseases that are likely to increase in the area because of the project.

INTERFERE SUBSTANTIALLY WITH THE RECOVERY OF THE SPECIES

Due to the limited foraging habitat likely to be affect by the project and that the species predicted habitat will be offset, the project is considered unlikely to interfere with the recovery of this species.

CONCLUSION

The White-throated Needletail is almost exclusively aerial, breeding in Northern Asia, and occur from Queensland to Victoria. Any individuals or population observed within the project study area are unlikely to be an important population and habitats associated with the project are not considered to be important to the species' long-term survival. The extent of native vegetation clearing, and habitat removal associated with the project is small in terms of the available habitat for this species within the surrounding landscape. Although the loss of foraging habitat for the White-throated Needletail is an incremental loss of suitable habitat regionally, the project is unlikely to have a significant impact on White-throated Needletail.

NSW Assessment Bilateral requirements

DESCRIPTION OF THE HABITAT (INCLUDING IDENTIFICATION AND MAPPING OF SUITABLE BREEDING HABITAT, SUITABLE FORAGING HABITAT, IMPORTANT POPULATIONS AND HABITAT CRITICAL FOR SURVIVAL), WITH CONSIDERATION OF, AND REFERENCE TO, ANY RELEVANT COMMONWEALTH GUIDELINES AND POLICY STATEMENTS INCLUDING LISTING ADVICE, CONSERVATION ADVICE AND RECOVERY PLAN

There is no listing advice for this species. The *Conservation Advice Hirundapus caudacutus White-throated Needletail* (Department of the Environment, 2019) indicates that the species inhabits areal spaces up to 1000m above most habitat types and is recorded in all coastal regions of Queensland and NSW, extending inland to the western slopes of the Great Divide and occasionally onto the adjacent inland plains. They are most often recorded above wooded areas, including open forest and rainforest. They only occur in Australia between late spring and early autumn and are most likely to occur in summer.

This species is predicted in all PCTs for the project. A map of suitable habitat for this species is provided in Figure C.23.

DETAILS OF THE SCOPE, TIMING AND METHODOLOGY FOR STUDIES OR SURVEYS USED AND HOW THEY ARE CONSISTENT WITH (OR JUSTIFICATION FOR DIVERGENCE FROM) PUBLISHED AUSTRALIAN GOVERNMENT GUIDELINES AND POLICY STATEMENTS

Threatened bird surveys completed within the project study area were carried out in accordance with the *Survey Guidelines for Australia's Threatened Birds* (Department of the Environment Water Heritage and the Arts 2010). Habitat assessments were undertaken to assess the likelihood of threatened species of animal (those species known or predicted to occur within the locality from the literature and database review) occurring within the project study area. Fauna habitat assessments were the primary assessment tool in assessing whether threatened species were likely to occur within the project study area. The primary technique used for surveying birds were 20-minute diurnal bird searches.

DESCRIPTION OF THE SPECIFIC IMPACTS AND ITS REGARD TO THE FULL NATIONAL EXTENT OF THE SPECIES OR COMMUNITY'S RANGE

The species is an ecosystem credit species, and as such it is predicted in all PCTs for the project. Figure C.23 shows the current known generalised distribution from the Departments Species of National Environmental Significance dataset which is an indicative distribution map of the present distribution of the species based on best available knowledge. The project study area is not at the limit of the known distribution of this species.

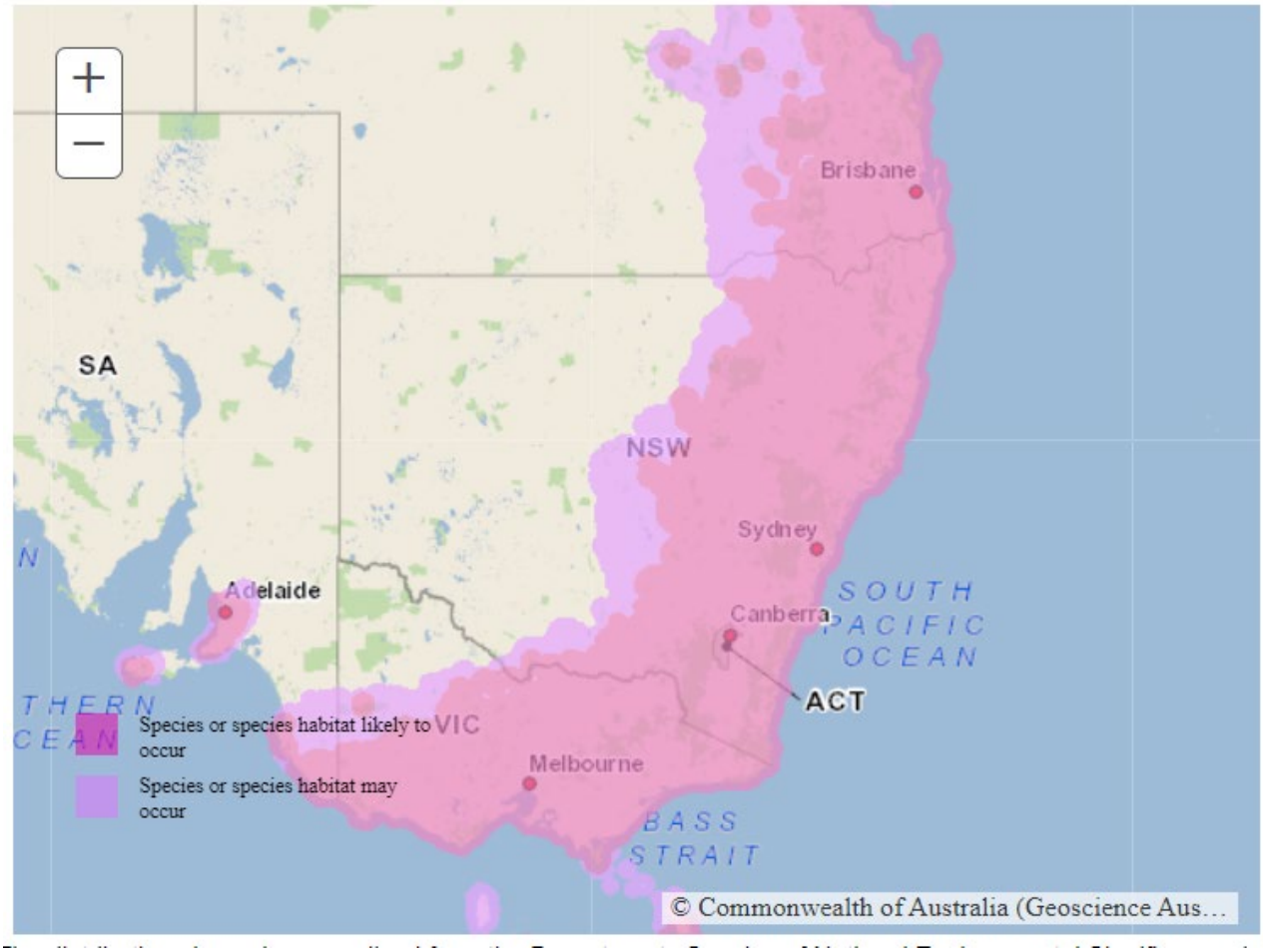

Figure C.23 Current distribution map for White-throated Needletail (refer SPRAT profile)

DESCRIPTION OF THE SPECIFIC PROPOSED AVOIDANCE AND MITIGATION MEASURES TO DEAL WITH RELEVANT IMPACTS OF THE ACTION

The proposed avoidance and mitigation measures are outlined in Section 7 & 8 of the BDAR. Detailed avoidance description for impacts relating to biodiversity values (including threatened species) are outlined in Section 8. Mitigation measures to be implemented are outlined in Section 8. No specific measures for the White-throated Needletail are identified. As an ecosystem credit species, it will benefit from mitigation measures targeted at all habitats.

IDENTIFICATION OF SIGNIFICANT RESIDUAL ADVERSE IMPACTS LIKELY TO OCCUR AFTER THE PROPOSED ACTIVITIES TO AVOID AND MITIGATE ALL IMPACTS ARE TAKEN INTO ACCOUNT

The residual impact to the White-throated Needletail is likely to be minimal and will be offset through ecosystem credit obligations for each impacted PCT (refer Section 10 of the BDAR).

A DESCRIPTION OF ANY OFFSETS PROPOSED TO ADDRESS RESIDUAL ADVERSE SIGNIFICANT IMPACTS AND HOW THESE OFFSETS WILL BE ESTABLISHED

Details of offset requirements and obligations for this species as a result of residual impacts due the project is addressed in Section 10 of the BDAR.

DETAILS OF HOW THE CURRENT PUBLISHED NSW BIODIVERSITY ASSESSMENT METHOD (BAM) HAS BEEN APPLIED IN ACCORDANCE WITH THE OBJECTS OF THE EPBC ACT TO OFFSET SIGNIFICANT RESIDUAL ADVERSE IMPACTS

The BDAR specifically addresses Section 10 of the BAM and provides information on the application of the no net loss standard and the proposed biodiversity offset obligations. The species is an ecosystem credit species, and as such it is assumed present in all PCTs within the project and contributes to the credits required as offset for each PCT.

DETAILS OF THE OFFSET PACKAGE TO COMPENSATE FOR SIGNIFICANT RESIDUAL IMPACTS INCLUDING DETAILS OF THE CREDIT PROFILES REQUIRED TO OFFSET THE ACTION IN ACCORDANCE WITH THE BAM AND/OR MAPPING AND DESCRIPTIONS OF THE EXTENT AND CONDITION OF THE RELEVANT HABITAT AND/OR THREATENED COMMUNITIES OCCURRING ON PROPOSED OFFSET SITES

Section 11 of the BDAR outlined the biodiversity offset strategy for the project. The offset obligations will be met through implementing a combination of the following offset delivery options, being:

- the purchase and retirement of existing biodiversity credits currently available on the biodiversity credit register
- establishing a biodiversity stewardship site(s) on lands with like for like biodiversity values to those impacted by the project
- through making a payment into the Biodiversity Conservation Fund.

Swift Parrot

Listed as Critically Endangered under the EPBC Act and BC Act.

Description

Swift parrots breed in Tasmania. In Autumn, the majority of the population migrates to mainland Australia. Overwintering occurs predominantly in Victoria and central and eastern NSW, but also south-eastern Queensland as far north as Duaringa. Until recently it was believed that in New South Wales, Swift Parrots forage mostly in the western slopes region along the inland slopes of the Great Dividing Range, but are patchily distributed along the north and south coasts including the Sydney region. However, new evidence indicates that the forests on the coastal plains from southern to northern NSW also provide extremely important foraging habitat. On mainland Australia swift parrots are semi-nomadic, foraging on flowering eucalypts and in eucalypt associations, particularly box-ironbark forests and woodlands. The species has a preference for sites with flowering *Acacia pycnantha*, or for sites with highly fertile soils where large trees have high nectar production, such as sites along drainage lines and isolated rural or urban remnants. Swift parrot use foraging sites inconsistently across years (Garnett and Crowley 2000, Swift Parrot Recovery Team 2001).

Threats for this species include:

- loss of habitat through clearing for agriculture, and urban and industrial development
- collisions with wire netting fences, windows and cars, during the breeding season and winter migration.

Relevant Commonwealth guidelines and policy statements including listing advice, conservation advice and recovery plan

A summary of the relevant Commonwealth guidelines and policy statements available for this species is as follows:

- The *Conservation Advice Lathamus discolor swift parrot* (Threatened Species Scientific Committee 2016) was reviewed as part of this assessment.
- Listing assessment information may be available in the approved Conservation Advice.
- The *National Recovery Plan for the Swift Parrot (*Lathamus discolor*)* (Saunders and Tzaros 2011) was reviewed as part of this assessment.

Relevant adopted/made threat abatement plans include:

- Threat abatement plan for predation by feral cats (Department of the Environment 2015).
- Relevant survey guidelines for this species include:
- *Survey Guidelines for Australia's Threatened Birds* (Department of the Environment Water Heritage and the Arts 2010).

Specific impacts

Swift Parrot has no mapped important breeding habitat in the project study area and has thus been excluded as a species credit species. However, as it is also an ecosystem credit species, the swift parrot is predicted present in all PCTs that have potential foraging habitat. These foraging habitat impacts have been captured as part of ecosystem credits. Refer to Section 11 of the BDAR for the Biodiversity credit report.

There are nine historical records of swift parrots within ten kilometres of the subject land, with the most recent dating from 2014. Eight out nine records were from the Kerrabee IBRA subregion.

Significant impact criteria

An action is likely to have a significant impact on an Endangered or Critically Endangered species if there is a real chance or possibility that it will:

LEAD TO A LONG-TERM DECREASE IN THE SIZE OF A POPULATION

Any identified population Swift Parrot in the area would not be restricted to habitat within the project study area. Due to the species' large home range, nomadic nature, and higher quality foraging habitat elsewhere in the locality and region, the project is not considered likely to significantly contribute to a long-term decline in the size of a population of these species. The Swift Parrot does not breed in the project study area and the extent of habitat remaining in the subject land would provide sufficient resources to sustain future visitation, such that the action is unlikely to lead to a long-term decrease in the size of the Australian population.

REDUCE THE AREA OF OCCUPANCY OF THE SPECIES

The project would contribute to the loss of potential foraging habitat. However, the area of potential foraging habitat only represents a small component of similar locally occurring resources accessible to these species. It is unlikely that the project would reduce the area of occupancy of this species given the better-quality habitat in the locality and greater region.

Nevertheless, the removal of potential habitat is considered to be a small incremental loss of suitable habitat locally and as such has the potential to incrementally reduce the area of occupancy for the Swift Parrot during seasons when individuals of this species may be reliant on local resources.

FRAGMENT AN EXISTING POPULATION INTO TWO OR MORE POPULATIONS

Habitat removal will occur within an already fragmented and degraded agricultural landscape and is unlikely to result in fragmentation of habitat for the Swift Parrot. This species is highly mobile and regularly flies long distances over open areas to move between suitable foraging habitats. The action will not affect the movement of the Swift Parrot between habitat patches or fragment the population.

ADVERSELY AFFECT HABITAT CRITICAL TO THE SURVIVAL OF A SPECIES

According to the *National Recovery Plan for the Swift Parrot (Lathamus discolor)*, habitat critical to the survival of the Swift Parrot includes 'those areas of priority habitat for which the Swift Parrot has a level of site fidelity or possess phenological characteristics likely to be of importance to the Swift Parrot or are otherwise identified by the recovery team.' Swift Parrot has important habitat maps, as identified in NSW Bionet which identify land that is considered important to support critical life stages of the species (i.e., key areas that migratory species forage/over-winter in, or sites where multiple records have been located over multiple years) (Department of Planning Industry and Environment 2021). While important foraging habitat is mapped within the region, no mapped habitat overlaps with the study area. As the species is not known to regularly visit the project study area and the project study area is not identified an area of important habitat, it is unlikely to be critical habitat for this species.

DISRUPT THE BREEDING CYCLE OF A POPULATION

Swift Parrots breed in Tasmania during spring and summer, migrating to south-eastern Australia during autumn and winter (Department of Planning Industry and Environment 2021). While Swift Parrots are dependent on flowering resources across a wide range of habitats (woodlands and forests) within their NSW wintering grounds, the removal of a small amount of potential foraging habitat is unlikely to disrupt their movements to Tasmanian breeding grounds. As such the project is unlikely to affect their breeding cycle.

MODIFY, DESTROY, REMOVE OR ISOLATE OR DECREASE THE AVAILABILITY OR QUALITY OF HABITAT TO THE EXTENT THAT THE SPECIES IS LIKELY TO DECLINE

As a large-scale migrant, the swift parrot has the ability to cover vast areas of its winter range, seeking suitable flowering eucalypt habitat. The species is an occasional visitor to the region and may utilise trees in the subject land for foraging intermittently. The action is unlikely to modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline.

RESULT IN INVASIVE SPECIES THAT ARE HARMFUL TO A CRITICALLY ENDANGERED OR ENDANGERED SPECIES BECOMING ESTABLISHED IN THE ENDANGERED OR CRITICALLY ENDANGERED SPECIES' HABITAT

Adhering to mitigation measures such as weed and pest management plans, and vehicle weed hygiene, would prevent invasive weeds and vertebrate pests such as rabbits, cats and foxes establishing in habitat areas.

INTRODUCE DISEASE THAT MAY CAUSE THE SPECIES TO DECLINE

It is unlikely that disease would be increased by the project. Mitigation measures would be prepared to minimise the likelihood of spread of pathogens into the habitat of these species.

INTERFERE SUBSTANTIALLY WITH THE RECOVERY OF THE SPECIES

A National Recovery Plan for the Swift Parrot *Lathamus discolor* was prepared in 2011 (Saunders and Tzaros 2011). Recovery actions outlined in this plan include:

- identify the extent and quality of habitat
- manage and protect swift parrot habitat at the landscape scale
- monitor and manage the impact of collisions, competition and disease
- monitor population and habitat.

Based on the potential ecological impacts of the project on the Swift Parrot it is unlikely the project would be in conflict with the recovery actions outlined above.

CONCLUSION

This species was not recorded within the subject land despite targeted survey and no mapped important habitat occurs. The species is a predicted ecosystem credit species, and any loss of potential foraging habitat will be offset as part of the project ecosystem credit offset obligation. The project is considered unlikely to have a significant impact on the Swift Parrot.

NSW Assessment Bilateral requirements

DESCRIPTION OF THE HABITAT (INCLUDING IDENTIFICATION AND MAPPING OF SUITABLE BREEDING HABITAT, SUITABLE FORAGING HABITAT, IMPORTANT POPULATIONS AND HABITAT CRITICAL FOR SURVIVAL), WITH CONSIDERATION OF, AND REFERENCE TO, ANY RELEVANT COMMONWEALTH GUIDELINES AND POLICY STATEMENTS INCLUDING LISTING ADVICE, CONSERVATION ADVICE AND RECOVERY PLAN

There is no listing advice for this species. The *Conservation Advice Lathamus discolor swift parrot* (Threatened Species Scientific Committee 2016) indicates that the species exhibits high site fidelity, returning to locations on an irregular cyclic basis.

They disperse across eastern Tasmania after breeding and migrate to overwinter on the mainland in flowering woodlands and forests (Threatened Species Scientific Committee 2016). They forage preferentially in the largest trees available (Threatened Species Scientific Committee 2016). Their distribution fluctuates with food availability as they feed on psyllid lerps, seeds and fruit (Threatened Species Scientific Committee 2016). Non-breeding birds preferentially feed in inland box-ironbark and grassy woodlands, and coastal swamp mahogany (*E. robusta*) and spotted gum (*Corymbia maculata*) woodland when in flower; otherwise often in coastal forests from eastern Victorian to the central coast of New South Wales (Threatened Species Scientific Committee 2016).

The *National Recovery Plan for the Swift Parrot* (*Lathamus discolor*) (Saunders and Tzaros 2011) indicates that priority sites for the management of Swift Parrot foraging habitat to be identified within the following CMAs: Hawkesbury – Nepean, Hunter – Central Rivers, Lachlan, Murray, Murrumbidgee, Northern Rivers, Southern Rivers, Sydney Metro.

A map of suitable habitat for this species is provided in Figure C.24.

DETAILS OF THE SCOPE, TIMING AND METHODOLOGY FOR STUDIES OR SURVEYS USED AND HOW THEY ARE CONSISTENT WITH (OR JUSTIFICATION FOR DIVERGENCE FROM) PUBLISHED AUSTRALIAN GOVERNMENT GUIDELINES AND POLICY STATEMENTS

Threatened bird surveys completed within the project study area were carried out in accordance with the *Survey Guidelines for Australia's Threatened Birds* (Department of the Environment Water Heritage and the Arts 2010). Habitat assessments were undertaken to assess the likelihood of threatened species of animal (those species known or predicted to occur within the locality from the literature and database review) occurring within the project study area. Fauna habitat assessments were the primary assessment tool in assessing whether threatened species were likely to occur within the project study area. The primary technique used for surveying birds were 20-minute diurnal bird searches. Bird searches were conducted over 27 days during September 2021, August, November and December 2022, and February 2023

DESCRIPTION OF THE SPECIFIC IMPACTS AND ITS REGARD TO THE FULL NATIONAL EXTENT OF THE SPECIES OR COMMUNITY'S RANGE

Known habitat associations and potential (River Red Gum riparian communities and Box Gum woodland) foraging habitat for this species is present within the project study area. No breeding habitat is present, and the project does not occur within any important habitat mapping for the species. This species is highly mobile the project study area falls within the known distribution of the species, however the project area occurs toward the western most extent of the species' known distribution. This species was not recorded in the study area despite targeted survey and clearing of large tracts of suitable woodland habitat would be minimised or avoided to prevent significant loss of habitat in the case that the species is found in the project study area during future targeted surveys. Consequently, significant impact to populations or to the extent and distribution of the species is highly unlikely.

Figure C.24 shows the current known generalised distribution from the Departments Species of National Environmental Significance dataset which is an indicative distribution map of the present distribution of the species based on best available knowledge. The project study area toward the western-most limit of the species distribution, though birds may forage in the study area on occasion.

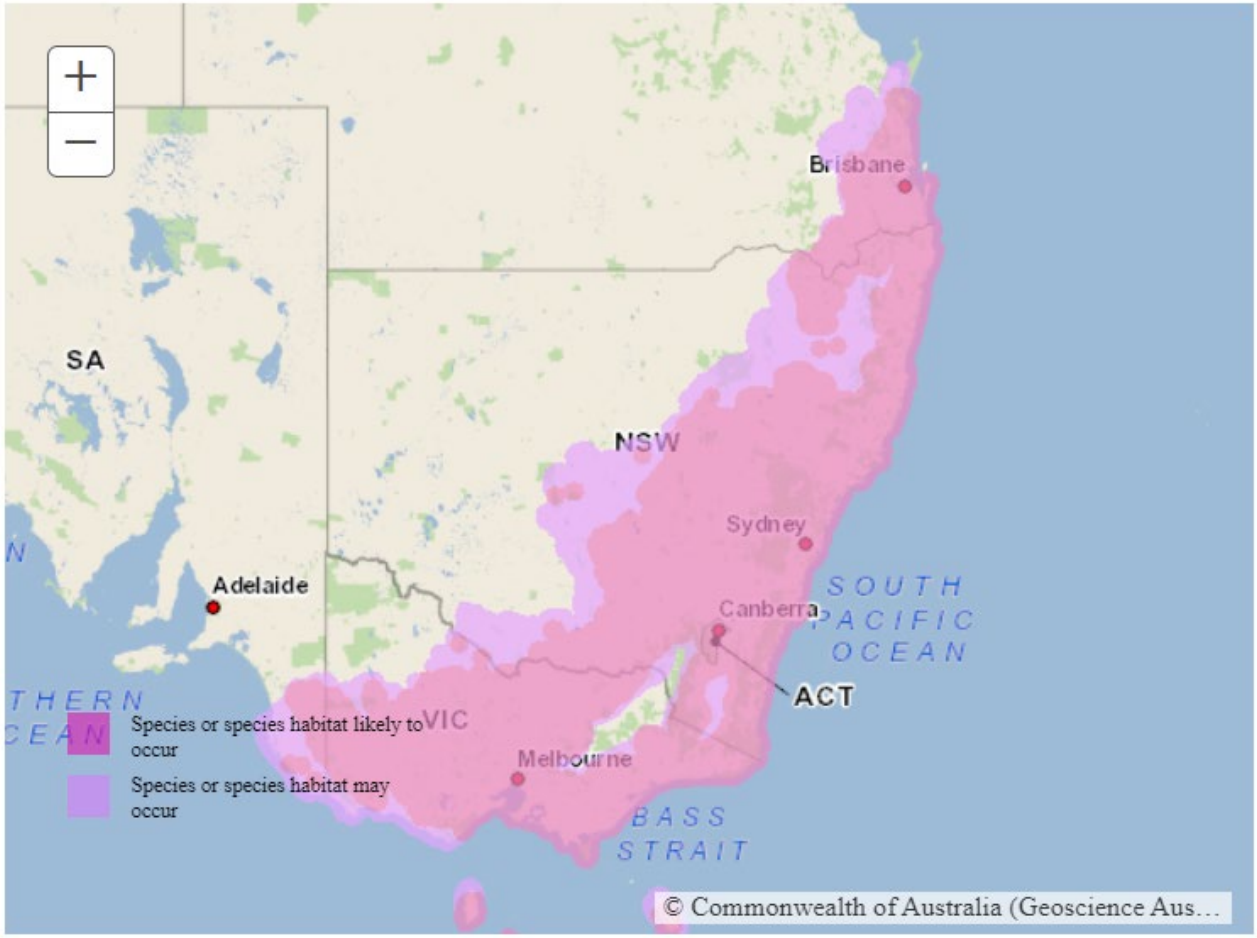

Figure C.24 Current distribution map for Swift Parrot taken from the SPRAT

DESCRIPTION OF THE SPECIFIC PROPOSED AVOIDANCE AND MITIGATION MEASURES TO DEAL WITH RELEVANT IMPACTS OF THE ACTION

The proposed avoidance and mitigation measures are outlined in Section 7 & 8 of the BDAR. Detailed avoidance description for impacts relating to biodiversity values (including threatened species) are outlined in Section 7. Mitigation measures to be implemented are outlined in Section 8. The Swift Parrot is identified in the SEARs as a matter requiring further consideration.

IDENTIFICATION OF SIGNIFICANT RESIDUAL ADVERSE IMPACTS LIKELY TO OCCUR AFTER THE PROPOSED ACTIVITIES TO AVOID AND MITIGATE ALL IMPACTS ARE TAKEN INTO ACCOUNT

Details of offset requirements and obligations for this species as a result of residual impacts due the project is addressed in Section 10 of the BDAR. As an ecosystem credit species, the swift parrot contributes to the credits assigned to the relevant PCTs.

A DESCRIPTION OF ANY OFFSETS PROPOSED TO ADDRESS RESIDUAL ADVERSE SIGNIFICANT IMPACTS AND HOW THESE OFFSETS WILL BE ESTABLISHED

Details of offset requirements and obligations for this species as a result of residual impacts due the project is addressed in Section 10 of the BDAR.

DETAILS OF HOW THE CURRENT PUBLISHED NSW BIODIVERSITY ASSESSMENT METHOD (BAM) HAS BEEN APPLIED IN ACCORDANCE WITH THE OBJECTS OF THE EPBC ACT TO OFFSET SIGNIFICANT RESIDUAL ADVERSE IMPACTS

The BDAR specifically addresses Section 10 of the BAM and provides information on the application of the no net loss standard and the proposed biodiversity offset obligations.

DETAILS OF THE OFFSET PACKAGE TO COMPENSATE FOR SIGNIFICANT RESIDUAL IMPACTS INCLUDING DETAILS OF THE CREDIT PROFILES REQUIRED TO OFFSET THE ACTION IN ACCORDANCE WITH THE BAM AND/OR MAPPING AND DESCRIPTIONS OF THE EXTENT AND CONDITION OF THE RELEVANT HABITAT AND/OR THREATENED COMMUNITIES OCCURRING ON PROPOSED OFFSET SITES

Section 11 of the BDAR outlines the biodiversity credit requirements for the project. The offset obligations will be met through implementing a combination of the following offset delivery options, being:

- the purchase and retirement of existing biodiversity credits currently available on the biodiversity credit register
- establishing a biodiversity stewardship site(s) on lands with like for like biodiversity values to those impacted by the project
- through making a payment into the Biodiversity Conservation Fund.

Malleefowl

Listed as Vulnerable under the EPBC Act and Endangered under the BC Act.

Description

The Malleefowl occupies semi-arid mallee scrub on the fringes of the relatively fertile areas of southern Australia, where it is now reduced to three separate populations: the Murray-Murrumbidgee basin, west of Spencer Gulf along the fringes of the Simpson Desert, and the semiarid fringe of Western Australia's fertile southwest corner (ALA, 2019). They occur in the semi-arid to arid zone in shrublands and low woodlands dominated by mallee and associated habitats such as Broombush (*Melaleuca uncinata*) and Scrub Pine (*Callitris verrucosa*). Malleefowl also occur in Red Ironbark (*Eucalyptus sideroxylon*) woodland at the eastern limit of their distribution. They require a sandy substrate and abundance of leaf litter for next construction, which are built in the form of large incubating mounds (Benshemesh, 2007).

Threats for the Malleefowl include:

- loss of habitat and habitat fragmentation due to clearing and habitat degradation
- habitat degradation due to inappropriate grazing or fire regimes
- fire causing removal of leaf litter for mound constructions, shelter from predators, and food sources such as seeds
- predation by foxes and cats and disturbance to mounds by feral goats and pigs
- vehicle strike while birds are feeding along the roadside or crossing roads (OEH, 2019).

The stronghold for this species in NSW is located in the mallee in the southwest centred on Mallee Cliffs National Park and extending east to near Balranald and scattered records as far north as Mungo National Park (OEH, 2019).

There are three ALA records within ten kilometres of the subject land. Two records were from the Kerrabee IBRA subregion, one from the Inland Slopes IBRA subregion. The most recent record dates from 2015. We recorded no indications of Malleefowl occurrence. The species is very cryptic within mallee habitats and the lack of records during the survey period does not rule out their use of surrounding habitats. Although very likely to be present on at least an intermittent basis, the species is not likely to abundant in areas surrounding the study area due to the general degradation of habitats from past clearing for agriculture or through fire, evidenced by the lack of old growth or any mallee trees throughout the alignment footprint.

Relevant Commonwealth guidelines and policy statements including listing advice, conservation advice and recovery plan

A summary of the relevant Commonwealth guidelines and policy statements available for this species is as follows:

- There is no approved Conservation Advice for this species.
- There is no Listing Advice for this species
- The *National Recovery Plan for Malleefowl* (Benshemesh 2007) was reviewed as part of this assessment.

Relevant adopted/made threat abatement plans include:

- Threat abatement plan for predation by feral cats (Department of the Environment 2015).
- Threat abatement plan for competition and land degradation by rabbits (Department of Environment and Energy 2016).
- Threat abatement plan for predation, habitat degradation, competition and disease transmission by feral pigs (Department of the Environment and Energy 2017).
- Threat abatement plan for competition and land degradation by unmanaged goats (Department of the Environment Water Heritage and the Arts 2008).
- Threat abatement plan for predation by the European red fox (Department of the Environment Water Heritage and the Arts 2008).

Relevant survey guidelines for this species include:

- *Survey Guidelines for Australia's Threatened Birds* (Department of the Environment Water Heritage and the Arts 2010).

Specific impacts

No individuals were recorded during targeted surveys and no Malleefowl mounds were observed within the subject land. While no evidence of Malleefowl was observed during surveys, an interrogation of bird records data bases show a very small number (3) of opportunistic records associated with a small section of mallee habitats in the Kerrabee and Inland Slopes IBRA subregions.

The project is linear infrastructure which will result in a level of fragmentation at the landscape scale. However, the habitats within this landscape have been severely fragmented by agriculture and existing infrastructure. The project would adjoin existing fragments and existing easements minimising new fragmentation. The project will result in a level of fragmentation but functional connectivity between habitats is likely to be retained as the alignment will not be completely cleared.

The potential for this species to receive injury or mortality from colliding with the future transmission lines is considered to be negligible. This species rarely flies and when it does so would only fly just above the mallee canopy and not to the height of the powerlines themselves. There is a small risk of vehicle impact, but due to mitigation measures and the low occurrence of the species the effect is negligible. Potential foraging habitat impacts have been captured as part of ecosystem credits. Refer to Section 11 of the BDAR for the Biodiversity credit report.

Is this an important population?

In accordance with the Significant Impact Guidelines, the presence of an important population must be identified prior to addressing the significance impact criteria. An important population is defined in the guidelines as a population that is necessary for a species' long-term survival and recovery (Department of the Environment, 2013). Under the EPBC Act, important populations are:

- likely to be key source populations either for breeding or dispersal
- likely to be necessary for maintaining genetic diversity
- at or near the limit of the species range.

Malleefowl occur in a wide range of habitat types and habitat critical to the survival of the species is known only in broad terms and no particular populations or general areas can be described as being of greater importance for the long-term survival of Malleefowl than any other (Benshemesh, 2007). No individuals were recorded during targeted surveys and no evidence of Malleefowl mounds was observed during a considerable period of investigation. As such the project study area is unlikely to be part of an important population.

Significant impact criteria

An action is likely to have a significant impact on a vulnerable species if there is a real chance or possibility that it will:

LEAD TO A LONG-TERM DECREASE IN THE SIZE OF AN IMPORTANT POPULATION

Not applicable. Not considered an important population.

REDUCE THE AREA OF OCCUPANCY OF AN IMPORTANT POPULATION

Not applicable. Not considered an important population.

FRAGMENT AN EXISTING IMPORTANT POPULATION INTO TWO OR MORE POPULATIONS

Not applicable. Not considered an important population.

ADVERSELY AFFECT HABITAT CRITICAL TO THE SURVIVAL OF A SPECIES

Malleefowl occur in a wide range of habitat types and habitat critical to the survival of the species is known only in broad terms and no particular populations or general areas can be described as being of greater importance for the long-term survival of Malleefowl than any other (Benshemesh, 2007). No mallee woodland is present within project study area and the project is considered unlikely to adversely affect habitat critical to the survival of a species.

DISRUPT THE BREEDING CYCLE OF AN IMPORTANT POPULATION

Although removal of Malleefowl habitat for transmission towers and associated infrastructure is likely to be required, the availability of surrounding suitable Mallee woodland habitat provides extensive habitat. Any identified mounds within the project study area would be avoided so that the breeding cycle is not disrupted.

MODIFY, DESTROY, REMOVE OR ISOLATE OR DECREASE THE AVAILABILITY OR QUALITY OF HABITAT TO THE EXTENT THAT THE SPECIES IS LIKELY TO DECLINE

The project would decrease the availability of potential habitat. Although removal of Malleefowl habitat for transmission towers and associated infrastructure is likely to be required, the availability of surrounding suitable Mallee woodland habitat provides extensive habitat. Therefore, the project is considered unlikely to modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline.

RESULT IN INVASIVE SPECIES THAT ARE HARMFUL TO A VULNERABLE SPECIES BECOMING ESTABLISHED IN THE VULNERABLE SPECIES' HABITAT

Vertebrate pests and weeds are already established in the habitat. Adhering to mitigation measures such as weed and pest management plans, and vehicle weed hygiene, would prevent further invasive weeds and vertebrate pests such as cats and foxes establishing in the project study area.

INTRODUCE DISEASE THAT MAY CAUSE THE SPECIES TO DECLINE

There are no diseases known to the Malleefowl that may cause the species to decline.

INTERFERE SUBSTANTIALLY WITH THE RECOVERY OF THE SPECIES

The *National Recovery Plan for Malleefowl* (Benshemesh 2007)states that the overall objective is to de-list Malleefowl as a threatened species under the EPBC Act. To achieve this the following specific objectives have been identified:

- reduce permanent habitat loss
- reduce the threat of grazing pressure on Malleefowl populations
- reduce fire threats
- reduce predation
- reduce isolation of fragmented populations
- promote Malleefowl-friendly agricultural practices
- reduce mortality on roads
- provide information for regional planning
- monitor Malleefowl and develop an adaptive management framework
- determine the current distribution of Malleefowl
- examine population dynamics: longevity, recruitment and parentage
- describe habitat requirements that determine Malleefowl abundance
- define appropriate genetic units for management of Malleefowl
- assess captive breeding and re-introduction of Malleefowl
- investigate infertility and agrochemicals
- facilitate communication between groups
- raise public awareness through education and publicity
- manage the recovery process.

The project is considered unlikely to interfere substantially with the recovery of the species.

CONCLUSION

This species is known to utilise the subject land. Malleefowl occur in a wide range of habitat types and habitat critical to the survival of the species is known only in broad terms and no particular populations or general areas can be described as being of greater importance for the long-term survival of Malleefowl than any other (Benshemesh 2007). As such, in the absence of other information the population subject to this assessment is considered to be important.

While there is a relatively large area of habitat removal, not all mapped habitat would be suitable for this species. Most of this habitat is not in good condition as it has been intensely grazed by sheep and goats and generally young cohorts of mallee trees suggest clearing or fire in the past. The carrying capacity of the habitat is likely to be low due to past clearing for agriculture, heavy grazing, and predation pressure from vertebrate pests. At a minimum the Malleefowl is present at low density in the habitats that would be impacted. Any birds that use the habitat would have a large home range and the habitat to be impacted by the project is not likely to be limiting for this species.

Any Malleefowl mounds that are identified would be avoided during detailed design. Much of the clearing would take place adjacent to existing power lines or access tracks. The clearing associated with the project would not result in the extinction of this species from the locality and as such, the project is considered unlikely to lead to a long-term decrease in the size of an important population. Some fragmentation would occur, but as lower-level vegetation will be retained within the easement any fragmentation is likely to be localised and functional connectivity for this species would remain.

The area of occupancy would not be reduced by the project. While all habitats are considered critical for this species the habitat in the project study area is not high quality when compared to more intact areas of Mallee.

Based on the assessment completed above, there is no real chance or possibility that the project is likely to have a significant impact on Malleefowl.

NSW Assessment Bilateral requirements

DESCRIPTION OF THE HABITAT (INCLUDING IDENTIFICATION AND MAPPING OF SUITABLE BREEDING HABITAT, SUITABLE FORAGING HABITAT, IMPORTANT POPULATIONS AND HABITAT CRITICAL FOR SURVIVAL), WITH CONSIDERATION OF, AND REFERENCE TO, ANY RELEVANT COMMONWEALTH GUIDELINES AND POLICY STATEMENTS INCLUDING LISTING ADVICE, CONSERVATION ADVICE AND RECOVERY PLAN

There is no Listing Advice for this species. The *National Recovery Plan for Malleefowl* (Benshemesh 2007) states that Malleefowl occur in a wide range of habitat types and habitat critical to the survival of the species is known only in broad terms and no particular populations or general areas can be described as being of greater importance for the long-term survival of Malleefowl than any other. The *National Recovery Plan for Malleefowl* (Benshemesh 2007) outlines habitat requirements and limiting factors for the species as follows:

The Malleefowl is found in semi-arid to arid shrublands and low woodlands, especially those dominated by mallee and/or acacias. A sandy substrate and abundance of leaf litter are required for breeding. Densities of the birds are generally greatest in areas of higher rainfall and on more fertile soils where habitats tend to be thicker and there is an abundance of food plants. Much of the best habitat for Malleefowl has already been cleared or has been modified by grazing by sheep, cattle, rabbits and goats. The species has been shown to be highly sensitive to grazing by sheep and is probably similarly sensitive to grazing by other introduced herbivores. The effect of fire on Malleefowl is severe and breeding in burnt areas is usually reduced for at least 30 years. However, the deleterious effect of fire appears to be mitigated if fires burn patchily. Predation by the introduced fox is also thought to be limiting the abundance of Malleefowl and in many areas may be a major cause of decline. The degree of fragmentation of the remaining Malleefowl habitat is of particular concern and presents a major limiting factor to halting and reversing the decline of the species.

DETAILS OF THE SCOPE, TIMING AND METHODOLOGY FOR STUDIES OR SURVEYS USED AND HOW THEY ARE CONSISTENT WITH (OR JUSTIFICATION FOR DIVERGENCE FROM) PUBLISHED AUSTRALIAN GOVERNMENT GUIDELINES AND POLICY STATEMENTS

Threatened bird surveys completed within the project study area were carried out in accordance with the *Survey Guidelines for Australia's Threatened Birds* (Department of Environment Water Heritage and the Arts, 2010). Habitat assessments were undertaken to assess the likelihood of threatened species of animal (those species known or predicted to occur within the locality from the literature and database review) occurring within the project study area. Fauna habitat assessments were the primary assessment tool in assessing whether threatened species were likely to occur within the project study area. The primary technique used for surveying birds were 20-minute diurnal bird searches. The survey effort for Malleefowl is outlined in Section 2 of the BDAR.

DESCRIPTION OF THE SPECIFIC IMPACTS AND ITS REGARD TO THE FULL NATIONAL EXTENT OF THE SPECIES OR COMMUNITY'S RANGE

As the Malleefowl is an ecosystem credit species, it assumed present across all PCTs: PCTs 42, 81, 202, 266, 277, 281, 440, 461, 468, 477, 478, 479, 481, 483, 618, 1176, 1177, 599, 1610, 1661, 1674, 1696. While this is a relatively large area of habitat removal it is a conservative overestimate as not all of this habitat would be suitable for this species. Most of this habitat is not in good condition as it has been intensely grazed or used for agriculture. If present in these impacted habitats, the Malleefowl would be present at low. Any birds that use the habitat would have a large home range and the habitat to be impacted by the project is not likely to be limiting for this species.

Figure C.25 shows the current known generalised distribution from the Departments Species of National Environmental Significance dataset which is an indicative distribution map of the present distribution of the species based on best available knowledge. The project study area is at the south-western edge of the NSW distribution. The species is more widely spread across WA and SA.

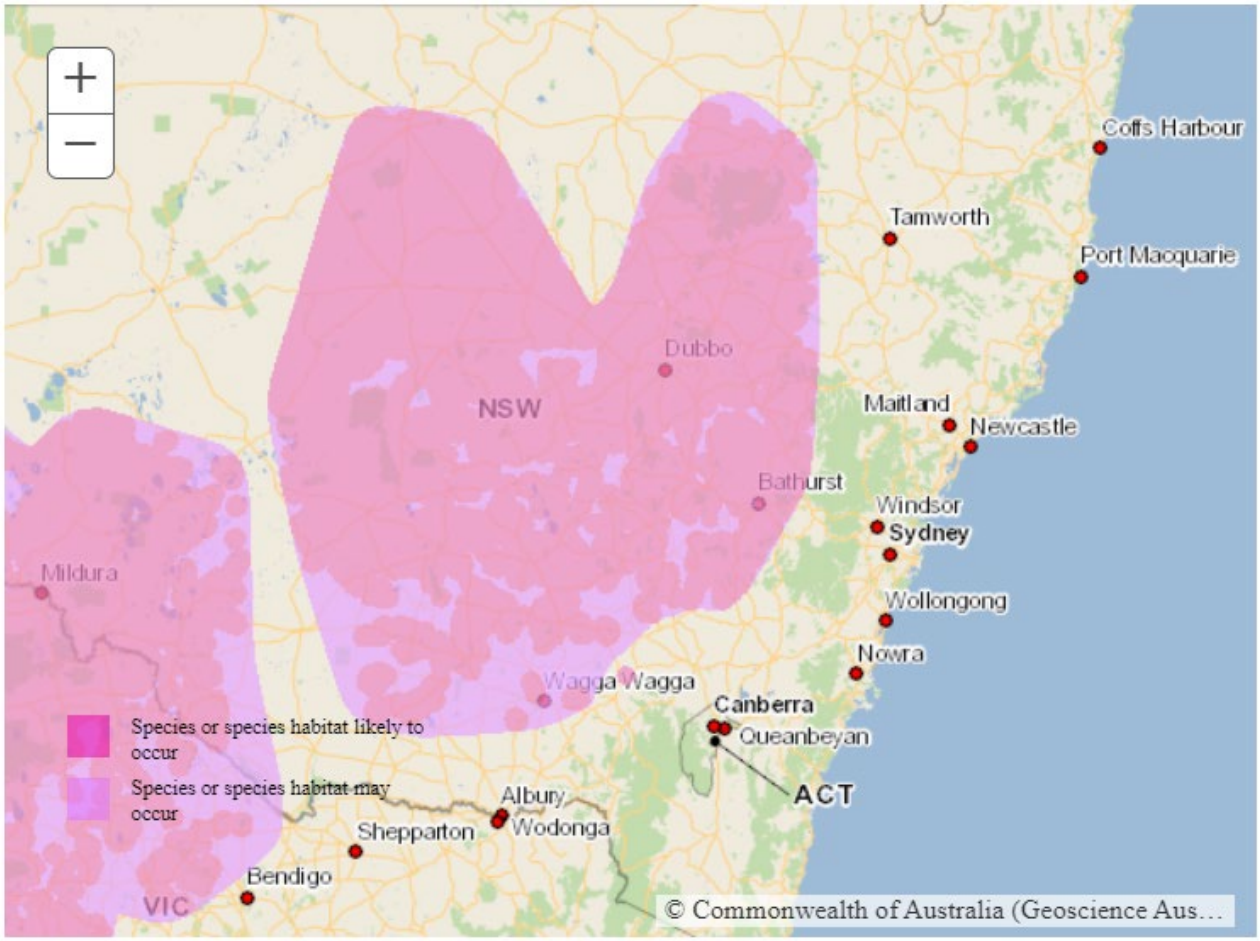

Figure C.25 Current distribution map for Malleefowl taken from the SPRAT

DESCRIPTION OF THE SPECIFIC PROPOSED AVOIDANCE AND MITIGATION MEASURES TO DEAL WITH RELEVANT IMPACTS OF THE ACTION

The proposed avoidance and mitigation measures are outlined in Section 7 & 8 of the BDAR. Detailed avoidance description for impacts relating to biodiversity values (including threatened species) are outlined in Section 7. Mitigation measures to be implemented are outlined in Section 8.

IDENTIFICATION OF SIGNIFICANT RESIDUAL ADVERSE IMPACTS LIKELY TO OCCUR AFTER THE PROPOSED ACTIVITIES TO AVOID AND MITIGATE ALL IMPACTS ARE TAKEN INTO ACCOUNT

Details of offset requirements and obligations for this species as a result of residual impacts due the project is addressed in Section 10 of the BDAR. As an ecosystem credit species, the Malleefowl contributes to the credits assigned to the relevant PCTs

A DESCRIPTION OF ANY OFFSETS PROPOSED TO ADDRESS RESIDUAL ADVERSE SIGNIFICANT IMPACTS AND HOW THESE OFFSETS WILL BE ESTABLISHED

Impacts to the Malleefowl were not assessed as being significant.

DETAILS OF HOW THE CURRENT PUBLISHED NSW BIODIVERSITY ASSESSMENT METHOD (BAM) HAS BEEN APPLIED IN ACCORDANCE WITH THE OBJECTS OF THE EPBC ACT TO OFFSET SIGNIFICANT RESIDUAL ADVERSE IMPACTS

Impacts to the Malleefowl were not assessed as being significant.

DETAILS OF THE OFFSET PACKAGE TO COMPENSATE FOR SIGNIFICANT RESIDUAL IMPACTS INCLUDING DETAILS OF THE CREDIT PROFILES REQUIRED TO OFFSET THE ACTION IN ACCORDANCE WITH THE BAM AND/OR MAPPING AND DESCRIPTIONS OF THE EXTENT AND CONDITION OF THE RELEVANT HABITAT AND/OR THREATENED COMMUNITIES OCCURRING ON PROPOSED OFFSET SITES

Section 11 of the BDAR outlines the biodiversity offset strategy for the project. Offset obligations will be met through implementing a combination of the following offset delivery options, being:

- the purchase and retirement of existing biodiversity credits currently available on the biodiversity credit register
- establishing a biodiversity stewardship site(s) on lands with like for like biodiversity values to those impacted by the project
- through making a payment into the Biodiversity Conservation Fund.

Hooded Robin (south-eastern)

The Hooded Robin is listed as Endangered under the EPBC Act and the BC Act.

Description

The Hooded Robin is a relatively large Australian robin, reaching up to 17 cm in length. The colouration of the male lends the species its name, with it have a bold black hood extending down a white breast. Its back is black with a distinct white wing-bar and shoulder. Its tail is black and has prominent white side-panels. The females and juveniles have a duller colouration. The upperparts are brownish-grey, but they have same black and white wings. The species' call consists of a series of descending, mellow, fading notes.

The subspecies' population has declined by half over the last decade, and there are currently estimated to be approximately 68,000 mature individuals in the wild. This number, however, has a low reliability. This subspecies extent of occurrence is approximately 1,200,00 km^2, in which it occupies an estimate 30,000 km^2. They occur in south-eastern Australia, ranging from south-east Queensland to Yorke Peninsula, South Australia. They have a preference for dry eucalypt and acacia woodlands and shrublands with an open understorey, some grassy areas and a complex ground layer. They can occur in patches as small as 2.9 ha, but they generally prefer patches of at least 10 ha.

Threats to the subspecies include:

- Increased predation from introduced mammals (cats and foxes)
- Invasive weeds
- Competition with noisy miners (*Manorina melanocephala*)
- Over-grazing by domestic stock, rabbits, and overabundant kangaroos
- Habitat loss and fragmentation.

Relevant Commonwealth guidelines and policy statements including listing advice, conservation advice and recovery plan

A summary of the relevant Commonwealth guidelines and policy statements available for this species is as follows:

- the Conservation Advice for Melanodryas cucullata cucullata (hooded robin(south-eastern)) (Department of Climate Change Energy the Environment and Water 2023) was reviewed as part of this assessment.
- No listing advice was available.
- there is no adopted or made Recovery Plan for this species.
- No threat abatement plan has been identified as being relevant for this species.

Specific impacts

There are many ALA records of the Hooded Robin within ten kilometres of the project study area, with the vast majority being situated in the Kerrabee IBRA subregion around the South-Eastern arm of the project study area. The species is presumed presence in all associated PCTs in the project study area PCTs 42, 81, 202, 266, 277, 281, 440, 461, 468, 477, 1177, 599, 1610, 1661, 1674, 1696. Vegetation clearing may reduce the availability of habitat for the species. Potential direct impacts may include injury or death during clearing works. Foraging habitat impacts have been captured as part of ecosystem credits. Refer to Section 11 of the BDAR for the Biodiversity credit report.

Significant impact criteria

An action is likely to have a significant impact on a vulnerable species if there is a real chance or possibility that it will:

LEAD TO A LONG-TERM DECREASE IN THE SIZE OF A POPULATION

The project will result in the direct removal of potential habitat for the Hooded Robin. However, the presence of this species is assumed. The project would not impact the carrying capacity of the habitats to the point that prey density would be detrimentally impacted, and the habitat was no longer viable for Hooded Robin. The subject land contains marginal breeding habitat, and the population is more likely to reside in the adjacent habitats in the National Parks, SCAs, Nature Reserves, and State Forests than the subject land in most cases.

The impact to this species is captured as part of the ecosystem credit requirement for the project. There is no real chance or possibility that the project would lead to a long-term decrease in the size of a population.

REDUCE THE AREA OF OCCUPANCY OF THE SPECIES

The area of occupancy of the Hooded Robin is estimated at 30,000 km^2. The area occupied by this species would remain the same after the project is built. There is no real chance or possibility that the impacts from the project would reduce the area of occupancy for Hooded Robin.

FRAGMENT AN EXISTING POPULATION INTO TWO OR MORE POPULATIONS

A large part of the project would occur on an area already affected by past clearing and would likely not affect habitat connectivity. However, the project is also planned to go through, or past state forests and conservation areas. Here, terrestrial movement is unlikely to be substantially affected, given the project would be highly permeable. The nature of the potential impacts to connectivity primarily relate to aerial species such as birds and bats, through the interaction with the proposed towers and associated powerlines.

The project is planned to occur in some likely movement corridors, where it may affect aerial species. However, the nature of the project means that it would be highly permeable and is highly unlikely to result in any substantial impacts to local or regional connectivity for aerial or terrestrial species.

The level of fragmentation caused by the project has no real chance or possibility of fragmenting the Hooded Robin population into two of more populations.

ADVERSELY AFFECT HABITAT CRITICAL TO THE SURVIVAL OF A SPECIES

the Conservation Advice for Melanodryas cucullata cucullata (hooded robin(south-eastern)) (Department of Climate Change Energy the Environment and Water 2023) states that habitat critical to the survival of the Hooded Robin (south-eastern) includes areas of:

- dry eucalypt and acacia woodlands and shrublands remnants with an open understorey, some grassy areas and a complex ground layer, often in or near clearings or open areas;
- structurally diverse habitats featuring: mature eucalypts, saplings, some small shrubs and a ground layer of moderately tall native grasses;
- standing dead or live trees and tree stumps are also essential for nesting, roosting and foraging;
- moderately deep to deep soils, rocks and fallen timber which provides essential foraging habitat.

No Critical Habitat as defined under section 207A of the EPBC Act has been identified or included in the Register of Critical Habitat.

Based on this broad definition, the habitat in the subject land would be critical to the survival of Hooded Robin.

DISRUPT THE BREEDING CYCLE OF A POPULATION

Hooded Robins (south-eastern) generally form monogamous pairs and occupy territories during the breeding season (between July and November) and non-breeding season. Birds usually return to the same breeding site where they typically rear several broods each season (Department of Climate Change Energy the Environment and Water 2023).

Hooded Robin was not recorded in the subject land during the survey so it is considered unlikely to have breeding habitat present.

MODIFY, DESTROY, REMOVE OR ISOLATE OR DECREASE THE AVAILABILITY OR QUALITY OF HABITAT TO THE EXTENT THAT THE SPECIES IS LIKELY TO DECLINE

The Hooded Robin was not recorded during targeted surveys and has been captured as a predicted ecosystem credit based on habitat surrogates in the form of PCTs 42, 81, 202, 266, 277, 281, 440, 461, 468, 477, 1176, 1177, 599, 1610, 1661, 1674, 1696. The project is considered unlikely to modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline.

RESULT IN INVASIVE SPECIES THAT ARE HARMFUL TO A CRITICALLY ENDANGERED OR ENDANGERED SPECIES BECOMING ESTABLISHED IN THE ENDANGERED OR CRITICALLY ENDANGERED SPECIES' HABITAT

Many potential habitat patches in the project study area are dominated by exotic ground species. Weed and pest faunal species are both currently present throughout the landscape and it is considered unlikely that the project would substantially change the composition of the species' habitat within the landscape or increase the spread and establishment of invasive species (i.e. predators) that could threaten the survival of the species. There is potential for the project to introduce additional weeds and pathogens within the project area and surrounding locality. Mitigation measures outlined in Section 8 of the BDAR would be implemented for the project to address potential invasive species introduction. As such the project is considered unlikely to result in invasive species becoming established in the habitat.

INTRODUCE DISEASE THAT MAY CAUSE THE SPECIES TO DECLINE

There are no known disease issues affecting this species in relation to the project. The project would be unlikely to increase the potential for significant disease vectors to affect the species. It is the intention to use current best practice hygiene protocols as part of the construction environmental management plan to prevent the introduction or spread of pathogens. Consequently, there is no real chance or possibility that the project will introduce disease that may cause the species to decline.

INTERFERE SUBSTANTIALLY WITH THE RECOVERY OF THE SPECIES

There is currently no recovery plan for the Hooded Robin.

CONCLUSION

This species was not recorded in the project study area despite targeted surveys in remnant patches of suitable habitat. The Hooded Robin is a predicted ecosystem credit species and as such any loos of potential foraging habitat will be offset through ecosystem credit obligation for the following PCTs 42, 81, 202, 266, 277, 281, 440, 461, 468, 477, 1176, 1177, 599, 1610, 1661, 1674, 1696. The project is considered unlikely to lead to a significant impact on the Hooded Robin or its habitat.

NSW Assessment Bilateral requirements

DESCRIPTION OF THE HABITAT (INCLUDING IDENTIFICATION AND MAPPING OF SUITABLE BREEDING HABITAT, SUITABLE FORAGING HABITAT, IMPORTANT POPULATIONS AND HABITAT CRITICAL FOR SURVIVAL), WITH CONSIDERATION OF, AND REFERENCE TO, ANY RELEVANT COMMONWEALTH GUIDELINES AND POLICY STATEMENTS INCLUDING LISTING ADVICE, CONSERVATION ADVICE AND RECOVERY PLAN

A description of habitat for this species, important populations, habitat critical for survival and relevant Commonwealth documents are provided above, with a map showing the modelled distribution of the species provided in Figure C.26.

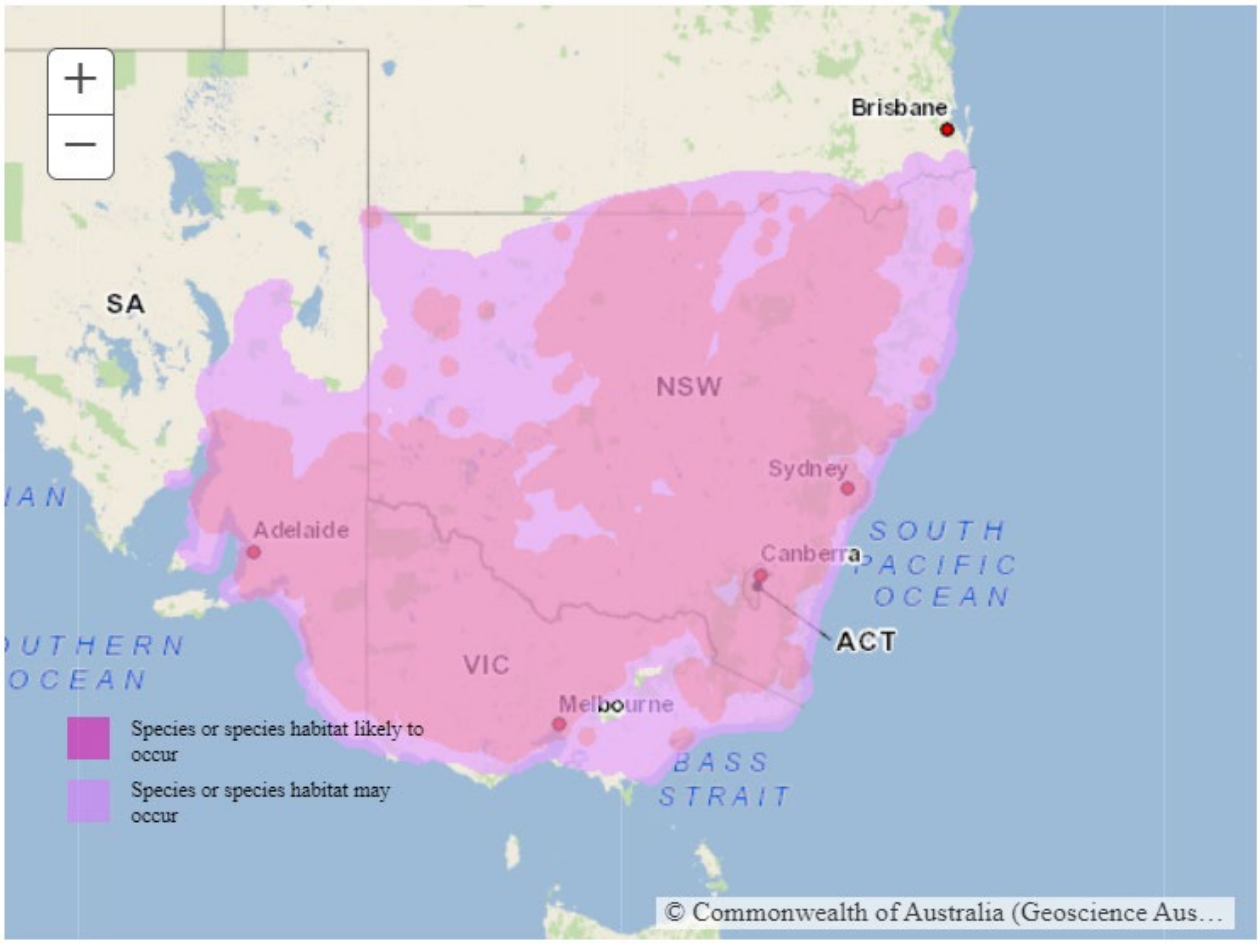

Figure C.26 Current distribution map for Hooded Robin (south-eastern) (Department of Climate Change Energy the Environment and Water 2023)

DETAILS OF THE SCOPE, TIMING AND METHODOLOGY FOR STUDIES OR SURVEYS USED AND HOW THEY ARE CONSISTENT WITH (OR JUSTIFICATION FOR DIVERGENCE FROM) PUBLISHED AUSTRALIAN GOVERNMENT GUIDELINES AND POLICY STATEMENTS

Threatened bird surveys completed within the project study area were carried out in general accordance with the *NSW Threatened Biodiversity Survey and Assessment: Guidelines for Developments and Activities (Working Draft)* (Department of Environment and Conservation 2004) and the *Survey Guidelines for Australia's Threatened Birds* (Department of the Environment Water Heritage and the Arts 2010). Habitat assessments, BAM-C and database searches were undertaken to assess the likelihood of threatened species of animal (those species known or predicted to occur within the locality from the literature and database review) occurring within the subject land. Fauna habitat assessments were the primary assessment tool in assessing whether threatened species were likely to occur within the subject land. The primary technique used for targeted bird surveys in the field were 20-minute diurnal bird searches.

DESCRIPTION OF THE SPECIFIC IMPACTS AND ITS REGARD TO THE FULL NATIONAL EXTENT OF THE SPECIES OR COMMUNITY'S RANGE

The project will clear vegetation within suitable habitat. As an ecosystem credit species, the Hooded Robin(south-eastern) is assumed present in all associated PCTs 42, 81, 202, 266, 277, 281, 440, 461, 468, 477, 1176, 1177, 599, 1610, 1661, 1674, 1696 and as such contributes to the offset requirements for these PCTs.

Figure C.26 provides the current known generalised distribution from the conservation advice and the SPRAT database which are indicative distribution maps of the present distribution of the species based on best available knowledge. The total extent of occurrence (EOO) for the species is estimated at 1,200,000 km2 and the area of occupancy (AOO) at 30,000 km^2. Refer to Section 11 of the BDAR for the Biodiversity credit report. Foraging habitat impacts have been captured as part of ecosystem credits.

DESCRIPTION OF THE SPECIFIC PROPOSED AVOIDANCE AND MITIGATION MEASURES TO DEAL WITH RELEVANT IMPACTS OF THE ACTION

The proposed avoidance and mitigation measures are outlined in Section 7 & 8 of the BDAR. Detailed avoidance description for impacts relating to biodiversity values (including threatened species) are outlined in Section 7. No specific measures for Hooded Robin(south-eastern) are identified. As an ecosystem credit species, it will benefit from mitigation measures targeted at all habitats.

IDENTIFICATION OF SIGNIFICANT RESIDUAL ADVERSE IMPACTS LIKELY TO OCCUR AFTER THE PROPOSED ACTIVITIES TO AVOID AND MITIGATE ALL IMPACTS ARE TAKEN INTO ACCOUNT

The residual impact to the Hooded Robin(south-eastern) have been captured as part of ecosystem credits is listed in Section 10 of the BDAR for the Biodiversity credit report.

A DESCRIPTION OF ANY OFFSETS PROPOSED TO ADDRESS RESIDUAL ADVERSE SIGNIFICANT IMPACTS AND HOW THESE OFFSETS WILL BE ESTABLISHED

Details of offset requirements and obligations for this species as a result of residual impacts due the project is addressed in Section 11 of the BDAR.

DETAILS OF HOW THE CURRENT PUBLISHED NSW BIODIVERSITY ASSESSMENT METHOD (BAM) HAS BEEN APPLIED IN ACCORDANCE WITH THE OBJECTS OF THE EPBC ACT TO OFFSET SIGNIFICANT RESIDUAL ADVERSE IMPACTS

The BDAR specifically addresses Section 10 of the BAM and provides information on the application of the no net loss standard and the proposed biodiversity offset obligations.

DETAILS OF THE OFFSET PACKAGE TO COMPENSATE FOR SIGNIFICANT RESIDUAL IMPACTS INCLUDING DETAILS OF THE CREDIT PROFILES REQUIRED TO OFFSET THE ACTION IN ACCORDANCE WITH THE BAM AND/OR MAPPING AND DESCRIPTIONS OF THE EXTENT AND CONDITION OF THE RELEVANT HABITAT AND/OR THREATENED COMMUNITIES OCCURRING ON PROPOSED OFFSET SITES

Section 11 of the BDAR outlined the biodiversity offset strategy for the project. The offset obligations will be met through implementing a combination of the following offset delivery options, being:

- the purchase and retirement of existing biodiversity credits currently available on the biodiversity credit register
- establishing a biodiversity stewardship site(s) on lands with like for like biodiversity values to those impacted by the project
- through making a payment into the Biodiversity Conservation Fund.

Superb Parrot

The Superb Parrot is listed as Vulnerable under the EPBC Act and BC Act.

Description

The Superb Parrot is a distinctive large, bright grass-green parrot with a long, narrow tail and sharply back-angled wings in flight. The Superb Parrot is found throughout central to south-eastern inland NSW.

On the South-western Slopes their core breeding area is roughly bounded by Cowra and Yass in the east, and Grenfell, Cootamundra and Coolac in the west. The other main breeding sites are in the Riverina along the corridors of the Murray, Edward and Murrumbidgee Rivers where birds are present all year round. Superb Parrots inhabit Box-Gum, Box-Cypress-pine and Boree Woodlands and River Red Gum Forest. In the Riverina the birds nest in the hollows of large trees (dead or alive) in mainly tall riparian River Red Gum Forest or Woodland between September and January. This species typically forages up to 10 km from nesting sites, primarily in grassy Box-Gum Woodland.

Specific impacts

Clearing of habitat in the form of PCT 81, 202, 266, 277, 281, 440, 461 and 477 would occur. The Project would impact on approximately 88.42 ha of potential habitat in the form of PCT 81, 202, 266, 277, 281, 440, 461 and 477, although not all of this habitat would be suitable for this species. Most of the habitat is in deprived condition and largely limited to sparse paddock trees. No individuals were recorded during targeted surveys however the Superb Parrot has been recorded in 2021 in the study area. Seven ALA records are within ten kilometres of the subject land, all situated in the Western region, in the Inland Slopes and Talbragar Valley IBRA regions.

The Project is linear infrastructure which will result in a level of fragmentation at the landscape scale. However, the habitats within this landscape have been severely fragmented by agriculture and existing infrastructure. The Project would adjoin existing fragments and existing easements minimising new fragmentation. The Project will result in a level of fragmentation but functional connectivity between habitats is likely to be retained as the alignment will not be completely cleared.

Relevant Commonwealth guidelines and policy statements including listing advice, conservation advice and recovery plan

A summary of the relevant Commonwealth guidelines and policy statements available for this species is as follows:

- Conservation Advice *Polytelis swainsonii* superb parrot (Threatened Species Scientific Committee, 2016). In effect under the EPBC Act from 02-May-2016
- National Recovery Plan for the Superb Parrot Polytelis swainsonii (Department of Agriculture, Water and the Environment, 2021).
- No Threat Abatement Plan has been identified as being relevant for this species.

Is this part of an important population?

In accordance with the *Matters of National Environmental Significance, Significant Impact Guidelines 1.1,* the presence of an important population must be identified prior to addressing the significance impact criteria. An important population is defined in the guidelines as a population that is necessary for a species' long-term survival and recovery (Department of the Environment, 2013). Under the Act, important populations are:

- likely to be key source populations either for breeding or dispersal
- likely to be necessary for maintaining genetic diversity
- at or near the limit of the species range.

It was formerly considered that there were two separate populations of the Superb Parrot, one in southern NSW and northern Victoria, and the other further north in NSW, but it is now apparent that only a single population exists. The key breeding populations occur in the Riverina and South-west Slope Regions of NSW, and spill over from there into northern Victoria; most breeding records emanate from these areas. The Superb Parrot also occurs further north, in the Central-west Slope and North-west Plain Regions, but these individuals possibly emanate from breeding areas further south and coincide with part of the population vacating these southern areas (Department of the Environment , 2023).

As the subject land is located outside of the key breeding populations in the Riverina and South-west Slope Regions of NSW and the birds that may utilise the habitat in the subject land are birds vacating these southern key breeding areas, the population subject to this assessment is not considered an important population.

Specific impacts

Vegetation clearing for transmission line towers and associated infrastructure such as access roads and laydown areas, may reduce the availability of foraging habitat and large hollow-bearing trees as roosting and breeding habitat. Potential direct impacts may include injury or mortality during clearing works.

An area of approximately 2.63 ha of potential breeding habitat for the Superb Parrot will be impacted up on by the project.

Significance assessment

An action is likely to have a significant impact on a vulnerable species if there is a real chance or possibility that it will:

LEAD TO A LONG-TERM DECREASE IN THE SIZE OF AN IMPORTANT POPULATION

The subject land does not occur in an area identified as containing an important population of Superb Parrot.

REDUCE THE AREA OF OCCUPANCY OF AN IMPORTANT POPULATION

The subject land does not occur in an area identified as containing an important population of Superb Parrot.

FRAGMENT AN EXISTING IMPORTANT POPULATION INTO TWO OR MORE POPULATIONS

The subject land does not occur in an area identified as containing an important population of Superb Parrot.

ADVERSELY AFFECT HABITAT CRITICAL TO THE SURVIVAL OF A SPECIES

Habitat critical to the survival of a species refers to areas that are necessary:

- for activities such as foraging, breeding, roosting, or dispersal
- for the long-term maintenance of the species or ecological community (including the maintenance of species essential to the survival of the species or ecological community, such as pollinators)
- to maintain genetic diversity and long-term evolutionary development, or
- for the reintroduction of populations or recovery of the species or ecological community. (Department of the Environment Water Heritage and the Arts 2013).

The National Recovery Plan for the Superb Parrot *Polytelis swainsonii* (Department of Agriculture, Water and the Environment, 2021) states that habitat critical to the survival of the Superb Parrots is divided into their breeding habitat, foraging habitat, and habitat for long-term maintenance of the species as follows:

- Breeding habitat:
  - The two main distinct habitat types used for breeding: riverine forests in the Riverina, and box-gum woodlands in the tablelands and slopes of Victoria, New South Wales and the Australian Capital Territory (also see Key Biodiversity Areas).
  - Any known breeding colonies with a 10 km buffer zone. A 10 km buffer zone can only be implemented in areas where there is contiguous habitat. Where it is not feasible to place a 10 km buffer zone around a breeding colony (e.g. within urban areas or on private land), the minimum convex polygon area containing all known nesting events with a 200 m buffer should be considered as habitat critical to the survival of the species.
  - Superb Parrots are obligate hollow nesters with a preference for rare hollow characteristics. As a guide, habitat critical to the survival should include trees with:
    - a diameter at breast height of around 113 cm, and tree height between 12 to 24 m
    - hollow with entrance diameter of 8-12 cm
    - hollow with a depth of 59-122 cm
    - hollow with a floor diameter of 15-22 cm
    - hollows that are located on a branch or stem with a diameter of 36-49 cm.
  - Any potential nest trees with suitable hollows captured within a buffer zone (described above) should also be considered part of habitat critical to the survival.
- Foraging habitat:
  - All preferred foraging habitat during both breeding and non-breeding season. This does not include exotic feeding grounds such as agricultural lands and non-native feeding grounds (e.g. exotic street trees).

Critical habitat for Superb Parrot has been mapped based on the Key Biodiversity Area (KBA) programme. There are three KBAs with Superb Parrot as one of their Trigger species:

- Barmah-Millewa: defined by the River Red Gum (*Eucalyptus camaldulensis*) forests of Barmah-Millewa with a 10 km buffer zone around it.
- Murrumbidgee Red Gums: consisting of two stretches of the Murrumbidgee River, one extending west from Wagga Wagga and the other centred on Darlington Point, south of Griffith.
- South-west Slopes of New South Wales: containing the core distribution of the Superb Parrot. The KBA boundary has been drawn around the Superb Parrot's core distribution and approximates to an 80 km-wide length of the inland slopes of the Great Dividing Range from Wagga Wagga to Orange, extending south-east through Boorowa and Yass to Queanbeyan, with an extension south to include the important Swift Parrot sites of Livingstone National Park, Tarcutta, Gundagai, Tumut and Adelong.

The subject land is not in an identified Superb Parrot KBA. As such, the habitat to be impacted by the project is not considered critical to the survival of the species for this assessment.

DISRUPT THE BREEDING CYCLE OF AN IMPORTANT POPULATION

The subject land does not occur in an area identified as containing an important population of Superb Parrot.

MODIFY, DESTROY, REMOVE OR ISOLATE OR DECREASE THE AVAILABILITY OR QUALITY OF HABITAT TO THE EXTENT THAT THE SPECIES IS LIKELY TO DECLINE

The project would reduce the availability of potentially suitable habitat for Superb Parrot. However, given the surrounding landscape and remaining habitat availability, it is unlikely that the project would cause change to the extent that the species is likely to decline. The habitat to be removed from the subject land is not limiting for this species and extensive habitat for this species will remain in the locality. Consequently, there is no real chance or possibility that the project will modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline.

RESULT IN INVASIVE SPECIES THAT ARE HARMFUL TO A VULNERABLE SPECIES BECOMING ESTABLISHED IN THE VULNERABLE SPECIES' HABITAT

The project is unlikely to result in an invasive species harmful to Superb Parrot becoming established in the habitat. The potential for weed invasion was considered possible with a project of this nature and appropriate controls are required during construction and operation to reduce this threat. Invasive species would be managed under the construction environmental management plan using best practice methods. Consequently, there is no real chance or possibility that the project will result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat.

INTRODUCE DISEASE THAT MAY CAUSE THE SPECIES TO DECLINE

There are no known disease issues affecting this species in relation to the project. The project would be unlikely to increase the potential for significant disease vectors to affect the species. It is the intention to use current best practice hygiene protocols as part of the construction environmental management plan to prevent the introduction or spread of pathogens. Consequently, there is no real chance or possibility that the project will introduce disease that may cause the species to decline.

INTERFERE SUBSTANTIALLY WITH THE RECOVERY OF THE SPECIES

The National Recovery Plan for the Superb Parrot *Polytelis swainsonii* (Department of Agriculture, Water and the Environment, 2021) outlines the following strategies to achieve the objectives of the recovery plan:

- Identify, protect, manage and strategically restore Superb Parrot breeding, foraging and movement habitats, at the local, regional and landscape scales.
- Define, monitor, reduce and manage threats to the Superb Parrot at the local, regional and landscape scales.
- Expand and sustain ecologically meaningful monitoring to track changes in Superb Parrot distribution, habitat use and population size, including developing and applying techniques to measure the success of recovery actions.
- Improve understanding of Superb Parrot movement ecology across multiple scales to better target protection and restoration measures.
- Engage local communities and stakeholders in Superb Parrot conservation.
- Coordinate, review and report on Superb Parrot recovery progress.

The project will not interfere with the recovery plan for this species.

CONCLUSION

Superb Parrot is retained as a species credit and an ecosystem credit species. Impacts have been captured as part of species credits and ecosystem credits (see Refer to Section 10 and 11 of the BDAR).

Based on the assessment completed above, there is no real chance or possibility that the project is likely to have a significant impact on Superb Parrot.

NSW Assessment Bilateral requirements

For each of the EPBC Act listed threatened species and communities and migratory species likely to be impacted by the action the EIS must provide a separate:

DESCRIPTION OF THE HABITAT (INCLUDING IDENTIFICATION AND MAPPING OF SUITABLE BREEDING HABITAT, SUITABLE FORAGING HABITAT, IMPORTANT POPULATIONS AND HABITAT CRITICAL FOR SURVIVAL), WITH CONSIDERATION OF, AND REFERENCE TO, ANY RELEVANT COMMONWEALTH GUIDELINES AND POLICY STATEMENTS INCLUDING LISTING ADVICE, CONSERVATION ADVICE AND RECOVERY PLAN

A description of habitat for this species, important populations, habitat critical for survival and relevant Commonwealth documents are provided in the section above, with a map showing its modelled distribution provided in Figure C.27.

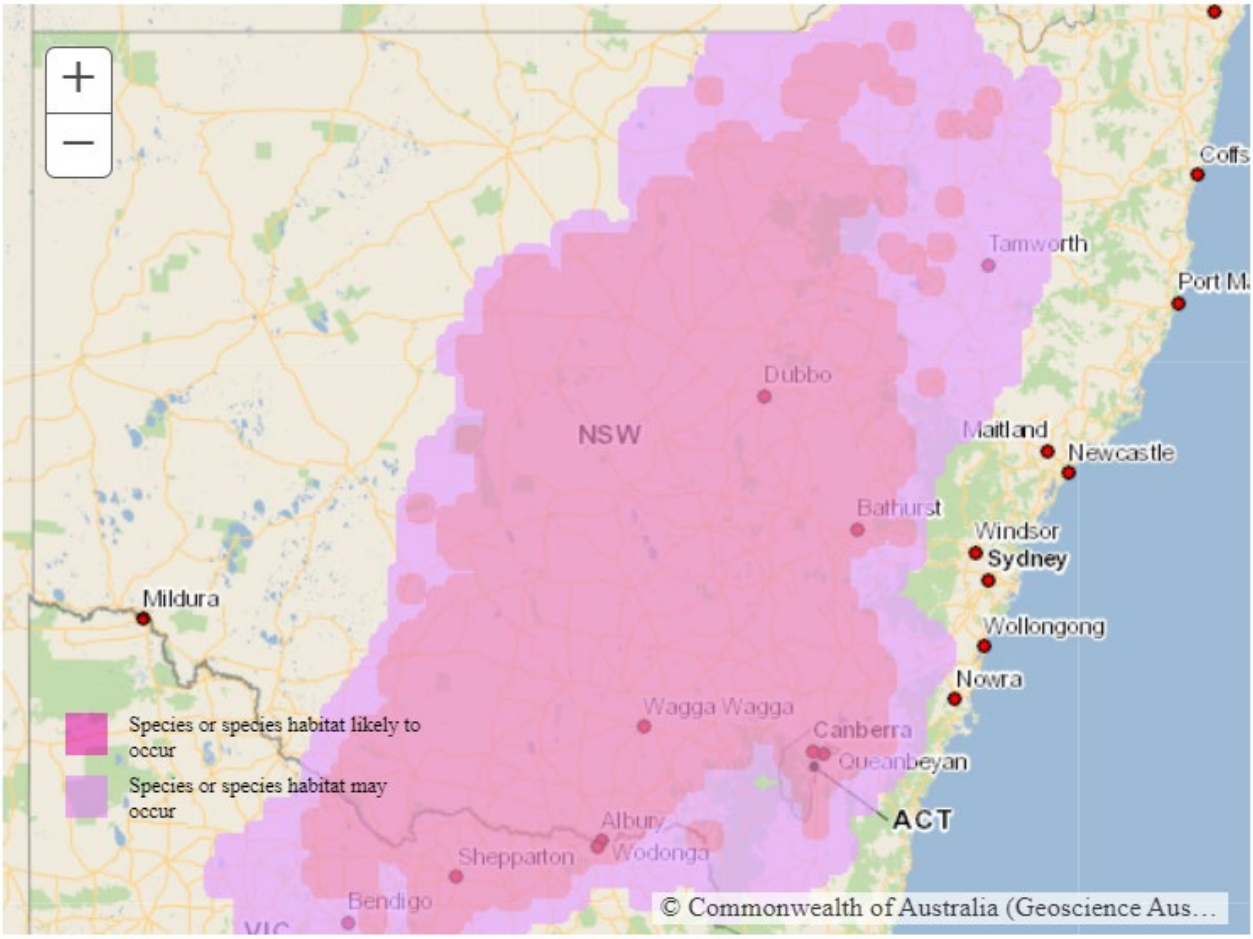

Figure C.27 Draft current distribution map for Superb Parrot.

DETAILS OF THE SCOPE, TIMING AND METHODOLOGY FOR STUDIES OR SURVEYS USED AND HOW THEY ARE CONSISTENT WITH (OR JUSTIFICATION FOR DIVERGENCE FROM) PUBLISHED AUSTRALIAN GOVERNMENT GUIDELINES AND POLICY STATEMENTS

Formal 20-minute diurnal bird searches were completed within the investigation area. Diurnal bird surveys were completed by actively walking through the nominated site (transect) over a period of 20 minutes. All birds were identified to the species level, either through direct observation or identification of calls. Diurnal bird surveys were completed during different times of the day, but generally occurred during morning hours or evening. Birds were also recorded opportunistically during other on-site surveys.

Wherever threatened bird species were absent from the site, habitat assessments were conducted to determine the likelihood that the investigation area might support those species that are known to occur in the region.

Forty-five formal diurnal bird surveys were undertaken across the subject land between 2021 to 2023. The location of diurnal bird survey sites is shown in BDAR Figure 14-5 with survey periods outlined in BDAR Table 2-6.

DESCRIPTION OF THE SPECIFIC IMPACTS AND ITS REGARD TO THE FULL NATIONAL EXTENT OF THE SPECIES OR COMMUNITY'S RANGE

An area of approximately 2.63 ha of potential breeding habitat for the Superb Parrot will be impacted up on by the project. Figure C.27 shows the current known generalised distribution.

DESCRIPTION OF THE SPECIFIC PROPOSED AVOIDANCE AND MITIGATION MEASURES TO DEAL WITH RELEVANT IMPACTS OF THE ACTION

The proposed avoidance and mitigation measures are outlined in Section 7 of the BDAR. Mitigation measures are provided in Section 8.4 of the BDAR.

IDENTIFICATION OF SIGNIFICANT RESIDUAL ADVERSE IMPACTS LIKELY TO OCCUR AFTER THE PROPOSED ACTIVITIES TO AVOID AND MITIGATE ALL IMPACTS ARE TAKEN INTO ACCOUNT

An area of approximately 2.63 ha of potential breeding habitat for the Superb Parrot will be impacted up on by the project. Potential breeding habitat impacts have been captured as part of species credits and foraging habitat impacts have been captured as part of ecosystem credits (see Refer to Section 10 and 11 of the BDAR).

A DESCRIPTION OF ANY OFFSETS PROPOSED TO ADDRESS RESIDUAL ADVERSE SIGNIFICANT IMPACTS AND HOW THESE OFFSETS WILL BE ESTABLISHED

Foraging habitat impacts have been captured as part of ecosystem credits (see Refer to Section 10 and 11 of the BDAR).

DETAILS OF HOW THE CURRENT PUBLISHED NSW BIODIVERSITY ASSESSMENT METHOD (BAM) HAS BEEN APPLIED IN ACCORDANCE WITH THE OBJECTS OF THE EPBC ACT TO OFFSET SIGNIFICANT RESIDUAL ADVERSE IMPACTS

The BDAR specifically addresses Section 10 of the BAM and provides information on the application of the no net loss standard and the proposed biodiversity offset obligations.

DETAILS OF THE OFFSET PACKAGE TO COMPENSATE FOR SIGNIFICANT RESIDUAL IMPACTS INCLUDING DETAILS OF THE CREDIT PROFILES REQUIRED TO OFFSET THE ACTION IN ACCORDANCE WITH THE BAM AND/OR MAPPING AND DESCRIPTIONS OF THE EXTENT AND CONDITION OF THE RELEVANT HABITAT AND/OR THREATENED COMMUNITIES OCCURRING ON PROPOSED OFFSET SITES

Section 11 of the BDAR outlines the biodiversity credit requirements for the project. The offset obligations will be met through implementing a combination of the following offset delivery options, being:

- the purchase and retirement of existing biodiversity credits currently available on the biodiversity credit register
- establishing a biodiversity stewardship site(s) on lands with like for like biodiversity values to those impacted by the project
- through making a payment into the Biodiversity Conservation Fund.

Large-eared Pied Bat

The Large-eared Pied Bat is listed as Vulnerable under the BC Act and EPBC Act.

Description

The Large-eared Pied Bat is patchily distributed across central-eastern New South Wales and south-eastern and central Queensland, from the area bounded by Shoalwater Bay, north of Rockhampton, south to Ulladulla (Department of Agriculture Water and the Environment, 2021a). The species' area of occurrence is demarcated by areas supporting maternity roost sites, which is considerably smaller than the species' general extent, and its distribution could be considered severely fragmented with individuals occurring in small and somewhat isolated populations (Department of Agriculture Water and the Environment, 2021a). Large-eared Pied Bat's main strongholds occur in the Pilliga region and Sydney sandstone region. The Large-eared Pied Bat is known to be dependent on the presence of caves, overhangs, disused mine shafts and abandoned Fairy Martin nests for roosting, which mainly occur in areas with volcanic rock and sandstone outcrop that provide escarpments for roosting (Dwyer 1966, Sinclair 2010). The Large-eared Pied Bat has been recorded foraging in a range vegetation types, including wet and dry sclerophyll forests, *Callitris* dominated forest, grassy woodlands, tall open forest, subtropical rainforest, sub-alpine woodland and sandstone outcrop country (Department of Agriculture Water and the Environment, 2021a).

Relevant commonwealth guidelines and policy statements including listing advice, conservation advice and recovery plan

A summary of the relevant Commonwealth guidelines and policy statements available for this species is as follows:

- *Conservation Advice for* Chalinolobus dwyeri *(Large-eared Pied Bat)* (Department of Agriculture Water and the Environment, 2021a). Reviewed as part of this assessment.
- *Commonwealth Listing Advice on* Chalinolobus dwyeri *(Large-eared Pied Bat)* (Threatened Species Scientific Committee, 2012a). Reviewed as part of this assessment.
- *National recovery plan for the large-eared pied bat* Chalinolobus dwyeri (Department of Environment and Resource Management, 2011). Reviewed as part of this assessment.
- No threat abatement plan has been identified as being relevant for this species.

Relevant survey guidelines for this species include:

- *Survey Guidelines for Australia's Threatened Bats* (Department of Environment Water Heritage and the Arts, 2010).

Specific impacts

The Large-eared Pied Bat was recorded in 2023 in the project study area during targeted microchiropteran surveys in the Kerrabee Subregion. Furthermore, there have been many records (166) in the Kerrabee region (ALA) of which the vast majority are recent. The species has also been previously recorded by ELA in the Liverpool Range (Valley of the Winds). The project may impact the movement of this aerial species due to the placement of powerlines and towers. Further, movement corridors between state conservation areas and national parks may be affected. However, the project will be highly permeable and is unlikely to result in substantial impacts to local or regional connectivity.

Vegetation clearing for transmission line towers and associated infrastructure, such as access roads and laydown areas, may impact potentially suitable foraging habitat.

In the RNI2 stage in the Kerrabee IBRA subregion, a small amount of potential breeding habitat for threatened bat species (Eastern Cave Bat, Large Bentwing Bat and Large-eared Pied Bat occurs in the form of small, forested rocky cliff lines and caves north of Cope State Forest and at the southern end of Goulburn River National Park, is likely to be impacted. Known habitat (caves and cliff lines) where Eastern Cave Bat, Large Bentwing Bat and Large-eared Pied Bat were recorded occurs within 150 m of the development footprint but is unlikely to be directly impacted by the project.

In the Valley of the Winds stage in the Kerrabee subregion, a small amount of potential breeding habitat for threatened bat species (Eastern Cave Bat, Large Bentwing Bat and Large-eared Pied Bat) is likely to be impacted by the project in the form of sandstone outcrop cliffs and caves associated with a small, woodland patch, northeast of Melrose Rd.

The impacted PCTs are 440, 479, 618, 281, 478 and 1610, with a total of 130.03 ha of habitat to be impacted. Importantly, no caves or other breeding habitat will be directly impacted.

Is this an important population

In accordance with the Significant Impact Guidelines the presence of an important population must be identified prior to addressing the significance impact criteria. An important population is defined in the guidelines as a population that is necessary for a species' long-term survival and recovery (Department of the Environment, 2013). Under the EPBC Act, important populations are:

- likely to be key source populations either for breeding or dispersal
- likely to be necessary for maintaining genetic diversity
- at or near the limit of the species range.

Currently, there is insufficient information available to be able to describe important populations of this species. Until such information is available, all populations of Large-eared Pied Bat should be considered important due to their likely role in maintaining population connectivity and genetic diversity necessary for the evolutionary potential of the species (Department of Agriculture Water and the Environment, 2021a). Therefore, any individuals that may occur therein would be considered part of an important population. As the species has been recorded in the project site, an important population of Large-eared Pied Bats is assumed to occur in the subject land.

Significant impact criteria

An action is likely to have a significant impact on a vulnerable species if there is a real chance or possibility that it will:

LEAD TO A LONG-TERM DECREASE IN THE SIZE OF AN IMPORTANT POPULATION

The project will result in the direct removal of potential foraging habitat for Large-eared Pied Bat. Breeding habitat will not be impacted so there is no real chance or possibility that the project would lead to a long-term decrease in the size of an important population.

REDUCE THE AREA OF OCCUPANCY OF AN IMPORTANT POPULATION

The area of occupancy of the Large-eared Pied Bat is not known. Old estimated placed the species' extent of occurrence as 570,000 km^2 but these estimates were made prior to current knowledge of restricted habitat preferences and are therefore likely to be an overestimate. Despite extensive surveys throughout the species' distribution in NSW only three nursery roosts are known and only one of these is currently being used. The area of occupancy in that state during the breeding season is likely to be limited to this one site which is less than 1 km^2.

.The area occupied by this species would remain the same after the project is built. There is no real chance or possibility that the impacts from the project would reduce the area of occupancy for Large-eared Pied Bat.

FRAGMENT AN EXISTING IMPORTANT POPULATION INTO TWO OR MORE POPULATIONS

A large part of the project would occur on an area already affected by past clearing and would likely not affect habitat connectivity. However, the project is also planned to go through, or past state forests and conservation areas. Here, terrestrial movement is unlikely to be substantially affected, given the project would be highly permeable. The nature of the potential impacts to connectivity primarily relate to aerial species such as birds and bats, through the interaction with the proposed towers and associated powerlines. Research of powerlines on smaller bats is scarce, but a decrease in bat activity close to powerlines has been shown (Kahnonitch, Lubin *et al.* 2018).

The project is planned to occur in some likely movement corridors, where it may affect aerial species. However, the nature of the project means that it would be highly permeable and is highly unlikely to result in any substantial impacts to local or regional connectivity for aerial or terrestrial species.

The level of fragmentation caused by the project has no real chance or possibility of fragmenting the Large-eared Pied Bat population into two of more populations.

ADVERSELY AFFECT HABITAT CRITICAL TO THE SURVIVAL OF A SPECIES

Habitat critical to the survival of a species refers to areas that are necessary:

- for activities such as foraging, breeding, roosting, or dispersal
- for the long-term maintenance of the species or ecological community (including the maintenance of species essential to the survival of the species or ecological community, such as pollinators)
- to maintain genetic diversity and long-term evolutionary development, or
- for the reintroduction of populations or recovery of the species or ecological community. (Department of the Environment Water Heritage and the Arts 2013).

The *National recovery plan for the large-eared pied bat Chalinolobus dwyeri* (Department of Environment and Resource Management, 2011) states that sandstone cliffs and fertile wooded valley habitat within close proximity of each other should be considered habitat critical to the survival of the Large-eared Pied Bat. The habitats within the subject land fit this description. Consequently, the project may adversely affect habitat critical to the survival of this species.

DISRUPT THE BREEDING CYCLE OF AN IMPORTANT POPULATION

The project would not directly impact on breeding habitat such as caves. Extensive foraging resources are available in the locality that would provide suitable resources during the maternity season. The habitats in the subject land are not limiting for this species. Consequently, there is no real chance or possibility that the project will disrupt the breeding cycle of this species.

MODIFY, DESTROY, REMOVE OR ISOLATE OR DECREASE THE AVAILABILITY OR QUALITY OF HABITAT TO THE EXTENT THAT THE SPECIES IS LIKELY TO DECLINE

The project would reduce the availability of suitable foraging habitat. However, given the surrounding landscape and remaining habitat availability, it is unlikely that the project would cause change to the extent that the species is likely to decline. The habitat to be removed from the subject land is not limiting for this species and extensive foraging grounds for this species will remain in the locality. Breeding habitat will not be impacted. Consequently, there is no real chance or possibility that the project will modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline.

RESULT IN INVASIVE SPECIES THAT ARE HARMFUL TO A VULNERABLE SPECIES BECOMING ESTABLISHED IN THE VULNERABLE SPECIES' HABITAT

The project is unlikely to result in an invasive species harmful to the Large-eared Pied Bat becoming established in the habitat. The potential for weed invasion was considered possible with a project of this nature and appropriate controls are required during construction and operation to reduce this threat. Invasive species would be managed under the construction environmental management plan using best practice methods. Consequently, there is no real chance or possibility that the project will result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat.

INTRODUCE DISEASE THAT MAY CAUSE THE SPECIES TO DECLINE

There are no known disease issues affecting this species in relation to the project. The project would be unlikely to increase the potential for significant disease vectors to affect the species. It is the intention to use current best practice hygiene protocols as part of the construction environmental management plan to prevent the introduction or spread of pathogens. Consequently, there is no real chance or possibility that the project will introduce disease that may cause the species to decline.

INTERFERE SUBSTANTIALLY WITH THE RECOVERY OF THE SPECIES

The National Recovery Plan (Department of Environment and Resource Management, 2011) identifies the following recovery objectives for the Large-eared Pied Bat.

- identify priority roost and maternity sites for protection
- implement conservation and management strategies for priority sites
- educate the community and industry to understand and participate in the conservation of the Large-eared Pied Bat
- research the Large-eared Pied Bat to augment biological and ecological data to enable conservation management
- determine the meta-population dynamics throughout the distribution of the Large-eared Pied Bat.

There is no real chance or possibility that the project will adversely affect habitat critical to the survival of this species and therefore the project will not interfere substantially with the recovery of the species.

CONCLUSION

No impact to breeding habitat would occur as part of the project. The subject land is used as foraging habitat, and the species is thus retained as a species credit species and habitat mapped in a species polygon. Impacts have been captured as part of species credits (see Refer to Section 10 and 11 of the BDAR).

Based on the assessment completed above, there is no real chance or possibility that the project is likely to have a significant impact on Large-eared Pied Bat.

NSW Assessment Bilateral requirements

DESCRIPTION OF THE HABITAT (INCLUDING IDENTIFICATION AND MAPPING OF SUITABLE BREEDING HABITAT, SUITABLE FORAGING HABITAT, IMPORTANT POPULATIONS AND HABITAT CRITICAL FOR SURVIVAL), WITH CONSIDERATION OF, AND REFERENCE TO, ANY RELEVANT COMMONWEALTH GUIDELINES AND POLICY STATEMENTS INCLUDING LISTING ADVICE, CONSERVATION ADVICE AND RECOVERY PLAN

Descriptions of habitat for this species, important populations, habitat critical for survival and relevant Commonwealth documents are provided in the sections above and the BDAR, with a map showing the modelled distribution of the species provided in Figure C.28.

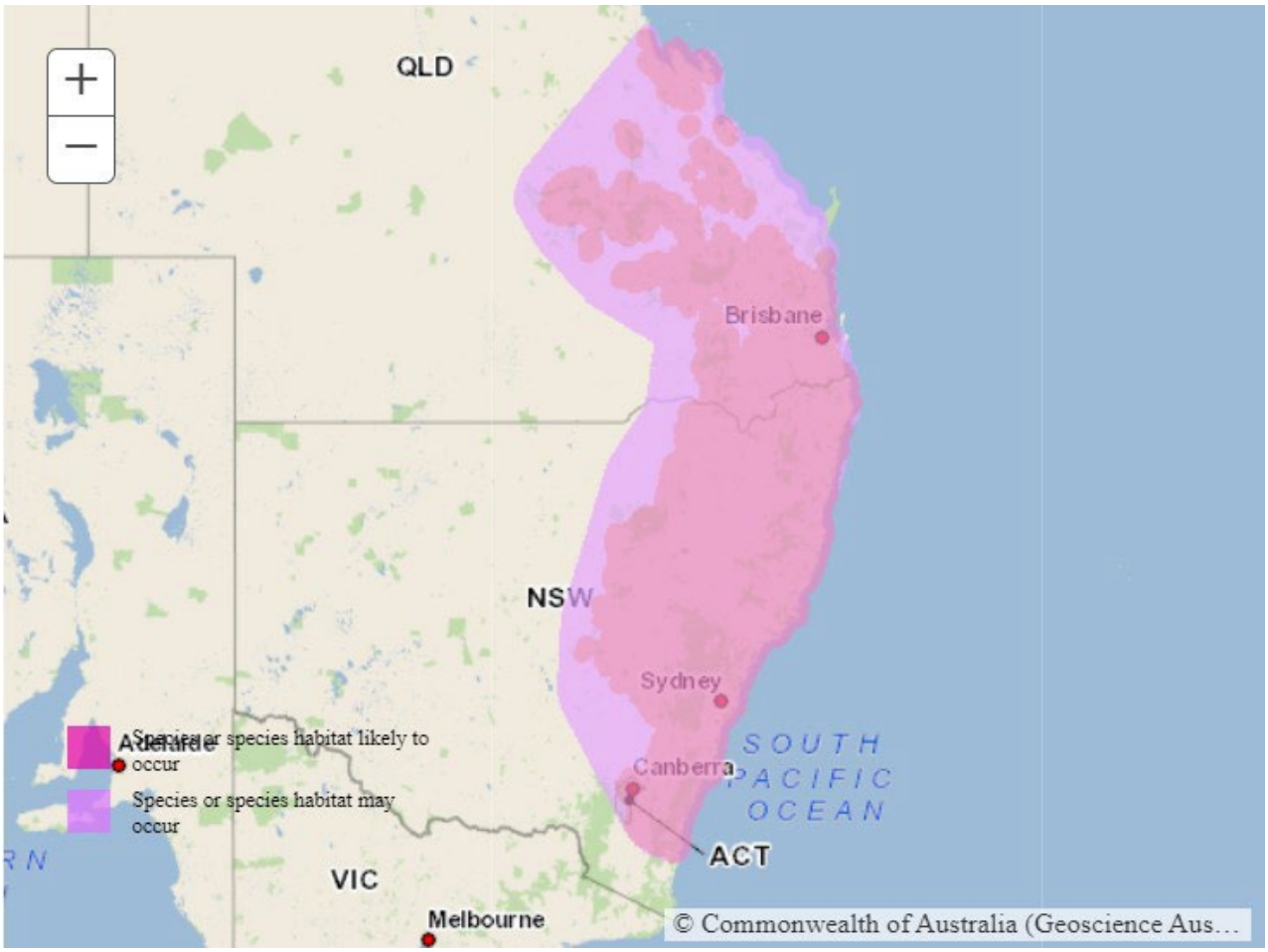

Figure C.28 Current distribution map for Large-eared Pied Bat taken from the SPRAT

DETAILS OF THE SCOPE, TIMING AND METHODOLOGY FOR STUDIES OR SURVEYS USED AND HOW THEY ARE CONSISTENT WITH (OR JUSTIFICATION FOR DIVERGENCE FROM) PUBLISHED AUSTRALIAN GOVERNMENT GUIDELINES AND POLICY STATEMENTS

Ultrasonic Anabat bat detection (Titley Electronics) was used to record and identify the echolocation calls of micro bats foraging across a number of native vegetation communities in the subject land. A walkabout Anabat device was utilised as a listening and reference detector during active monitoring of survey sites during nocturnal surveys. Passive monitoring of these survey sites was also achieved by setting Anabat bat detectors to record continuously overnight.

Active walkabout Anabat bat call analysis was completed, taking into consideration the guidelines of the Australasian Bat Society, with Bat calls of New South Wales (Pennay, Law et al. 2004) used as a reference collection for bat call identification. Passive Anabat bat call analysis is still being undertaken but will follow the aforementioned guidelines and references.

Although many microchiropteran bat species are detectable through use of Anabat call detection methodologies, the vocal differences between some species are too subtle to reliably differentiate between the various species occurring in a particular locality (e.g. Corben's Long-eared Bat). Therefore, targeted harp trapping was completed for capture and release of microchiropteran bats. Site selection for the setting of harp traps included a number of rationales, such as, targeting of those habitat areas where hollow-bearing trees provide potential roosting sites and where suitable flyways were detected. Woodland, valley floors, riparian areas and fertile parts of subject land were chosen to target certain species (e.g. Eastern Cave Bat and Large-eared Pied Bat), and sites close to cave exits or tunnels for others (e.g. Little Bentwing-bat) (Office of Environment & Heritage, 2018). A minimum of three harp traps were set at survey locations for either a three or four-consecutive night period, with surveys conducted in calm and hot, warm, or mild weather conditions to increase the likelihood of bat activity (Office of Environment & Heritage, 2018).

Captured bats were identified to species level, sexed, measured and weighed. Bats were released immediately after processing during dark conditions or held in a cool, dark and quite location until release in the dark was possible. This included placing bats in sections of hollow trees out of the sun near the capture sites, so they could remain secure until their night activities resumed.

Ten microbat roost inspections, 28 nights of harp trapping, 18 hours of active Anabat recording and 64 nights of passive Anabat recording were undertaken across the subject land. The location of microchiropteran bat survey sites is shown in BDAR Figure 14 5 with survey periods outlined in BDAR Table 2 6.

DESCRIPTION OF THE SPECIFIC IMPACTS AND ITS REGARD TO THE FULL NATIONAL EXTENT OF THE SPECIES OR COMMUNITY'S RANGE

The impacted PCTs are 440, 479, 618, 281, 478 and 1610, with a total of 130.03 ha of habitat to be impacted. Importantly, no caves or other breeding habitat will be directly impacted.

Figure C.28 shows the current known generalised distribution from the Commonwealth Species Profile and Threats Database which is an indicative distribution map of the present distribution of the species based on best available knowledge. The subject land is inside the known limit of the species distribution.

DESCRIPTION OF THE SPECIFIC PROPOSED AVOIDANCE AND MITIGATION MEASURES TO DEAL WITH RELEVANT IMPACTS OF THE ACTION

The proposed avoidance and mitigation measures are outlined in Section 7 and Section 8.4 of the BDAR. No specific measures for the Large-eared Pied Bat are identified. Given that Large-eared Pied Bat is considered likely to occur in most PCTs within the subject land, most avoidance and mitigation measures will be applicable to this species.

IDENTIFICATION OF SIGNIFICANT RESIDUAL ADVERSE IMPACTS LIKELY TO OCCUR AFTER THE PROPOSED ACTIVITIES TO AVOID AND MITIGATE ALL IMPACTS ARE TAKEN INTO ACCOUNT

The residual impacts to Large-eared Pied Bat as a result of the Project include removal of up to 130.3 ha of assumed habitat for the species. This impact is not to caves or other breeding structure.

A DESCRIPTION OF ANY OFFSETS PROPOSED TO ADDRESS RESIDUAL ADVERSE SIGNIFICANT IMPACTS AND HOW THESE OFFSETS WILL BE ESTABLISHED

Details of offset requirements and obligations for this community as a result of residual impacts due the project is addressed in Section 10 of the BDAR.

DETAILS OF HOW THE CURRENT PUBLISHED NSW BIODIVERSITY ASSESSMENT METHOD (BAM) HAS BEEN APPLIED IN ACCORDANCE WITH THE OBJECTS OF THE EPBC ACT TO OFFSET SIGNIFICANT RESIDUAL ADVERSE IMPACTS

The BDAR specifically addresses Section 10 of the BAM and provides information on the application of the no net loss standard and the project biodiversity offset obligations.

DETAILS OF THE OFFSET PACKAGE TO COMPENSATE FOR SIGNIFICANT RESIDUAL IMPACTS INCLUDING DETAILS OF THE CREDIT PROFILES REQUIRED TO OFFSET THE ACTION IN ACCORDANCE WITH THE BAM AND/OR MAPPING AND DESCRIPTIONS OF THE EXTENT AND CONDITION OF THE RELEVANT HABITAT AND/OR THREATENED COMMUNITIES OCCURRING ON PROPOSED OFFSET SITES

Section 11 of the BDAR outlines the biodiversity offset strategy for the project. The offset obligations will be met through implementing a combination of the following offset delivery options, being:

- the purchase and retirement of existing biodiversity credits currently available on the biodiversity credit register
- establishing a biodiversity stewardship site(s) on lands with like for like biodiversity values to those impacted by the project
- through making a payment into the Biodiversity Conservation Fund.

Corben's Long-eared Bat

Corben's Long-eared Bat is listed as Vulnerable under the BC and EPBC Acts.

Description

Corben's long-eared Bat is patchily distributed across southern central Queensland, central western New South Wales, north-western Victoria and eastern South Australia, with most of its range within the Murray Darling Basin. This microbat species is uncommon and has been mainly recorded within the Nandewar area and Brigalow Belt South bioregion. They are found in a wide range of inland woodlands, including box/ironbark/cypress pine woodlands, Buloke woodlands, Brigalow woodland, Belah woodland, smooth-barked apple woodland, river red gum forest, black box woodland, and various types of tree mallee, and prefers old growth, dense vegetation. The core population is located in Pilliga Scrub, over 700 km north east of the project study area (Threatened Species Scientific Committee, 2015b).

Corben's Long-eared Bat is an insectivorous microbat, foraging on beetles, bugs, moths, grasshoppers and crickets. They roost solitary or in groups up to 20 individuals, predominantly in hollows of dead trees or dead sprouts of live trees. Studies show that most roost sites are used just for a single day and large distances are travelled at night, with consecutive roost sites generally within 4 kilometres (Threatened Species Scientific Committee, 2015b).

Relevant commonwealth guidelines and policy statements including listing advice, conservation advice and recovery plan

A summary of the relevant Commonwealth guidelines and policy statements available for this species is as follows:

- the *Conservation Advice Nyctophilus corbeni south-eastern long-eared bat* (Threatened Species Scientific Committee, 2015b) was reviewed as part of this assessment.
- the *Commonwealth Listing Advice on ten species of Bats* (Benson, 2001) was reviewed as part of this assessment.
- there is no adopted or made Recovery Plan for this species.

No threat abatement plan has been identified as being relevant for this species.

Relevant survey guidelines for this species include:

- *Survey Guidelines for Australia's Threatened Bats* (Department of Environment Water Heritage and the Arts, 2010).

Specific impacts

Corben's Long-eared Bat is retained as an ecosystem credit species and assumed present within all of the PCTs within the subject land. The impacts to Corben's Long-eared Bat have been captured as part of ecosystem credits (see Refer to Section 10 and 11 of the BDAR).

Is this part of an important population?

In accordance with the *Matters of National Environmental Significance - Significant Impact Guidelines 1.1* (Department of the Environment Water Heritage and the Arts 2013), the presence of an important population must be identified prior to addressing the significance impact criteria. An important population is defined in the Significant Impact Guidelines as a population that is necessary for a species' long-term survival and recovery. Under the Act, important populations are:

- likely to be key source populations either for breeding or dispersal
- likely to be necessary for maintaining genetic diversity
- at or near the limit of the species range.

This species was not recorded during surveys. There are no important populations outlined in the SPRAT profile or DPIE profile for Corben's Long-eared Bat. The subject land is not at the limit of the known range of this species, nor would any population here be key source population for breeding and genetic maintenance given the species ability to disperse

for foraging and breeding. Therefore, any population utilising the project study area it is not considered to be an important population.

Significant impact criteria

An action is likely to have a significant impact on a vulnerable species if there is a real chance or possibility that it will:

LEAD TO A LONG-TERM DECREASE IN THE SIZE OF AN IMPORTANT POPULATION

The subject land does not occur in an area identified as containing an important population of Corben's Long-eared Bat.

REDUCE THE AREA OF OCCUPANCY OF AN IMPORTANT POPULATION

The subject land does not occur in an area identified as containing an important population of Corben's Long-eared Bat.

FRAGMENT AN EXISTING IMPORTANT POPULATION INTO TWO OR MORE POPULATIONS

The subject land does not occur in an area identified as containing an important population of Corben's Long-eared Bat.

ADVERSELY AFFECT HABITAT CRITICAL TO THE SURVIVAL OF A SPECIES

Habitat critical to the survival of a species refers to areas that are necessary:

- for activities such as foraging, breeding, roosting, or dispersal
- for the long-term maintenance of the species or ecological community (including the maintenance of species essential to the survival of the species or ecological community, such as pollinators)
- to maintain genetic diversity and long-term evolutionary development, or
- for the reintroduction of populations or recovery of the species or ecological community. (Department of the Environment Water Heritage and the Arts 2013).

the *Conservation Advice Nyctophilus corbeni south-eastern long-eared bat* (Threatened Species Scientific Committee, 2015b) does not define critical habitat for this species. No Critical Habitat as defined under section 207A of the EPBC Act has been identified or included in the Register of Critical Habitat.

Potential habitat for this species is present. However, there is no real chance or possibility that the project will adversely affect habitat critical to the survival of this species.

DISRUPT THE BREEDING CYCLE OF AN IMPORTANT POPULATION

The subject land does not occur in an area identified as containing an important population of Corben's Long-eared Bat.

MODIFY, DESTROY, REMOVE OR ISOLATE OR DECREASE THE AVAILABILITY OR QUALITY OF HABITAT TO THE EXTENT THAT THE SPECIES IS LIKELY TO DECLINE

The project would reduce the availability of potentially suitable habitat for Corben's Long-eared Bat. However, given the surrounding landscape and remaining habitat availability, it is unlikely that the project would cause change to the extent that the species is likely to decline. The habitat to be removed from the subject land is not limiting for this species and extensive habitat for this species will remain in the locality. Consequently, there is no real chance or possibility that the project will modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline.

RESULT IN INVASIVE SPECIES THAT ARE HARMFUL TO A VULNERABLE SPECIES BECOMING ESTABLISHED IN THE VULNERABLE SPECIES' HABITAT

The project is unlikely to result in an invasive species harmful to Corben's Long-eared Bat becoming established in the habitat. The potential for weed invasion was considered possible with a project of this nature and appropriate controls are required during construction and operation to reduce this threat. Invasive species would be managed under the construction environmental management plan using best practice methods. Consequently, there is no real chance or possibility that the project will result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat.

INTRODUCE DISEASE THAT MAY CAUSE THE SPECIES TO DECLINE

There are no known disease issues affecting this species in relation to the project. The project would be unlikely to increase the potential for significant disease vectors to affect the species. It is the intention to use current best practice hygiene protocols as part of the construction environmental management plan to prevent the introduction or spread of pathogens. Consequently, there is no real chance or possibility that the project will introduce disease that may cause the species to decline.

INTERFERE SUBSTANTIALLY WITH THE RECOVERY OF THE SPECIES

There is no adopted or made Recovery Plan for this species.

CONCLUSION

Corben's Long-eared Bat is retained as an ecosystem credit species and assumed present within all of the PCTs within the subject land. Habitat impacts have been captured as part of ecosystem credits (see Refer to Section 10 and 11 of the BDAR).

Based on the assessment completed above, there is no real chance or possibility that the project is likely to have a significant impact on Corben's Long-eared Bat.

NSW Assessment Bilateral requirements

DESCRIPTION OF THE HABITAT (INCLUDING IDENTIFICATION AND MAPPING OF SUITABLE BREEDING HABITAT, SUITABLE FORAGING HABITAT, IMPORTANT POPULATIONS AND HABITAT CRITICAL FOR SURVIVAL), WITH CONSIDERATION OF, AND REFERENCE TO, ANY RELEVANT COMMONWEALTH GUIDELINES AND POLICY STATEMENTS INCLUDING LISTING ADVICE, CONSERVATION ADVICE AND RECOVERY PLAN

A description of habitat for this species, important populations, habitat critical for survival and relevant Commonwealth documents are provided above, with a map showing the modelled distribution of the species provided in Figure C.29.

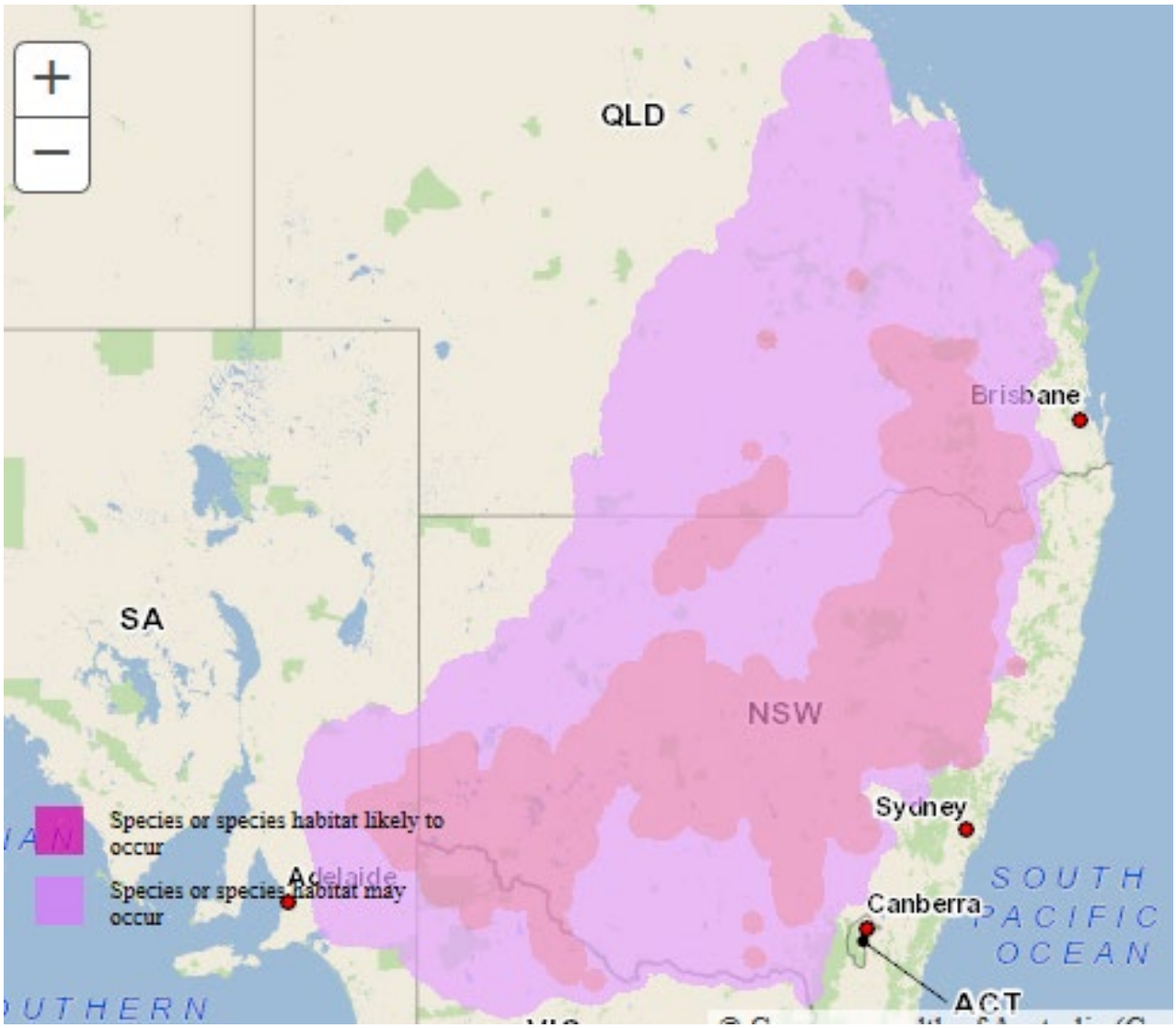

Figure C.29 Current distribution map for Corben's Long-eared Bat taken from the SPRAT

DETAILS OF THE SCOPE, TIMING AND METHODOLOGY FOR STUDIES OR SURVEYS USED AND HOW THEY ARE CONSISTENT WITH (OR JUSTIFICATION FOR DIVERGENCE FROM) PUBLISHED AUSTRALIAN GOVERNMENT GUIDELINES AND POLICY STATEMENTS

Corben's Long-eared Bat is an ecosystem credit species. As such, survey for this species is not required. Nonetheless, targeted bat surveys were undertaken.

Although many microchiropteran bat species are detectable through use of Anabat call detection methodologies, the vocal differences between some species are too subtle to reliably differentiate between the various species occurring in a particular locality (e.g. Corben's Long-eared Bat). Therefore, targeted harp trapping was completed for capture and release of microchiropteran bats. Site selection for the setting of harp traps included a number of rationales, such as, targeting of those habitat areas where hollow-bearing trees provide potential roosting sites and where suitable flyways were detected. Woodland, valley floors, riparian areas and fertile parts of subject land were chosen to target certain species (e.g. Eastern Cave Bat and Large-eared Pied Bat), and sites close to cave exits or tunnels for others (e.g. Little Bentwing-bat) (Office of Environment & Heritage, 2018). A minimum of three harp traps were set at survey locations for either a three or four-consecutive night period, with surveys conducted in calm and hot, warm, or mild weather conditions to increase the likelihood of bat activity (Office of Environment & Heritage, 2018). Captured bats were identified to species level, sexed, measured and weighed. Bats were released immediately after processing during dark conditions or held in a cool, dark and quite location until release in the dark was possible. This included placing bats in

sections of hollow trees out of the sun near the capture sites, so they could remain secure until their night activities resumed.

Ten microbat roost inspections, 28 nights of harp trapping, 18 hours of active Anabat recording and 64 nights of passive Anabat recording were undertaken across the subject land. The location of microchiropteran bat survey sites is shown in BDAR Figure 14 5 with survey periods outlined in BDAR Table 2 6.

DESCRIPTION OF THE SPECIFIC IMPACTS AND ITS REGARD TO THE FULL NATIONAL EXTENT OF THE SPECIES OR COMMUNITY'S RANGE

The project will clear vegetation within suitable habitat. As an ecosystem credit species, Corben's Long-eared Bat is assumed present in most PCTs and as such contributes to the offset requirements for these PCTs.

Figure C.29 provides the current known generalised distribution from the conservation advice and the SPRAT database which are indicative distribution maps of the present distribution of the species based on best available knowledge. The project occurs approximately in the centre of the species range.

DESCRIPTION OF THE SPECIFIC PROPOSED AVOIDANCE AND MITIGATION MEASURES TO DEAL WITH RELEVANT IMPACTS OF THE ACTION

The proposed avoidance and mitigation measures are outlined in Section 7 of the BDAR. Mitigation measures are provided in Section 8.4 of the BDAR.

IDENTIFICATION OF SIGNIFICANT RESIDUAL ADVERSE IMPACTS LIKELY TO OCCUR AFTER THE PROPOSED ACTIVITIES TO AVOID AND MITIGATE ALL IMPACTS ARE TAKEN INTO ACCOUNT

This species is retained as an ecosystem credit species. Foraging habitat impacts have been captured as part of ecosystem credits (see Refer to Section 10 and 11 of the BDAR).

A DESCRIPTION OF ANY OFFSETS PROPOSED TO ADDRESS RESIDUAL ADVERSE SIGNIFICANT IMPACTS AND HOW THESE OFFSETS WILL BE ESTABLISHED

Foraging habitat impacts have been captured as part of ecosystem credits (see Refer to Section 10 and 11 of the BDAR).

DETAILS OF HOW THE CURRENT PUBLISHED NSW BIODIVERSITY ASSESSMENT METHOD (BAM) HAS BEEN APPLIED IN ACCORDANCE WITH THE OBJECTS OF THE EPBC ACT TO OFFSET SIGNIFICANT RESIDUAL ADVERSE IMPACTS

The BDAR specifically addresses Section 10 of the BAM and provides information on the application of the no net loss standard and the proposed biodiversity offset obligations.

DETAILS OF THE OFFSET PACKAGE TO COMPENSATE FOR SIGNIFICANT RESIDUAL IMPACTS INCLUDING DETAILS OF THE CREDIT PROFILES REQUIRED TO OFFSET THE ACTION IN ACCORDANCE WITH THE BAM AND/OR MAPPING AND DESCRIPTIONS OF THE EXTENT AND CONDITION OF THE RELEVANT HABITAT AND/OR THREATENED COMMUNITIES OCCURRING ON PROPOSED OFFSET SITES

Section 11 of the BDAR outlines the biodiversity credit requirements for the project. The offset obligations will be met through implementing a combination of the following offset delivery options, being:

- the purchase and retirement of existing biodiversity credits currently available on the biodiversity credit register
- establishing a biodiversity stewardship site(s) on lands with like for like biodiversity values to those impacted by the project
- through making a payment into the Biodiversity Conservation Fund.

Yellow-bellied Glider (south-eastern)

Description

Yellow-bellied Gliders are a medium sized greyish-brown marsupial that contains a black stripe that runs down the back and tail. The belly is white to yellow and is paler in young individuals and will yellow with age. The Yellow-bellied Glider inhabits sclerophyll forests at varying altitudes ranging from sea level to 1400 m above sea level from south-eastern Queensland to far south-eastern South Australia, near the South Australia-Victoria border. This species preferentially inhabits mature forests containing winter-flowering and smooth-barked eucalypts. Yellow-bellied Gliders are nocturnal animals that live in small family groups (2-6) that inhabit a home range of 25 – 85 ha. This species spends 90% of their time outside the den foraging for insects and sap. As a nocturnal species, Yellow-bellied Gliders spend the day sheltering in hollow trees that are over a metre in diameter.

The Yellow-bellied Glider faces many threats to its survival such as:

- habitat clearing and fragmentation
- increase of bushfires as a result of climate change and prescribed burns
- increase of temperatures and change in rainfall patterns
- predation by foxes and cats
- destruction of saplings by deer
- entanglement in barbwire fencing.

According Bionet and ALA, the closest recorded observation of the Yellow-bellied Glider was 33 km south of the subject land.

Relevant commonwealth guidelines and policy statements including listing advice, conservation advice and recovery plan

A summary of the relevant Commonwealth guidelines and policy statements available for this species is as follows:

- The Conservation Advice for *Petaurus australis australis* (yellow-bellied glider (south-eastern) (Department of Agriculture, Water and the Environment, 2022).
- Listing assessment information may be available in the approved Conservation Advice.
- There is no adopted or made Recovery Plan for this species.
- There are no Threat Abatement Plans that have been identified as being relevant for this species.

Specific impacts

Yellow-bellied Glider is retained as an ecosystem credit species and assumed present within all of the PCTs within the subject land excluding DNG habitats. The impacts to Yellow-bellied Glider have been captured as part of ecosystem credits (see Refer to Section 10 and 11 of the BDAR).

Is this part of an important population?

In accordance with the *Matters of National Environmental Significance - Significant Impact Guidelines 1.1* (Department of the Environment Water Heritage and the Arts 2013), the presence of an important population must be identified prior to addressing the significance impact criteria. An important population is defined in the Significant Impact Guidelines as a population that is necessary for a species' long-term survival and recovery. Under the Act, important populations are:

- likely to be key source populations either for breeding or dispersal
- likely to be necessary for maintaining genetic diversity
- at or near the limit of the species range.

The Conservation Advice for *Petaurus australis australis* (yellow-bellied glider (south-eastern) (Department of Agriculture, Water and the Environment, 2022) states that populations important to the survival of the Yellow-bellied Glider (south-eastern) include stronghold populations, ecologically or genetically distinct populations (e.g., those at the limits of the subspecies' range, outlying populations), research populations, and other populations where recovery actions are being implemented. In the absence of such information, all known populations should be considered important. Known important populations include:

- Carnarvon Range (Inland population; Qld)
- Blackdown Tableland (Inland population; Qld)
- Bago Plateau (Endangered under NSW legislation; NSW)
- Richmond Range National Park (research population; NSW)
- Blacktown range (population near urban area; NSW)
- Shoalhaven populations (severely fire-affected, surveyed; NSW)
- Populations between Coffs Harbour, Dorrigo, Glen Innes and Grafton (affected by fire and timber harvesting, research populations; NSW)
- Populations between Nimmitabel and Cathcart (affected by fire and timber harvesting, research populations; NSW)
- Populations near Waratah Creek (affected by fire and timber harvesting, research populations; NSW)
- South Australian population (only SA population, potentially an ESU, six individuals, may be extinct; SA)
- Western Vic populations (outlying populations, potentially an ESU; Vic)

The subject land is not located in any of the identified known important populations. As such, this species is not part of an important population.

Significant impact criteria

An action is likely to have a significant impact on a vulnerable species if there is a real chance or possibility that it will:

LEAD TO A LONG-TERM DECREASE IN THE SIZE OF AN IMPORTANT POPULATION

The subject land does not occur in an area identified as containing an important population of Yellow-bellied Glider

REDUCE THE AREA OF OCCUPANCY OF AN IMPORTANT POPULATION

The subject land does not occur in an area identified as containing an important population of Yellow-bellied Glider

FRAGMENT AN EXISTING IMPORTANT POPULATION INTO TWO OR MORE POPULATIONS

The subject land does not occur in an area identified as containing an important population of Yellow-bellied Glider

ADVERSELY AFFECT HABITAT CRITICAL TO THE SURVIVAL OF A SPECIES

Habitat critical to the survival of a species refers to areas that are necessary:

- for activities such as foraging, breeding, roosting, or dispersal
- for the long-term maintenance of the species or ecological community (including the maintenance of species essential to the survival of the species or ecological community, such as pollinators)
- to maintain genetic diversity and long-term evolutionary development, or
- for the reintroduction of populations or recovery of the species or ecological community. (Department of the Environment Water Heritage and the Arts 2013).

According to the Conservation Advice for *Petaurus australis australis* (Yellow-bellied Glider (south-eastern) (Department of Agriculture, Water and the Environment, 2022), habitat critical to the survival of the yellow-bellied glider (south-eastern) may be broadly defined as areas containing the following attributes (noting that geographic areas containing habitat critical to survival needs to be defined by forest type on a regional basis):

- large contiguous areas of floristically diverse eucalypt forest, which are dominated by winter-flowering and smooth-barked eucalypts, including mature living hollow-bearing trees and sap trees;
- areas identified as refuges under future climate change scenarios;
- short or long-term post-fire refuges (i.e., unburnt habitat within or adjacent to recently burnt landscapes) that allow the species to persist, recover and recolonise burnt areas;
- habitat corridors required to facilitate dispersal of the subspecies between fragmented habitat patches and/or that enable recolonization or movement away from threats. yellow-bellied gliders (south-eastern) have a glide ratio (horizontal distance/height dropped) of around 2.0, and corridors spanning gaps larger than the distance gliders are likely to be able to travel should be considered critical to the survival. There is not enough evidence to define the canopy and width characteristics of appropriate corridors. In the absence of such information, a precautionary approach should be taken to maximise dispersal by considering all habitat corridors in the species' range to be habitat critical to the survival; and
- areas in which some trees have evidence of use for sap extraction by Yellow-bellied Glider (south-eastern).

The subject land contains a number of Winter flowering eucalypts and living hollow-bearing trees. Tree species known to be used for sap feeding including *Eucalyptus fibrosa, Eucalyptus melliodora, Eucalyptus moluccana,* and *Eucalyptus tereticornis* and to a lesser extent *Eucalyptus punctata* are present in the subject land. As such, Yellow-bellied Glider is retained in the assessment as an ecosystem credit species. However, there was no evidence of use for sap extraction by Yellow-bellied Glider observed in the subject land during the survey.

Potential habitat for this species is present. However, given that the subject land is not located in any of the identified known important populations, there is no real chance or possibility that the project will adversely affect habitat critical to the survival of this species.

DISRUPT THE BREEDING CYCLE OF AN IMPORTANT POPULATION

The subject land does not occur in an area identified as containing an important population of Yellow-bellied Glider

MODIFY, DESTROY, REMOVE OR ISOLATE OR DECREASE THE AVAILABILITY OR QUALITY OF HABITAT TO THE EXTENT THAT THE SPECIES IS LIKELY TO DECLINE

The project would reduce the availability of potentially suitable habitat. However, given the surrounding landscape and remaining habitat availability, it is unlikely that the project would cause change to the extent that the species is likely to decline. The habitat to be removed from the subject land is not limiting for this species and extensive habitat for this species will remain in the locality. Consequently, there is no real chance or possibility that the project will modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline.

RESULT IN INVASIVE SPECIES THAT ARE HARMFUL TO A VULNERABLE SPECIES BECOMING ESTABLISHED IN THE VULNERABLE SPECIES' HABITAT

The project is unlikely to result in an invasive species harmful to the Yellow-bellied Glider becoming established in the habitat. The potential for weed invasion was considered possible with a project of this nature and appropriate controls are required during construction and operation to reduce this threat. Invasive species would be managed under the construction environmental management plan using best practice methods. Consequently, there is no real chance or possibility that the project will result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat.

INTRODUCE DISEASE THAT MAY CAUSE THE SPECIES TO DECLINE

There are no known disease issues affecting this species in relation to the project. The project would be unlikely to increase the potential for significant disease vectors to affect the species. It is the intention to use current best practice hygiene protocols as part of the construction environmental management plan to prevent the introduction or spread of pathogens. Consequently, there is no real chance or possibility that the project will introduce disease that may cause the species to decline.

INTERFERE SUBSTANTIALLY WITH THE RECOVERY OF THE SPECIES

There is no adopted or made Recovery Plan for this species.

CONCLUSION

Yellow-bellied Glider is retained as an ecosystem credit species and assumed present within all of the PCTs within the subject land excluding DNG habitats. Habitat impacts have been captured as part of ecosystem credits (see Refer to Section 10 and 11 of the BDAR).

Based on the assessment completed above, there is no real chance or possibility that the project is likely to have a significant impact on Yellow-bellied Glider.

NSW Assessment Bilateral requirements

DESCRIPTION OF THE HABITAT (INCLUDING IDENTIFICATION AND MAPPING OF SUITABLE BREEDING HABITAT, SUITABLE FORAGING HABITAT, IMPORTANT POPULATIONS AND HABITAT CRITICAL FOR SURVIVAL), WITH CONSIDERATION OF, AND REFERENCE TO, ANY RELEVANT COMMONWEALTH GUIDELINES AND POLICY STATEMENTS INCLUDING LISTING ADVICE, CONSERVATION ADVICE AND RECOVERY PLAN

A description of habitat for this species, important populations, habitat critical for survival and relevant Commonwealth documents are provided above, with a map showing the modelled distribution of the species provided in Figure C.30.

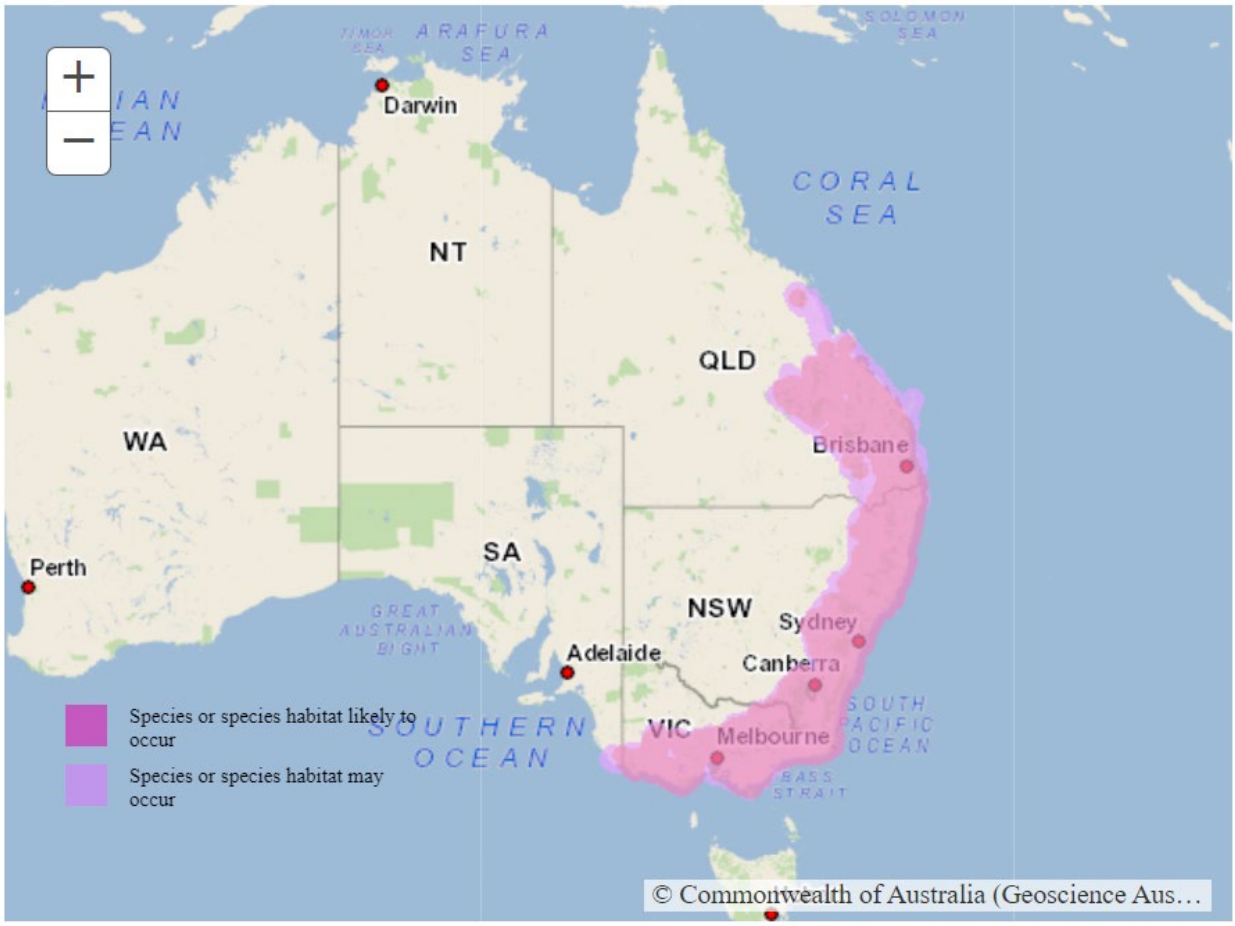

Figure C.30 Current distribution map for Yellow-bellied Glider taken from the SPRAT

DETAILS OF THE SCOPE, TIMING AND METHODOLOGY FOR STUDIES OR SURVEYS USED AND HOW THEY ARE CONSISTENT WITH (OR JUSTIFICATION FOR DIVERGENCE FROM) PUBLISHED AUSTRALIAN GOVERNMENT GUIDELINES AND POLICY STATEMENTS

Yellow-bellied Glider is an ecosystem credit species. As such, survey for this species is not required.

Nonetheless, spotlighting was used to target threatened nocturnal arboreal, flying and ground-dwelling mammals, birds, reptiles and amphibians. Spotlighting was completed after dusk generally following the targeted nocturnal searches and was undertaken for at least 1 hour at each survey spot. Surveys were completed on foot using high-powered headlamps and hand torches. Sighted animals were identified to the species level. Twenty-three spotlighting surveys and 10 stag watches were undertaken across the subject land. The location of spotlighting & stag watch survey sites is shown BDAR Figure 14-5 with survey periods outlined in BDAR Table 2 6.

DESCRIPTION OF THE SPECIFIC IMPACTS AND ITS REGARD TO THE FULL NATIONAL EXTENT OF THE SPECIES OR COMMUNITY'S RANGE

The project will clear vegetation within suitable habitat. As an ecosystem credit species, the Yellow-bellied Glider is assumed present in most PCTs and as such contributes to the offset requirements for these PCTs.

Figure C.30 provides the current known generalised distribution from the conservation advice and the SPRAT database which are indicative distribution maps of the present distribution of the species based on best available knowledge. The project occurs approximately in the centre of the species range.

DESCRIPTION OF THE SPECIFIC PROPOSED AVOIDANCE AND MITIGATION MEASURES TO DEAL WITH RELEVANT IMPACTS OF THE ACTION

The proposed avoidance and mitigation measures are outlined in Section 7 of the BDAR. Mitigation measures are provided in Section 8.4 of the BDAR.

IDENTIFICATION OF SIGNIFICANT RESIDUAL ADVERSE IMPACTS LIKELY TO OCCUR AFTER THE PROPOSED ACTIVITIES TO AVOID AND MITIGATE ALL IMPACTS ARE TAKEN INTO ACCOUNT

This species is retained as an ecosystem credit species. Foraging habitat impacts have been captured as part of ecosystem credits (see Refer to Section 10 and 11 of the BDAR).

A DESCRIPTION OF ANY OFFSETS PROPOSED TO ADDRESS RESIDUAL ADVERSE SIGNIFICANT IMPACTS AND HOW THESE OFFSETS WILL BE ESTABLISHED

Foraging habitat impacts have been captured as part of ecosystem credits (see Refer to Section 10 and 11 of the BDAR).

DETAILS OF HOW THE CURRENT PUBLISHED NSW BIODIVERSITY ASSESSMENT METHOD (BAM) HAS BEEN APPLIED IN ACCORDANCE WITH THE OBJECTS OF THE EPBC ACT TO OFFSET SIGNIFICANT RESIDUAL ADVERSE IMPACTS

The BDAR specifically addresses Section 10 of the BAM and provides information on the application of the no net loss standard and the proposed biodiversity offset obligations.

DETAILS OF THE OFFSET PACKAGE TO COMPENSATE FOR SIGNIFICANT RESIDUAL IMPACTS INCLUDING DETAILS OF THE CREDIT PROFILES REQUIRED TO OFFSET THE ACTION IN ACCORDANCE WITH THE BAM AND/OR MAPPING AND DESCRIPTIONS OF THE EXTENT AND CONDITION OF THE RELEVANT HABITAT AND/OR THREATENED COMMUNITIES OCCURRING ON PROPOSED OFFSET SITES

Section 11 of the BDAR outlines the biodiversity credit requirements for the project. The offset obligations will be met through implementing a combination of the following offset delivery options, being:

- the purchase and retirement of existing biodiversity credits currently available on the biodiversity credit register
- establishing a biodiversity stewardship site(s) on lands with like for like biodiversity values to those impacted by the project
- through making a payment into the Biodiversity Conservation Fund.

Brush-tailed Rock-wallaby

Brush-tailed Rock-wallaby is listed as Vulnerable under the EPBC Act and the BC Act.

Description

The Brush-tailed Rock-wallaby occupy a disjoined range in south-eastern Australia, mostly associated with the Great Dividing Range, from the Grampians, in western Victoria, to Yarraman, in south-eastern Queensland. This species historically inhabited a large range, but since 2004 many sub-populations have been extirpated. Brush-tailed Rock-wallaby are a social animal and live in colonies of approximately 30 individuals or less.

The Brush-tailed Rock-wallaby tend to rest and bask in rugged north facing rocky areas, including rock faces and outcrops during the day. At night, this species will forage for grasses, fungi, fruit, flowers and bark in grassy forest, pastures and woodland habitats close to their daytime resting areas. As a group the Brush-tailed Rock-wallaby territory is approximately 15 ha, however individual foraging areas are smaller at 2–3 ha.

The Brush-tailed Rock-wallaby faces many threats to its survival such as:

- Predation by invasive species such as red fox, cats and wild dogs.
- Increased competition from invasive species such as introduced herbivores and establishment of invasive weeds.
- Climate change resulting in a change of fire regimes and change in rainfall and temperature.

In 2001, this species was observed 9 km north of Ulan.

Relevant Commonwealth guidelines and policy statements including listing advice, conservation advice and recovery plan

A summary of the relevant Commonwealth guidelines and policy statements available for this species is as follows:

- The Conservation Advice for *Petrogale penicillata (Brush-tailed Rock-wallaby).*(Department of Agriculture Water and the Environment, 2022)
- Listing assessment information may be available in the approved Conservation Advice
- *National Recovery Plan for the Brush-tailed Rock-wallaby Petrogale penicillata.* (Department of Agriculture, 2022)
- Threat abatement plans that have been identified as being relevant for this species. These plans include:
- Threat abatement plan for predation by feral cats (Department of the Environment, 2015b).
- Threat abatement plan for competition and land degradation by rabbits (Department of Environment and Energy, 2016).
- Threat abatement plan for competition and land degradation by unmanaged goats (Department of the Environment Water Heritage and the Arts, 2008d).
- Threat abatement plan for predation by the European red fox (Department of the Environment Water Heritage and the Arts, 2008e).

Specific impacts

This species was not recorded in the subject land despite targeted surveys, however, there a number of records within the locality (ten kilometres of the study area). The majority of occurrences occur in the eastern in the Kerrabee IBRA subregion and were recorded between 1999 to 2010.

Although this species was not recorded in the subject land, some areas of the subject land were unable to be accessed for survey during the field survey. In the absence of targeted survey in these areas, this species has bene partially retained in some vegetation zones. This species has been excluded from the Pilliga subregion as the habitat constraint is not met. The TBDC defines habitat as rocky escarpments, gorges, steep slopes, boulder piles, rock outcrops or cliff lines where they are present within 1 km of the subject land. As such, associated PCT's within 1 km of rocky habitat has been mapped within remaining subregions. In the absence of a guideline showing how species polygons for the Brush-tailed Rock Wallaby are to be created, species polygons for this species have been created based on a buffer from rocky Narrabeen Sandstone habitats that incorporates potential refuge sites and potential foraging range. There are no potential refuge sites within the subject land so impact to habitat is restricted to potential foraging range. The foraging range includes Derived Native Grassland Vegetation zones as the literature shows that the species will forage in artificial clearings and pastures.

The predicted impact to Brush-tailed Rock-wallaby is estimated at approximately 19.9 ha of assumed foraging or movement habitat. No potential refuge sites would be directly impacted. This is a conservative assessment considering that this species is likely to be extinct in the region.

Is this an important population?

In accordance with the Significant Impact Guidelines, the presence of an important population must be identified prior to addressing the significance impact criteria. An important population is defined in the guidelines as a population that is necessary for a species' long-term survival and recovery (Department of the Environment, 2013). Under the EPBC Act, important populations are:

- likely to be key source populations either for breeding or dispersal
- likely to be necessary for maintaining genetic diversity
- at or near the limit of the species range.

The Conservation Advice for *Petrogale penicillata (Brush-tailed Rock-wallaby).*(Department of Agriculture Water and the Environment, 2022) identifies important populations of the species (in this case sub-populations). Populations important to the survival of the Brush-tailed Rock-wallaby include stronghold populations, populations at the limits of the species range, outlying populations, research populations, captive populations, and other populations where recovery actions, such as predator control or reintroductions, are being implemented (Department of Agriculture Water and the Environment, 2022). The following list of important populations is identified (not exhaustive):

- Grampians Range population (Vic)
- East Gippsland population (Vic)
- Warrumbungle Range/Mount Kaputar populations (NSW)
- Shoalhaven population (NSW)
- Nattai National Park population (NSW)
- Wollemi National Park and Jenolan Caves populations (NSW)
- Wolgan population (NSW)
- Watagans population (NSW)
- Big Yango population (NSW)
- Barnard River population (NSW)
- Macleay Gorges population (NSW)
- Shanno Creek population (NSW)
- Guy Fawkes River population (NSW)
- Green Gully population (NSW)
- Moogerah Peaks National Park population (Qld)
- Main Range National Park population (Qld)
- Mount Barney National Park population (Qld)
- Crows Nest National Park population (Qld)
- Flinders Peak Conservation Park population (Qld)
- Glen Rock State Forest population (Qld

The subject land does not occur in an area identified as containing an important population of Brush-tailed Rock-wallaby.

Significant impact criteria

An action is likely to have a significant impact on a vulnerable species if there is a real chance or possibility that it will:

LEAD TO A LONG-TERM DECREASE IN THE SIZE OF AN IMPORTANT POPULATION

The subject land does not occur in an area identified as containing an important population of Brush-tailed Rock-wallaby.

REDUCE THE AREA OF OCCUPANCY OF AN IMPORTANT POPULATION

The subject land does not occur in an area identified as containing an important population of Brush-tailed Rock-wallaby.

FRAGMENT AN EXISTING IMPORTANT POPULATION INTO TWO OR MORE POPULATIONS

The subject land does not occur in an area identified as containing an important population of Brush-tailed Rock-wallaby.

ADVERSELY AFFECT HABITAT CRITICAL TO THE SURVIVAL OF A SPECIES

Habitat critical to the survival of a species refers to areas that are necessary:

- for activities such as foraging, breeding, roosting, or dispersal
- for the long-term maintenance of the species or ecological community (including the maintenance of species essential to the survival of the species or ecological community, such as pollinators)
- to maintain genetic diversity and long-term evolutionary development, or
- for the reintroduction of populations or recovery of the species or ecological community. (Department of the Environment Water Heritage and the Arts 2013).

The Conservation Advice for *Petrogale penicillata (Brush-tailed Rock-wallaby).*(Department of Agriculture Water and the Environment, 2022) states that it is not practicable to describe habitat critical to the survival of this species. The species eligibility for listing and key threat being the loss, degradation and fragmentation of habitat suggests that all habitat for the species either now or at some point in the near future is likely to be critical to the survival of the species.

No Critical Habitat as defined under section 207A of the EPBC Act has been identified or included in the Register of Critical Habitat.

There is no real chance or possibility that the project will adversely affect habitat critical to the survival of this species as the subject land does not occur in an area identified as containing an important population of Brush-tailed Rock-wallaby. Furthermore, the predicted impact to Brush-tailed Rock-wallaby is estimated at approximately 19.9 ha of assumed foraging or movement habitat. No potential refuge sites would be directly impacted. This is a conservative assessment considering that this species is likely to be extinct in the region.

DISRUPT THE BREEDING CYCLE OF AN IMPORTANT POPULATION

The subject land does not occur in an area identified as containing an important population of Brush-tailed Rock-wallaby.

MODIFY, DESTROY, REMOVE OR ISOLATE OR DECREASE THE AVAILABILITY OR QUALITY OF HABITAT TO THE EXTENT THAT THE SPECIES IS LIKELY TO DECLINE

The predicted impact to Brush-tailed Rock-wallaby is estimated at approximately 19.9 ha of assumed foraging or movement habitat. No potential refuge sites would be directly impacted. This is a conservative assessment considering that this species is likely to be extinct in the region.

Given the surrounding landscape and remaining habitat availability, it is unlikely that the project would cause change to the extent that the species is likely to decline. The habitat to be removed from the subject land is not limiting for this species and foraging grounds and movement corridors for this species will remain in the locality. Breeding habitat will not be impacted. Consequently, there is no real chance or possibility that the project will modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline.

RESULT IN INVASIVE SPECIES THAT ARE HARMFUL TO A VULNERABLE SPECIES BECOMING ESTABLISHED IN THE VULNERABLE SPECIES' HABITAT

The project is unlikely to result in an invasive species harmful to the Brush-tailed Rock-wallaby becoming established in the habitat. Introduced predators are well established. The potential for weed invasion was considered possible with a project of this nature and appropriate controls are required during construction and operation to reduce this threat. Invasive species would be managed under the construction environmental management plan using best practice methods. Consequently, there is no real chance or possibility that the project will result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat.

INTRODUCE DISEASE THAT MAY CAUSE THE SPECIES TO DECLINE

There are no known disease issues affecting this species in relation to the project. The project would be unlikely to increase the potential for significant disease vectors to affect the species. It is the intention to use current best practice hygiene protocols as part of the construction environmental management plan to prevent the introduction or spread of pathogens. Consequently, there is no real chance or possibility that the project will introduce disease that may cause the species to decline.

INTERFERE SUBSTANTIALLY WITH THE RECOVERY OF THE SPECIES

The *National Recovery Plan for the Brush-tailed Rock-wallaby Petrogale penicillata.* (Department of Agriculture, 2022) outlines the following objectives for recovery of the Brush-tailed Rock-wallaby:

- Determine and manage threats to the Brush-tailed Rock-wallaby and its habitat.
- Determine distribution, abundance, population trends and viability for the Brush-tailed Rock-wallaby.
- Establish and maintain separate, viable captive populations derived from the Southern and Central ESUs.
- Undertake translocations to improve the genetic and demographic robustness of populations and to establish new colonies of Brush-tailed Rock-wallabies.
- Investigate key aspects of Brush-tailed Rock-wallaby biology and ecology for conservation management.
- Increase community awareness and support for Brush-tailed Rock-wallaby conservation.

There is no real chance or possibility that the project will interfere substantially with the recovery of the species as the project will not interfere with any of the identified recovery objectives.

CONCLUSION

The subject land does not occur in an area identified as containing an important population of Brush-tailed Rock-wallaby. The predicted impact to Brush-tailed Rock-wallaby is estimated at approximately 19.9 ha of assumed foraging or movement habitat. No potential refuge sites would be directly impacted. This is a conservative assessment considering that this species is likely to be extinct in the region. Based on the assessment completed above, there is no real chance or possibility that the project is likely to have a significant impact on Brush-tailed Rock-wallaby.

NSW Assessment Bilateral requirements

DESCRIPTION OF THE HABITAT (INCLUDING IDENTIFICATION AND MAPPING OF SUITABLE BREEDING HABITAT, SUITABLE FORAGING HABITAT, IMPORTANT POPULATIONS AND HABITAT CRITICAL FOR SURVIVAL), WITH CONSIDERATION OF, AND REFERENCE TO, ANY RELEVANT COMMONWEALTH GUIDELINES AND POLICY STATEMENTS INCLUDING LISTING ADVICE, CONSERVATION ADVICE AND RECOVERY PLAN

A description of habitat for this species, important populations, habitat critical for survival and relevant Commonwealth documents are provided above, with a map showing the modelled distribution of the species provided in Figure C.31.

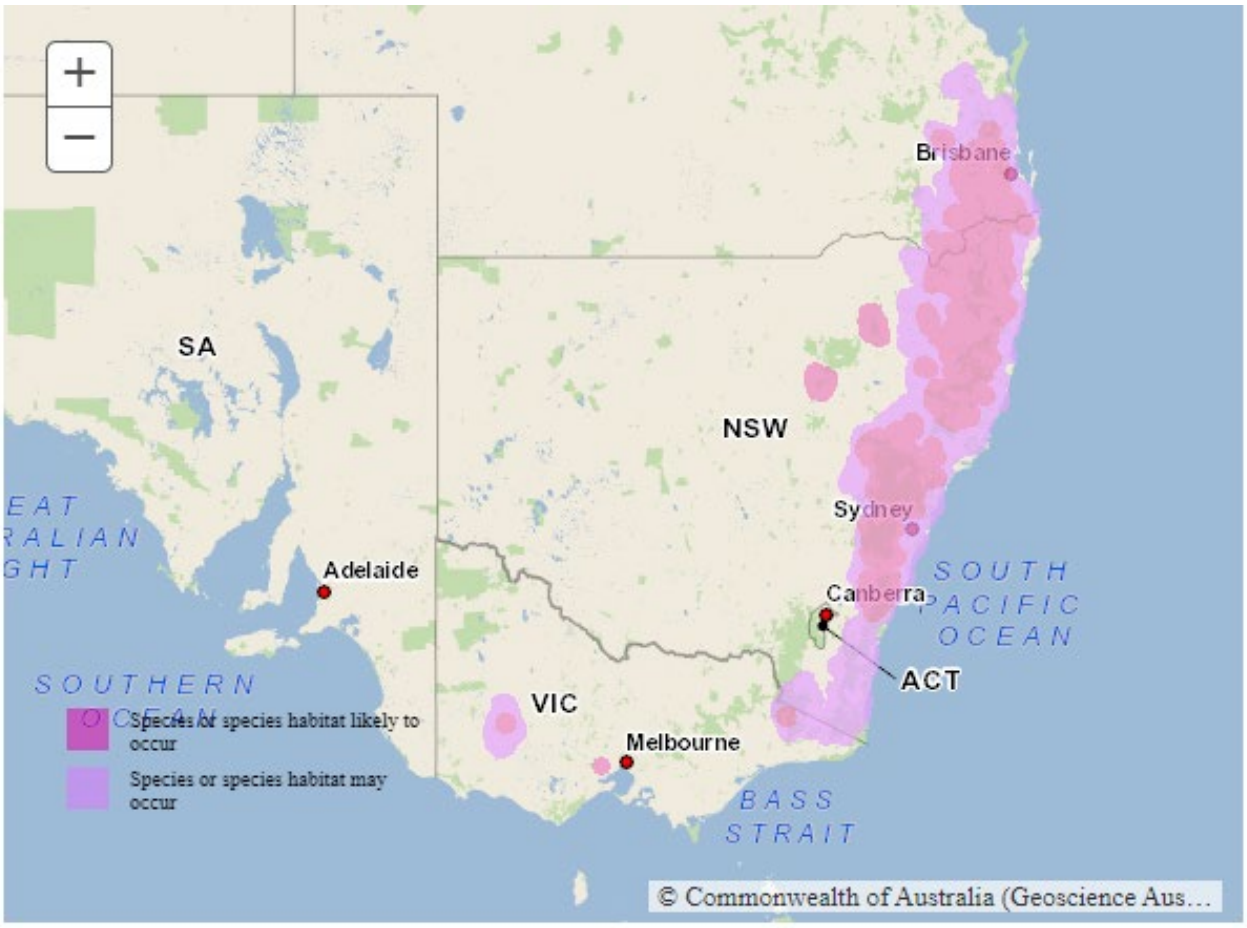

Figure C.31 Current distribution map for Brush-tailed Rock-wallaby taken from the SPRAT

DETAILS OF THE SCOPE, TIMING AND METHODOLOGY FOR STUDIES OR SURVEYS USED AND HOW THEY ARE CONSISTENT WITH (OR JUSTIFICATION FOR DIVERGENCE FROM) PUBLISHED AUSTRALIAN GOVERNMENT GUIDELINES AND POLICY STATEMENTS

Remote motion sensing infra-red cameras were used as a survey method, in place of terrestrial and arboreal traps, due to increased potential for fauna to be attracted to baited traps with a high likelihood of the specimen being photographed, as compared to the lesser successful and more dangerous traditional trapping methods. Remote camera traps were set in trees and large shrubs (at minimum heights of 1.5–2 m) with a suitable baited food source used to entice target species, a mix of rolled oats, peanut butter, honey and vanilla essence within the appropriate microhabitat. Remote camera surveys were undertaken at seven sites with a total of 1,390 trap nights across the subject land. Baited cameras at lower heights were also used to target terrestrial species occurring within specific target sites (Brush-tailed Rock Wallaby).

Spotlighting was used to target threatened nocturnal arboreal, flying and ground-dwelling mammals, birds, reptiles and amphibians. Spotlighting was completed after dusk generally following the targeted nocturnal searches and was undertaken for at least 1 hour at each survey spot. Surveys were completed on foot using high-powered headlamps and hand torches. Sighted animals were identified to the species level.

Survey details are provided in Section 2 of the BDAR.

DESCRIPTION OF THE SPECIFIC IMPACTS AND ITS REGARD TO THE FULL NATIONAL EXTENT OF THE SPECIES OR COMMUNITY'S RANGE

The predicted impact to Brush-tailed Rock-wallaby is estimated at approximately 19.9 ha of assumed foraging or movement habitat. No potential refuge sites would be directly impacted. This is a conservative assessment considering that this species is likely to be extinct in the region.

Figure C.31 provides the current known generalised distribution from the conservation advice and the SPRAT database which are indicative distribution maps of the present distribution of the species based on best available knowledge. The project occurs approximately in the centre of the species range.

DESCRIPTION OF THE SPECIFIC PROPOSED AVOIDANCE AND MITIGATION MEASURES TO DEAL WITH RELEVANT IMPACTS OF THE ACTION

The proposed avoidance and mitigation measures are outlined in Section 7 of the BDAR. Mitigation measures are provided in Section 8.4 of the BDAR.

IDENTIFICATION OF SIGNIFICANT RESIDUAL ADVERSE IMPACTS LIKELY TO OCCUR AFTER THE PROPOSED ACTIVITIES TO AVOID AND MITIGATE ALL IMPACTS ARE TAKEN INTO ACCOUNT

The predicted impact to Brush-tailed Rock-wallaby is estimated at approximately 19.9 ha of assumed foraging or movement habitat. No potential refuge sites would be directly impacted. This is a conservative assessment considering that this species is likely to be extinct in the region.

A DESCRIPTION OF ANY OFFSETS PROPOSED TO ADDRESS RESIDUAL ADVERSE SIGNIFICANT IMPACTS AND HOW THESE OFFSETS WILL BE ESTABLISHED

Foraging habitat impacts have been captured as part of ecosystem credits (see Refer to Section 10 and 11 of the BDAR).

DETAILS OF HOW THE CURRENT PUBLISHED NSW BIODIVERSITY ASSESSMENT METHOD (BAM) HAS BEEN APPLIED IN ACCORDANCE WITH THE OBJECTS OF THE EPBC ACT TO OFFSET SIGNIFICANT RESIDUAL ADVERSE IMPACTS

The BDAR specifically addresses Section 10 of the BAM and provides information on the application of the no net loss standard and the proposed biodiversity offset obligations.

DETAILS OF THE OFFSET PACKAGE TO COMPENSATE FOR SIGNIFICANT RESIDUAL IMPACTS INCLUDING DETAILS OF THE CREDIT PROFILES REQUIRED TO OFFSET THE ACTION IN ACCORDANCE WITH THE BAM AND/OR MAPPING AND DESCRIPTIONS OF THE EXTENT AND CONDITION OF THE RELEVANT HABITAT AND/OR THREATENED COMMUNITIES OCCURRING ON PROPOSED OFFSET SITES

Section 11 of the BDAR outlines the biodiversity credit requirements for the project. The offset obligations will be met through implementing a combination of the following offset delivery options, being:

- the purchase and retirement of existing biodiversity credits currently available on the biodiversity credit register
- establishing a biodiversity stewardship site(s) on lands with like for like biodiversity values to those impacted by the project
- through making a payment into the Biodiversity Conservation Fund.

Koala

Koala is listed as Endangered under the EPBC Act as *Phascolarctos cinereus* (combined populations of Qld, NSW and the ACT).

Description

The range of the Koala differs slightly between the biological species range and listed species range. The biological species range extends from north-eastern Queensland to the south-east corner of SA. Several sub-populations of the biological species occur outside this range in south-eastern SA (i.e., Kangaroo Island) and some parts of Victoria, due to translocations. The listed species range extends from north-eastern Queensland to the Victorian border.

Distribution of the Koala is influenced by altitude (generally limited to <800 m above sea level) tied to temperature. Distribution is also influenced by leaf moisture at the western and northern ends of the range. Koala population density is typically greater towards the coast than inland in these areas (Department of Agriculture Water and the Environment, 2021e).

In NSW, Koala populations are found on the central and north coasts, southern highlands, southern and northern tablelands, Blue Mountains, southern coastal forests and some smaller populations on the plains west of the Great Dividing Range (Department of Planning Industry and Environment, 2021c).

Koalas naturally inhabit a range of temperate, sub-tropical and tropical forest, woodland and semi-arid communities dominated by Eucalyptus species. They are a leaf-eating specialist that feed primarily during dawn, dusk or night. Koalas feed primarily on the foliage of *Eucalyptus* species; though may sometimes consume *Corymbia* species., *Angophora* species. and *Lophostemon* species. and occasionally *Leptospermum* species. and *Melaleuca* species. Individual Koalas typically get their nutrition from just one or a few species present at a site (Department of Agriculture Water and the Environment, 2021e).

Koalas typically give birth between October and May and can potentially produce one offspring each year. Young remain in the pouch for 6-8 months and remain with their mothers until they become independent at approximately 12 months of age (Department of Agriculture Water and the Environment, 2021e).

Relevant Commonwealth guidelines and policy statements including listing advice, conservation advice and recovery plan

A summary of the relevant Commonwealth guidelines and policy statements available for this species is as follows:

- The *Conservation Advice for* Phascolarctos cinereus *(combined populations in Queensland, New South Wales and the Australian Capital Territory* (Department of Agriculture Water and the Environment, 2022)
- There is no relevant Listing advice for this species. Listing assessment information may be available in the approved Conservation Advice
- *National Recovery Plan for the Koala* Phascolarctos cinereus *(combined populations of Queensland, New South Wales and the Australian Capital Territory)*. (Department of Agriculture, 2022)
- No threat abatement plan has been identified as being relevant for this species.

Policy statements and guidelines relevant to this species include:

- Identifying habitat for the endangered Koala.
- Referral guidance for the endangered Koala.

Specific impacts

This species was not recorded in the Project study area despite targeted surveys. However, there a number of records within the locality (ten kilometres of the study area) including ALA (50 records, most are relatively recent. The majority of occurrences occur in the southern area of the study area. Kerrabee has the most (28) of the reported occurrences, followed by Wollemi and the Upper slopes. Talbragar Valley only has one occurrence, which was recorded in 2004) (Atlas of Living Australia, 2023), and Bionet (1 record within the locality below Ulan Wollar Rd) (Department of Planning and Environment, 2023a).

Vegetation clearing will reduce the availability of potential habitat for local Koala populations if present. Potential direct impacts, although highly unlikely, could include injury or mortality during clearing works.

Although this species was not recorded in the subject land, some areas of the subject land were unable to be accessed for survey during preliminary assessments. In the absence of targeted survey in these areas, associated PCTs have been presumed to be habitat for the species. In total the project is estimated to impact on 608.8 ha of presumed habitat for this species (total removal) in the form of the following PCTs: 42, 277, 281, 440, 461, 477, 478, 479, 481, 483, 599, 618, 1176, 1610, 1661, 1674, 1696.

Significant impact criteria

An action is likely to have a significant impact on an Endangered species if there is a real chance or possibility that it will:

LEAD TO A LONG-TERM DECREASE IN THE SIZE OF A POPULATION

The project is unlikely to have the potential to cause injury or mortality to individuals during clearing works and it is considered unlikely that the project would lead to a long-term decrease in the size of a population. The project would not impact the carrying capacity of the habitats to the point that the surrounding habitat was no longer viable for Koala.

A Koala population may be present in the subject land, but it is low density and the habitats in the subject land are used infrequently. The presence of habitat for Koala is largely assessed here based on habitat surrogates given the presence of Koala use trees in the subject land. Koala use trees are distributed across an extensive area of the Inland Slopes, Pilliga, Liverpool Range, Kerrabee, and Talbragar Valley IBRA subregions. Using the same assumptions made on the presence of Koala habitat within the subject land, suitable Koala habitat within these IBRA subregions is extensive. The subject land is not in a recognised Area of Regional Koala Significance (ARKS) as outlined by the work done under the Saving our Species Iconic Koala Project. The subject land does not contain a resident source population of Koala and would provide habitat for a low-density population. Consequently, despite the potential removal of approximately 608.8 ha of potential Koala habitat from the project, there is no real chance or possibility that the project will result in a long-term decrease in the size of a population.

REDUCE THE AREA OF OCCUPANCY OF THE SPECIES

The area of occupancy for Koala is estimated at 19,400 km^2. These figures are based on the mapping of point records from 2000 from state governments, museums and CSIRO. There is no real chance or possibility that the project will reduce the area of occupancy for Koala. The area of occupancy for this species is extensive.

FRAGMENT AN EXISTING POPULATION INTO TWO OR MORE POPULATIONS

Koalas do utilise agricultural land and will cross fences and cleared paddocks (see Kavanagh & Stanton, 2012) and use of scattered trees in paddocks is also documented (see Barth et al., 2019). The current level of landscape permeability for Koala will not be impacted. The powerline corridor will be highly permeable and will not provide a barrier to Koala movement. There is no real chance or possibility that the project will fragment an existing population into two or more populations.

ADVERSELY EFFECT HABITAT CRITICAL TO THE SURVIVAL OF A SPECIES

The *Conservation Advice for* Phascolarctos cinereus *(Koala) combined populations of Queensland, New South Wales and the Australian Capital Territory* (Department of Agriculture Water and the Environment, 2022) outlines a number of important criteria to consider in terms of 'habitat critical for survival' of Koala including:

- whether the habitat is used during periods of stress (examples: flood, drought or fire)
- whether the habitat is used to meet essential life cycle requirements (examples: foraging, breeding, nesting, roosting, social behaviour patterns or seed dispersal processes)
- the extent to which the habitat is used by important populations
- whether the habitat is necessary to maintain genetic diversity and long-term evolutionary development
- whether the habitat is necessary for use as corridors to allow the species to move freely between sites used to meet essential life cycle requirements
- whether the habitat is necessary to ensure the long-term future of the species or ecological community through reintroduction or re-colonisation
- any other way in which habitat may be critical to the survival of a listed threatened species or a listed threatened ecological community.

The advice also outlines crucial habitat elements include patches and corridors for gene flow. Over longer-time frames habitat critical includes climate refugia such as drainage lines, riparian zones and patches that are resilient to drying conditions due to favourable hydrological systems. Additionally, it includes areas that may be temporarily unoccupied, because of seral (maturity or time) changes to habitat quality that arise through processes such as fire, drought, timber harvesting or disease (shifting habitat mosaic) or degradation and are available for future recolonisation.

The species has not been recorded in the subject land to date and is very sporadically throughout habitat in the broader region. While a large proportion of potential habitat will be removed by the project, this habitat currently occurs within an already modified and fragmented landscape and high-quality tracts of remnant vegetation are limited. Further, this habitat is at the western edge of the species distribution and is likely to become less suitable under changing climate conditions. As such, the habitat within the subject land is unlikely to be significant in terms of species dispersal, genetic diversity, reintroduction, recovery or long-term maintenance. Preferred feed tree species occur widely within the region. The subject land may be used on an intermittent basis during local movements but is unlikely to be significant in terms of species dispersal, genetic diversity, reintroduction, recovery or long-term maintenance.

The subject land is not in a recognised ARKS as outlined by the work done under the Saving our Species Iconic Koala Project. The Koala Prioritisation Project NSW was designed to provide support and strategic direction to future priorities in conservation actions for the Koala and was one of several projects designed to support data driven (evidence based) decision making for Koala conservation in NSW. The ARKS identified in the Koala Prioritisation Project NSW would be the areas considered as habitat critical to the survival of Koala in NSW. As such, there is no real chance or possibility that the project will adversely affect habitat critical to the survival of the species.

DISRUPT THE BREEDING CYCLE OF A POPULATION

The presence of habitat for Koala is largely assessed here based on habitat surrogates given the presence of Koala use trees in the subject land. The subject land is not in a recognised ARKS as outlined by the work done under the Saving our Species Iconic Koala Project. The subject land does not contain a resident source population of Koala and would provide habitat for a low-density population. There is no known breeding population of Koala in the subject land. As such, there is no real chance or possibility that the project will disrupt the breeding cycle of a population.

MODIFY DESTROY, REMOVE, ISOLATE OR DECREASE THE AVAILABILITY OR QUALITY OF HABITAT TO THE EXTENT THAT THE SPECIES IS LIKELY TO DECLINE

The presence of habitat for Koala is largely assessed here based on habitat surrogates given the presence of Koala use trees in the subject land. Koala use trees are distributed across an extensive area of the Inland Slopes, Pilliga, Liverpool Range, Kerrabee, and Talbragar Valley IBRA subregions. Using the same assumptions made on the presence of Koala habitat within the subject land, suitable Koala habitat within these IBRA subregions is extensive. The subject land is not in a recognised ARKS as outlined by the work done under the Saving our Species Iconic Koala Project. The subject land does not contain a resident source population of Koala and would provide habitat for a low-density population. Consequently, despite the potential removal of approximately 608.8 ha of potential Koala habitat from the project, there is no real chance or possibility that the project will modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline.

RESULT IN INVASIVE SPECIES THAT ARE HARMFUL TO A CRITICALLY ENDANGERED OR ENDANGERED SPECIES BECOMING ESTABLISHED IN THE ENDANGERED OR CRITICALLY ENDANGERED SPECIES' HABITAT

The project is unlikely to result in an invasive species harmful to the Koala becoming established in the habitat. The potential for weed invasion was considered possible with a project of this nature and appropriate controls are required during construction and operation to reduce this threat. Invasive species would be managed under the construction environmental management plan using best practice methods. Consequently, there is no real chance or possibility that the project will result in invasive species that are harmful to Koala becoming established in the habitat.

INTRODUCE DISEASE THAT MAY CAUSE THE SPECIES TO DECLINE, OR

Chlamydia bacteria in Koalas and Koala Retrovirus are primarily transmitted between Koala individuals (Department of Environment & Climate Change, 2008). There are no known disease issues affecting this species in relation to the project. The project would be unlikely to increase the potential for significant disease vectors to affect the species. It is the intention to use current best practice hygiene protocols as part of the construction environmental management plan to prevent the introduction or spread of pathogens. Consequently, there is no real chance or possibility that the project will introduce disease that may cause the species to decline.

INTERFERE WITH THE RECOVERY OF THE SPECIES

The *National Recovery Plan for the Koala* Phascolarctos cinereus *(combined populations of Queensland, New South Wales and the Australian Capital Territory)* (Department of Agriculture, 2022) outlines a number of key objectives for the recovery effort of the species including:

- The area of occupancy and estimated size of populations that are declining, suspected to be declining, or predicted to decline are instead stabilised then increased.
- The area of occupancy and estimated size of populations that are suspected and predicted to be stable are maintained or increased.
- Metapopulation processes are maintained or improved.
- Partners, communities and individuals have a greater role and capability in listed Koala monitoring, conservation and management.

The objectives of this recovery plan are underpinned by four supporting strategies and two on-ground (direct) strategies, or action areas, as a way of organising and implementing coordinated action:

- Build and share knowledge (Strategy 1)
- Engage and partner with the community in listed Koala conservation (Strategy 2)
- Increase the area of protected habitat for the listed Koala (Strategy 3)
- Integrate listed Koala conservation into policy, statutory and land use plans (Strategy 4)
- Strategically restore listed Koala habitat (Strategy 5)
- Actively manage listed Koala metapopulations (Strategy 6).

The project will not interfere with these objectives or supporting strategies.

CONCLUSION

A number of Koala use trees are present across the subject land. A number of records occur within the locality with the most recent being recorded in 2021. However, this species was not recorded in the Project study area despite targeted SAT surveys in remnant patches of vegetation. A Koala population may be present, but it is low density and the habitats in the subject land are used infrequently.

It is unlikely that the habitat to be removed represents habitat critical to the survival of the species and the project is unlikely to result in significant increases to habitat isolation and or fragmentation. The presence of habitat for Koala is largely assessed here based on habitat surrogates given the presence of Koala use trees in the subject land. Koala use trees are distributed across an extensive area of the Inland Slopes, Pilliga, Liverpool Range, Kerrabee, and Talbragar Valley IBRA subregions. Using the same assumptions made on the presence of Koala habitat within the subject land, suitable Koala habitat within these IBRA subregions is extensive. The subject land is not in a recognised ARKS as outlined by the work done under the Saving our Species Iconic Koala Project. The subject land does not contain a resident source population of Koala and would provide habitat for a low-density population. Consequently, despite the potential removal of approximately 608.8 ha of potential Koala habitat from the project, there is no real chance or possibility that the project will result in a significant impact on Koala.

NSW Assessment Bilateral requirements

DESCRIPTION OF THE HABITAT (INCLUDING IDENTIFICATION AND MAPPING OF SUITABLE BREEDING HABITAT, SUITABLE FORAGING HABITAT, IMPORTANT POPULATIONS AND HABITAT CRITICAL FOR SURVIVAL), WITH CONSIDERATION OF, AND REFERENCE TO, ANY RELEVANT COMMONWEALTH GUIDELINES AND POLICY STATEMENTS INCLUDING LISTING ADVICE, CONSERVATION ADVICE AND RECOVERY PLAN

Descriptions of habitat for this species, important populations, habitat critical for survival and relevant Commonwealth documents are provided in the sections above and the BDAR, with a map showing the modelled distribution of the species provided in Figure C.32.

The *Approved Conservation Advice for* Phascolarctos cinereus *(combined populations of Queensland, New South Wales and the Australian Capital Territory) (koala Northern Designatable Unit)* (Commonwealth of Australia, 2012) provides a broad habitat description for the species (inclusive of the combined populations of Queensland, NSW and ACT) indicating that the species is found in a wide range of temperate, sub-tropical and tropical forest, woodland and semi-arid communities dominated by species from the genus *Eucalyptus* and that distribution of koalas is affected by altitude (limited to <800m ASL), temperature and, at the western and northern ends of the range, leaf moisture. The *Commonwealth Listing Advice for* Phascolarctos cinereus *(Koala)* (NSW Scientific Commitee, 2019) supports this description. There is no adopted or made Recovery Plan for this species.

This species was not recorded within the study area despite targeted surveys. There is potential foraging habitat for Koalas in the form of PCTs – 42, 81, 202, 266, 277, 281, 440, 461, 468, 477, 478, 479, 481, 483, 599, 618, 1177, 1610, 1661, 1674, 1696. Scattered records exist for this species within the locality, primarily in south of the study area. Koala has been excluded from areas where adequate survey was undertaken. Assumed habitat is mapped within associated PCT's with the exclusion of Derived Native Grassland. This has been excluded based on the Koala (*Phascolarctos cinereus*): Biodiversity Assessment Method Survey Guide for information on targeted survey requirements and mapping species polygons. The DNG present onsite lacks trees of a suitable age to be considered foraging habitat. Therefore, it has been excluded from selected DNG vegetation zones where the VI score is <17 (a VI score <17 indicates a very poor condition habitat) due to habitat degradation.

The presence of habitat for Koala is largely assessed here based on habitat surrogates given the presence of Koala use trees in the subject land. Koala use trees are distributed across an extensive area of the Inland Slopes, Pilliga, Liverpool Range, Kerrabee, and Talbragar Valley IBRA subregions.

Using the same assumptions made on the presence of Koala habitat within the subject land, suitable Koala habitat within these IBRA subregions is extensive. The subject land is not in a recognised ARKS as outlined by the work done under the Saving our Species Iconic Koala Project. The subject land does not contain a resident source population of Koala and would provide habitat for a low-density population.

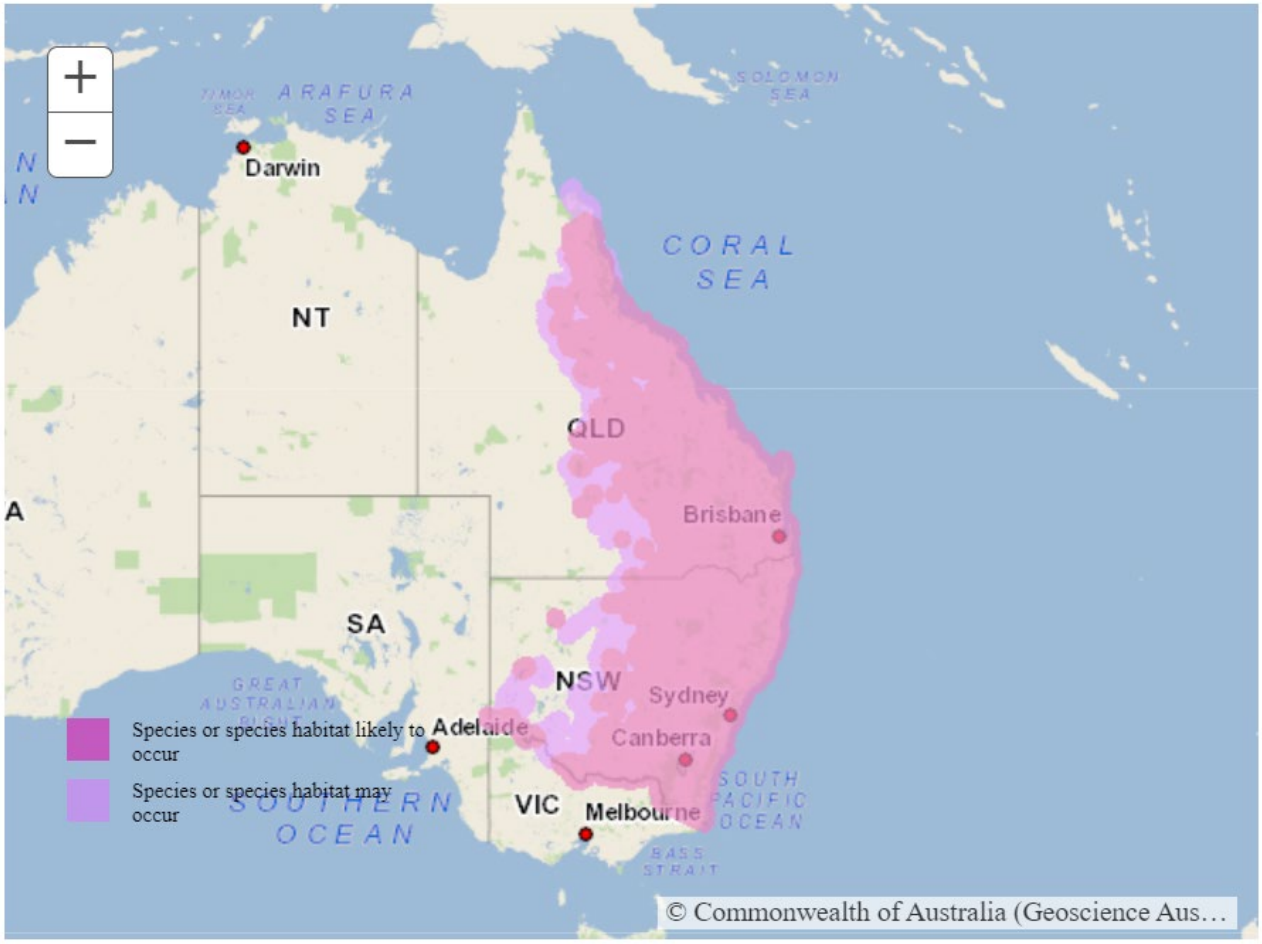

Figure C.32 Current distribution map for Koala taken from the SPRAT

DETAILS OF THE SCOPE, TIMING AND METHODOLOGY FOR STUDIES OR SURVEYS USED AND HOW THEY ARE CONSISTENT WITH (OR JUSTIFICATION FOR DIVERGENCE FROM) PUBLISHED AUSTRALIAN GOVERNMENT GUIDELINES AND POLICY STATEMENTS

Habitat assessments were undertaken to assess the likelihood of threatened species of animal (those species known or predicted to occur within the locality from the literature and database review) occurring within the Project study area. Fauna habitat assessments were the primary assessment tool in assessing whether threatened species were likely to occur within the Project study area. Additional techniques used for surveying mammals included call spotlighting, Koala SAT surveys, call playbacks and remote cameras.

Spot Assessment Technique (SAT) was undertaken within the study area/subject land to identify the presence of Koala usage within native vegetation in accordance with the NSW Koala (Phascolarctos cinereus) Biodiversity Assessment Method Survey Guide, 2022. As well as identifying presence, the SAT also has the potential to identify local Koala tree species preferences, by measuring the rate at which each species is utilised by Koalas.

To initiate the SAT a centre tree, of any species, was located and marked. Moving outward from the centre tree, a minimum of 29 surrounding trees were systematically searched for Koala faecal pellets. A radial search area of 1 metre around the base of each tree was inspected for a minimum of 2 minutes/tree. Initial inspection of undisturbed ground cover was followed by disturbance of the ground cover as required.

The location of SAT sites is shown in Figure 14-5 of the BDAR with survey periods outlined in Table 2-6.

Nocturnal call playback was undertaken, within appropriate habitat, to survey for nocturnal birds (e.g. Barking Owl, Bush Stone-Curlew, Masked Owl, and Powerful Owl), and arboreal mammals (e.g. Koala and Squirrel Glider). For each survey, an initial listening period of 10 to 15 minutes was undertaken. The calls of the target species were then played intermittently for 5 minutes followed by another 10 minute listening period. Upon completion of the second listening period, 10 minutes of spotlighting surveys in the vicinity were undertaken to determine if any specimens were attracted by the calls, without vocalising in return. Calls were broadcast using a portable media player and megaphone.

Koala targeted surveys were conducted over 30 days in September 2021, August and December 2022, and January and February 2023.

DESCRIPTION OF THE SPECIFIC IMPACTS AND ITS REGARD TO THE FULL NATIONAL EXTENT OF THE SPECIES OR COMMUNITY'S RANGE

The current estimated extent of occurrence for the species is 1,665,850 km^2 (based on the mapping of point records from a 20-year period (2000–2020) obtained from state governments, museums and CSIRO) (Department of Agriculture Water and the Environment, 2022). Figure C.32 shows the current known generalised distribution from the Commonwealth Species Profile and Threats Database which is an indicative distribution map of the present distribution of the species based on best available knowledge. The subject land is inside the known limit of the species distribution.

The subject land is not in a recognised ARKS as outlined by the work done under the Saving our Species Iconic Koala Project. The subject land does not contain a resident source population of Koala and would provide habitat for a low-density population. While the project will impact potential habitat for Koala, it would not result in a contraction of the national extent of the species or impact its range.

DESCRIPTION OF THE SPECIFIC PROPOSED AVOIDANCE AND MITIGATION MEASURES TO DEAL WITH RELEVANT IMPACTS OF THE ACTION

The proposed avoidance and mitigation measures are outlined in Section 7 and Section 8.4 of the BDAR. No specific measures for the Koala are identified. Given that Koala is considered likely to occur in most PCTs within the subject land given the presence of suitable tree species, most avoidance and mitigation measures will be applicable to this species.

IDENTIFICATION OF SIGNIFICANT RESIDUAL ADVERSE IMPACTS LIKELY TO OCCUR AFTER THE PROPOSED ACTIVITIES TO AVOID AND MITIGATE ALL IMPACTS ARE TAKEN INTO ACCOUNT

The residual impacts to Koala as a result of the Project include removal of up to 608.8 ha of assumed habitat for the species. This habitat is however unlikely to be used regularly by the species given the paucity of records from the area and lack of recent observations.

A DESCRIPTION OF ANY OFFSETS PROPOSED TO ADDRESS RESIDUAL ADVERSE SIGNIFICANT IMPACTS AND HOW THESE OFFSETS WILL BE ESTABLISHED

Details of offset requirements and obligations for this community as a result of residual impacts due the project is addressed in Section 10 of the BDAR.

DETAILS OF HOW THE CURRENT PUBLISHED NSW BIODIVERSITY ASSESSMENT METHOD (BAM) HAS BEEN APPLIED IN ACCORDANCE WITH THE OBJECTS OF THE EPBC ACT TO OFFSET SIGNIFICANT RESIDUAL ADVERSE IMPACTS

The BDAR specifically addresses Section 10 of the BAM and provides information on the application of the no net loss standard and the project biodiversity offset obligations.

DETAILS OF THE OFFSET PACKAGE TO COMPENSATE FOR SIGNIFICANT RESIDUAL IMPACTS INCLUDING DETAILS OF THE CREDIT PROFILES REQUIRED TO OFFSET THE ACTION IN ACCORDANCE WITH THE BAM AND/OR MAPPING AND DESCRIPTIONS OF THE EXTENT AND CONDITION OF THE RELEVANT HABITAT AND/OR THREATENED COMMUNITIES OCCURRING ON PROPOSED OFFSET SITES

Section 11 of the BDAR outlines the biodiversity offset strategy for the project. The offset obligations will be met through implementing a combination of the following offset delivery options, being:

- the purchase and retirement of existing biodiversity credits currently available on the biodiversity credit register
- establishing a biodiversity stewardship site(s) on lands with like for like biodiversity values to those impacted by the project
- through making a payment into the Biodiversity Conservation Fund.

Spotted-tailed Quoll (SE Mainland Population)

The Spotted-tailed Quoll (southeastern mainland population) is listed as Endangered under the EPBC Act.

Description

The Spotted-tailed Quoll (southeastern mainland population) is a nocturnal carnivorous marsupial that occurs from southern Queensland to south-western Victoria. This species typically feeds on a wide variety of prey including small mammals (<5 kg), birds, reptiles, fish, amphibian and invertebrates (Threatened Species Conservation Advice, 2020). They occur as solitary animals in low density with home ranges of up to a few thousand hectares for males and several hundred hectares for females (Threatened Species Conservation Advice, 2020). Spotted-tailed Quoll's inhabitant a wide range of vegetation types including closed forests, tall eucalypt forest, open woodlands, open forests, drier rainshadow woodlands and coastal heathlands (Threatened Species Conservation Advice, 2020).

Since European settlement, habitat reduction and fragmentation for the Spotted-tailed Quoll has led to an estimated 50-90% reduction in population for mainland Australia and 25-50% reduction for populations in NSW (Threatened Species Conservation Advice, 2020).

Relevant Commonwealth guidelines and policy statements including listing advice, conservation advice and recovery plan

A summary of the relevant Commonwealth guidelines and policy statements available for this species is as follows:

- The *Conservation Advice Dasyurus maculatus maculatus (southeastern mainland population*) (Threatened Species Conservation Advice, 2020) was reviewed as part of this assessment. The Conservation Advice does not contain listing advice for this species.
- *National Recovery Plan for the Spotted-tailed Quoll Dasyurus maculatus* (L. Department of Environment, Water and Planning;, 2016)

Relevant adopted/made threat abatement plans include:

- Threat abatement plan for predation by feral cats (Department of the Environment, 2015b).
- Threat abatement plan for predation by the European red fox (Department of the Environment Water Heritage and the Arts, 2008e).

Relevant survey guidelines for this species include:

- *Survey guidelines for Australia's threatened mammals: Guidelines for detecting mammals listed under the Environment Protection and Biodiversity Conservation Act 1999* (Department of Sustainability Environment Water Population and Communities, 2011b).

Specific impacts

The Spotted-tail Quoll has potential habitat in the form of all PCTs within the study area. The majority of the habitats associated with the study areas occur as disturbed, fragmented patches within an otherwise agricultural (cropping) landscape. There are seven records of Spotted-tail quolls within ten kilometres of the subject land, of which the majority occur within the Kerrabee IBRA subregion. As an ecosystem credit species, the Spotted-tail Quoll is assumed present in all vegetation zones in all PCTs. As a wide-ranging species, it may move through all habitats on occasion.

The Spotted-tail Quoll was not recorded during targeted surveys and has been captured as a predicted ecosystem credit based on habitat surrogates.

Significant impact criteria

An action is likely to have a significant impact on a vulnerable species if there is a real chance or possibility that it will:

LEAD TO A LONG-TERM DECREASE IN THE SIZE OF A POPULATION

The project is unlikely to have the potential to cause injury or mortality to individuals during clearing works, and it is considered unlikely that the project would lead to a long-term decrease in the size of a population. The project would not impact the carrying capacity of the habitats to the point that prey density would be detrimentally impacted, and the habitat was no longer viable for Spotted-tailed Quoll. The subject land contains marginal breeding habitat, and the population is more likely to reside in the adjacent habitats in the National Parks, SCAs, Nature Reserves, and State Forests than the subject land in most cases. There is no real chance or possibility that the project would lead to a long-term decrease in the size of a population.

REDUCE THE AREA OF OCCUPANCY OF THE SPECIES

For Spotted-tailed Quoll, the area of occupancy is estimated at 2,512 km^2 (Threatened Species Scientific Committee, 2020). The project is unlikely to significantly reduce the area of occupancy for this species considering the available habitat in the surrounding landscape. There is no real chance or possibility that the impacts from the project would reduce the area of occupancy for Spotted-tailed Quoll.

FRAGMENT AN EXISTING POPULATION INTO TWO OR MORE POPULATIONS

The maximum cleared area for a single tower footprint or laydown area would not exceed 0.5 ha, and the easement width of the transmission line would be a maximum of approximately 80 meters (with full clearing not always being required). The project study area is within an already fragmented and disturbed landscape, thereby limiting the potential for any substantial additional fragmentation to occur. Given this species ability to disperse over and around these cleared areas, and their large home ranges, it is considered unlikely that the project would fragment an existing population into two or more populations. The transmission easement will be permeable for this species.

The level of fragmentation caused by the project has no real chance or possibility of fragmenting the Spotted-tailed Quoll population into two of more populations.

ADVERSELY AFFECT HABITAT CRITICAL TO THE SURVIVAL OF A SPECIES

Habitat that is critical to the survival of the Spotted-tailed Quoll includes large patches of forest with adequate denning resources and relatively high densities of medium-sized mammalian. However, the threshold densities of these critical components required to support quoll populations are unknown. Consequently, it is currently not possible to define (or map) habitat critical to the survival of the Spotted-tailed Quoll. Given the threatened status of the Spotted-tailed Quoll, all habitats within its current distribution that are known to be occupied are considered important.

It is unknown whether the habitat in the subject land is occupied by the Spotted-tailed Quoll. The Spotted-tailed Quoll was not recorded during targeted surveys and has been captured as a predicted ecosystem credit based on habitat surrogates. Applying this principle to PCTs outside of the subject land the availability of habitat for Spotted-tailed Quoll is extensive.

The quality of habitats present outside of the subject land are also better in most cases (i.e., habitat in the National Parks, SCAs, Nature Reserves, and State Forests) than the degraded habitats in the agricultural lands within the subject land. The habitat within the subject land is not likely to be critical to the survival of this species when compared to the better-quality surrounding habitats. Most of the habitats within the subject land are marginal for this species.

Consequently, there is no real chance or possibility that the project will adversely affect habitat critical to the survival of this species.

DISRUPT THE BREEDING CYCLE OF A POPULATION

Although all PCTs within the study area are considered potential habitat for the Spotted-tailed Quoll, the majority of the habitats associated with the study area are disturbed, fragmented patches within an otherwise agricultural (cropping and grazing) landscape. Suitable breeding habitats within the subject land are limited. The quality of habitats present outside of the subject land are better in most cases (i.e., habitat in the National Parks, SCAs, Nature Reserves, and State Forests) than the degraded habitats in the agricultural lands within the subject land. The subject land is most likely to form part of a foraging range for this species rather than breeding habitats. As such, the potential impact is considered unlikely to disrupt the breeding cycle of the species.

Breeding habitat is unlikely to be impacted so there is no real chance or possibility that the project would disrupt the breeding cycle of a population.

MODIFY, DESTROY, REMOVE OR ISOLATE OR DECREASE THE AVAILABILITY OR QUALITY OF HABITAT TO THE EXTENT THAT THE SPECIES IS LIKELY TO DECLINE

The Spotted-tailed Quoll was not recorded during targeted surveys and has been captured as a predicted ecosystem credit based on habitat surrogates. Applying this principle to PCTs outside of the subject land the availability of habitat for Spotted-tailed Quoll is extensive. The quality of habitats present outside of the subject land are also better in most cases (i.e., habitat in the National Parks, SCAs, Nature Reserves, and State Forests) than the degraded habitats in the agricultural lands within the subject land.

As such, the project is considered unlikely to modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline.

RESULT IN INVASIVE SPECIES THAT ARE HARMFUL TO A CRITICALLY ENDANGERED OR ENDANGERED SPECIES BECOMING ESTABLISHED IN THE ENDANGERED OR CRITICALLY ENDANGERED SPECIES' HABITAT

Many potential habitat patches in the project study area are dominated by exotic ground species. Weed and pest faunal species are both currently present throughout the landscape and it is considered unlikely that the project would substantially change the composition of the species' habitat within the landscape or increase the spread and establishment of invasive species (i.e., predators) that could threaten the survival of the species. There is potential for the project to introduce additional weeds and pathogens within the project area and surrounding locality. Mitigation measures outlined in Section 8 of the BDAR would be implemented for the project to address potential invasive species introduction. As such the project is considered unlikely to result in invasive species that are harmful to a critically endangered or endangered species becoming established in the endangered or critically endangered species' habitat.

INTRODUCE DISEASE THAT MAY CAUSE THE SPECIES TO DECLINE

There are no known diseases causing potential species decline to the Spotted-tailed Quoll.

INTERFERE SUBSTANTIALLY WITH THE RECOVERY OF THE SPECIES

The overall objective of the *National Recovery Plan for the Spotted-tailed Quoll* (L. Department of Environment, Water and Planning;, 2016) is to reduce the rate of decline of the Spotted-tailed Quoll, and ensure that viable populations remain throughout its current range in eastern Australia. Within the life span of this Recovery Plan, the Specific Objectives listed below have been identified as necessary to guide the recovery of the Spotted-tailed Quoll.

The recovery actions and performance criteria for each of these objectives are outlined in the following section:

- Determine the distribution and status of Spotted-tailed Quoll populations throughout the range and identify key threats and implement threat abatement management practices.
- Investigate key aspects of the biology and ecology of the Spotted-tailed Quoll to acquire targeted information to aid recovery.
- Reduce the rate of habitat loss and fragmentation on private land.
- Evaluate and manage the risk posed by silvicultural practices.
- Determine and manage the threat posed by introduced predators (foxes, cats, wild dogs) and of predator control practices on Spotted-tailed Quoll populations.
- Determine and manage the impact of fire regimes on Spotted-tailed Quoll populations.
- Reduce deliberate killings of Spotted-tailed Quolls.
- Reduce the frequency of Spotted-tailed Quoll road mortality.
- Assess the threat Cane Toads pose to Spotted-tailed Quolls and develop threat abatement actions if necessary.
- Determine the likely impact of climate change on Spotted-tailed Quoll populations.
- Increase community awareness of the Spotted-tailed Quoll and involvement in the Recovery Program.

The project would interfere slightly with the third objective 'Reduce the rate of habitat loss and fragmentation on private land'.

However, as discussed above the Spotted-tailed Quoll has been captured as a predicted ecosystem credit based on habitat surrogates. Applying this principle to PCTs outside of the subject land the availability of habitat for Spotted-tailed Quoll is extensive. The quality of habitats present outside of the subject land are also better in most cases (i.e. habitat in the National Parks, SCAs, Nature Reserves, and State Forests) than the degraded habitats in the agricultural lands within the subject land. Consequently, there is no real chance or possibility that the project will adversely affect habitat critical to the survival of this species and therefore the project will not interfere substantially with the recovery of the species.

CONCLUSION

Spotted-tailed Quoll (southeastern mainland population) is a predicted ecosystem credit species and as such any loss of potential foraging habitat will be offset through ecosystem credit obligation. The Spotted-tailed Quoll was not recorded during targeted surveys and has been captured as a predicted ecosystem credit based on habitat surrogates.

Based on the assessment completed above, there is no real chance or possibility that the project is likely to have a significant impact on Spotted-tailed Quoll (southeastern mainland population) or its habitat.

NSW Assessment Bilateral requirements

DESCRIPTION OF THE HABITAT (INCLUDING IDENTIFICATION AND MAPPING OF SUITABLE BREEDING HABITAT, SUITABLE FORAGING HABITAT, IMPORTANT POPULATIONS AND HABITAT CRITICAL FOR SURVIVAL), WITH CONSIDERATION OF, AND REFERENCE TO, ANY RELEVANT COMMONWEALTH GUIDELINES AND POLICY STATEMENTS INCLUDING LISTING ADVICE, CONSERVATION ADVICE AND RECOVERY PLAN

A description of habitat for this species, important populations, habitat critical for survival and relevant Commonwealth documents are provided above, with a map showing the modelled distribution of the species provided in Figure C.33.

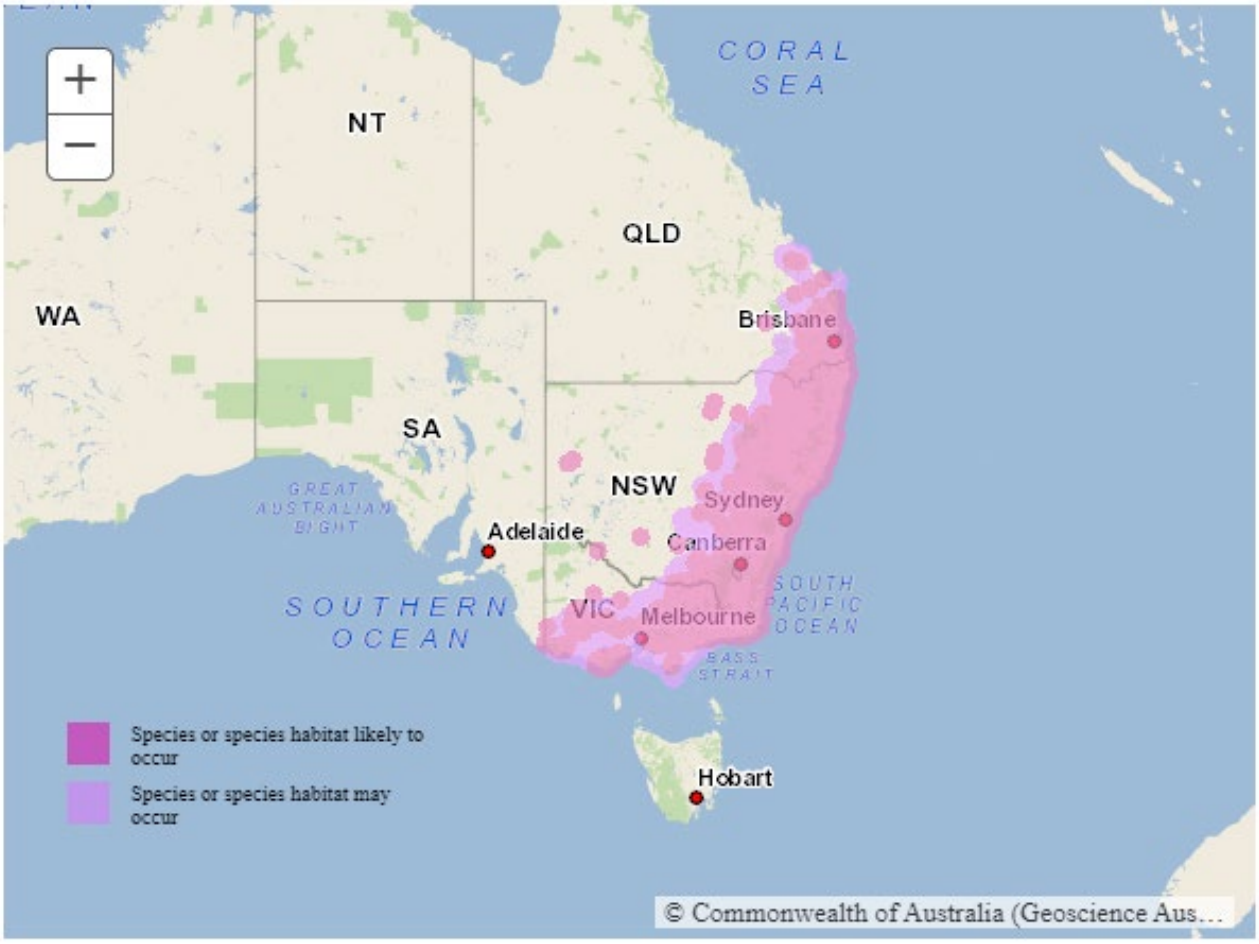

Figure C.33 Current distribution map for Spotted-tailed Quoll (southeastern mainland population) (Department of Climate Change Energy the Environment and Water 2023)

DETAILS OF THE SCOPE, TIMING AND METHODOLOGY FOR STUDIES OR SURVEYS USED AND HOW THEY ARE CONSISTENT WITH (OR JUSTIFICATION FOR DIVERGENCE FROM) PUBLISHED AUSTRALIAN GOVERNMENT GUIDELINES AND POLICY STATEMENTS

Threatened mammal surveys completed within the Project study area were carried out in general accordance with the *NSW Threatened Biodiversity Survey and Assessment: Guidelines for Developments and Activities (Working Draft)* (Department of Environment and Conservation, 2004). Habitat assessments, BAM-C and database searches were undertaken to assess the likelihood of threatened species of animal (those species known or predicted to occur within the locality from the literature and database review) occurring within the subject land. Fauna habitat assessments were the primary assessment tool in assessing whether threatened species were likely to occur within the subject land. The primary technique used for targeted threatened mammal surveys were surveillance cameras and spotlighting.

The Spotted-tail Quoll was not recorded during targeted surveys and has been captured as a predicted ecosystem credit based on habitat surrogates. Targeted surveys for ecosystem species are not required under the BAM.

DESCRIPTION OF THE SPECIFIC IMPACTS AND ITS REGARD TO THE FULL NATIONAL EXTENT OF THE SPECIES OR COMMUNITY'S RANGE

The project will clear vegetation within suitable habitat. As an ecosystem credit species, the Spotted-tailed Quoll is assumed present in all PCTs recorded onsite, and as such contributes to the offset requirements for these PCTs.

Figure C.33 provides the current known generalised distribution from the conservation advice and the SPRAT database which are indicative distribution maps of the present distribution of the species based on best available knowledge. The total extent of occurrence (EOO) for the species is estimated at 596,344 km^2 and the area of occupancy (AOO) at 2,512 km^2.

Refer to Section 11 of the BDAR for the Biodiversity credit report. Foraging habitat impacts have been captured as part of ecosystem credits.

DESCRIPTION OF THE SPECIFIC PROPOSED AVOIDANCE AND MITIGATION MEASURES TO DEAL WITH RELEVANT IMPACTS OF THE ACTION

The proposed avoidance and mitigation measures are outlined in Section 7 & 8 of the BDAR. Detailed avoidance description for impacts relating to biodiversity values (including threatened species) are outlined in Section 7. No specific measures for Spotted-tailed Quoll (southeastern mainland population) are identified. As an ecosystem credit species, it will benefit from mitigation measures targeted at all habitats.

IDENTIFICATION OF SIGNIFICANT RESIDUAL ADVERSE IMPACTS LIKELY TO OCCUR AFTER THE PROPOSED ACTIVITIES TO AVOID AND MITIGATE ALL IMPACTS ARE TAKEN INTO ACCOUNT

The residual impact to Spotted-tailed Quoll (southeastern mainland population) have been captured as part of ecosystem credits is listed in Section 10 of the BDAR for the Biodiversity credit report.

A DESCRIPTION OF ANY OFFSETS PROPOSED TO ADDRESS RESIDUAL ADVERSE SIGNIFICANT IMPACTS AND HOW THESE OFFSETS WILL BE ESTABLISHED

Details of offset requirements and obligations for this species as a result of residual impacts due the project is addressed in Section 11 of the BDAR.

DETAILS OF HOW THE CURRENT PUBLISHED NSW BIODIVERSITY ASSESSMENT METHOD (BAM) HAS BEEN APPLIED IN ACCORDANCE WITH THE OBJECTS OF THE EPBC ACT TO OFFSET SIGNIFICANT RESIDUAL ADVERSE IMPACTS

The BDAR specifically addresses Section 10 of the BAM and provides information on the application of the no net loss standard and the proposed biodiversity offset obligations.

DETAILS OF THE OFFSET PACKAGE TO COMPENSATE FOR SIGNIFICANT RESIDUAL IMPACTS INCLUDING DETAILS OF THE CREDIT PROFILES REQUIRED TO OFFSET THE ACTION IN ACCORDANCE WITH THE BAM AND/OR MAPPING AND DESCRIPTIONS OF THE EXTENT AND CONDITION OF THE RELEVANT HABITAT AND/OR THREATENED COMMUNITIES OCCURRING ON PROPOSED OFFSET SITES

Section 11 of the BDAR outlined the biodiversity offset strategy for the project. The offset obligations will be met through implementing a combination of the following offset delivery options, being:

- the purchase and retirement of existing biodiversity credits currently available on the biodiversity credit register
- establishing a biodiversity stewardship site(s) on lands with like for like biodiversity values to those impacted by the project
- through making a payment into the Biodiversity Conservation Fund.

Grey-headed Flying Fox

Grey-headed Flying-fox is listed as Vulnerable under the EPBC Act.

Description

The Grey-headed Flying-fox is endemic to Australia. The distribution of the species extends from the coastal belt from Rockhampton in central Queensland to Melbourne in Victoria. The species has occasional occurrences into South Australia, Bass Strait islands and mainland Tasmania. It is infrequently found west of the Great Dividing Range. Only a small proportion of this range is used at any one time, as the species selectively forages where food is available. Patterns of occurrence and migration are broadly associated with the flowering and fruiting of certain plants and relative abundance within its distribution vary widely between seasons and between years. At a local scale, the species is generally present intermittently and irregularly.

Grey-headed Flying-foxes are canopy-feeding frugivores and nectarivores, which utilise a range of vegetation communities including rainforests, open forests, closed and open woodlands, Melaleuca swamps and Banksia woodlands. They also feed on commercial fruit crops and on introduced tree species in urban areas. The primary food source is blossom from Eucalyptus. Roost sites are typically located near water. Roost vegetation includes rainforest patches, stands of Melaleuca, mangroves and riparian vegetation, though highly modified vegetation may be used in urban and suburban areas.

Grey-headed Flying-foxes mate in early autumn. Following six months of gestation females typically give birth to a single young each year in October (Department of Agriculture Water and the Environment, 2021d).

Atlas of Living Australia and BioNet species records indicate some scattered species records surrounding the subject land including a recent (2022) record north of Gulgong near the subject land (Inland Slopes IBRA subregion). Although less often observed in the locality than coastal habitats, this species range is known to extend west of the study area with multiple records in the Dubbo region.

Importantly, no breeding camps are present within or adjacent to the subject land.

Relevant commonwealth guidelines and policy statements including listing advice, conservation advice and recovery plan

A summary of the relevant Commonwealth guidelines and policy statements available for this species is as follows:

- No approved Conservation Advice has been published for this species.
- Commonwealth Listing Advice on Pteropus poliocephalus (Grey-headed Flying-fox) was reviewed as part of this assessment (Threatened Species Scientific Committee, 2001).
- The National Recovery Plan for the Grey-headed Flying-fox Pteropus poliocephalus (2021) was reviewed as part of this assessment (Department for Agriculture, 2021).
- No threat abatement plan has been identified as being relevant for this species.

Specific impacts

The species is ruled out as a species credit species as breeding habitat was not located through adequate survey.

However, the subject land could be used as foraging habitat, and the species is thus retained as an ecosystem credit species and assumed present within all of the PCTs within the subject land excluding DNG habitats. The areas of DNG lack mid-storey and canopy vegetation, ruling out suitable foraging habitat.

Foraging habitat impacts have been captured as part of ecosystem credits (see Refer to Section 10 and 11 of the BDAR).

Is this part of an important population?

In accordance with the *Matters of National Environmental Significance - Significant Impact Guidelines 1.1* (Department of the Environment Water Heritage and the Arts 2013), the presence of an important population must be identified prior to addressing the significance impact criteria. An important population is defined in the Significant Impact Guidelines as a population that is necessary for a species' long-term survival and recovery. Under the Act, important populations are:

- likely to be key source populations either for breeding or dispersal
- likely to be necessary for maintaining genetic diversity
- at or near the limit of the species range.

Grey-headed Flying-foxes occur across a range of habitats where their favoured food, eucalypt blossom occurs. They set up roosting camps in association with blossom availability, which are usually situated in dense vegetation and associated with water. Grey-headed Flying-foxes are extremely mobile, and can travel as much as 2564 km in a. Further, they show low fidelity to roosts, resulting in a high daily colony turnover year (Welbergen *et al.,* 2020). This shows that Grey-headed Flying-foxes are highly nomadic, and that they exist as one interconnected population along the east coast of Australia. Therefore, it is considered as an important population. However, there are no Grey-headed Flying-fox camps in the locality of the subject land, with the closest known camp at Mudgee near the Cudgegong River.

Significant impact criteria

An action is likely to have a significant impact on a vulnerable species if there is a real chance or possibility that it will:

LEAD TO A LONG-TERM DECREASE IN THE SIZE OF AN IMPORTANT POPULATION

The project will result in the direct removal of potential foraging habitat for the Grey-headed Flying Fox. This impact is captured as part of the ecosystem credit requirement for the project. Breeding habitat will not be impacted so there is no real chance or possibility that the project would lead to a long-term decrease in the size of an important population.

REDUCE THE AREA OF OCCUPANCY OF AN IMPORTANT POPULATION

The area of occupancy of the Grey-headed Flying-fox is not known but the species exists as one interconnected population along the eastern Australian coastal belt from Rockhampton in central Queensland to Melbourne in Victoria. The area occupied by this species would remain the same after the project is built. There is no real chance or possibility that the impacts from the project would reduce the area of occupancy for Grey-headed Flying-fox.

FRAGMENT AN EXISTING IMPORTANT POPULATION INTO TWO OR MORE POPULATIONS

Grey-headed Flying-fox exists as one interconnected population along the eastern Australian coastal belt from Rockhampton in central Queensland to Melbourne in Victoria despite the existing level of habitat fragmentation that exists in the landscape. The level of fragmentation caused by the project has no real chance or possibility of fragmenting the Grey-headed Flying-fox population into two of more populations.

ADVERSELY AFFECT HABITAT CRITICAL TO THE SURVIVAL OF A SPECIES

Habitat critical to the survival of a species refers to areas that are necessary:

- for activities such as foraging, breeding, roosting, or dispersal
- for the long-term maintenance of the species or ecological community (including the maintenance of species essential to the survival of the species or ecological community, such as pollinators)
- to maintain genetic diversity and long-term evolutionary development, or
- for the reintroduction of populations or recovery of the species or ecological community. (Department of the Environment Water Heritage and the Arts 2013).

According to the national recovery plan for the species, habitat critical to the survival of the Grey-headed Flying- fox includes important winter and spring vegetation communities including those that contain *Eucalyptus tereticornis*, *E. albens*, *E. crebra, E. fibrosa*, *E. melliodora*, *E. paniculata, E. pilularis, E. robusta, E. seeana, E. sideroxylon, E. siderophloia, Banksia integrifolia, Castanospermum australe, Corymbia citriodora citriodora, C. eximia, C. maculata, Grevillea robusta, Melaleuca quinquenervia* or *Syncarpia glomulifera.* Habitat critical to survival also include communities that:

- contain native species that are known to be productive as foraging habitat during the final weeks of gestation, and during the weeks of birth, lactation and conception (August to May)
- contain native species used for foraging and occur within 20 km of a nationally important camp as identified on the Department's interactive flying-fox web viewer, or
- contain native and or exotic species used for roosting at the site of a nationally important Grey-Headed Flying-Fox camp as identified on the Department's interactive flying-fox web viewer.

Under these definitions the habitat to be removed could be considered habitat critical to the survival of the species. However, the project will remove only a small proportion of potential foraging habitat for this species. As this species is highly mobile, with individuals foraging up to 50 km from roost sites, it is likely that suitable foraging resources could be accessed widely throughout the locality and beyond. Consequently, there is no real chance or possibility that the project will adversely affect habitat critical to the survival of this species.

DISRUPT THE BREEDING CYCLE OF AN IMPORTANT POPULATION

The closest known Grey headed Flying-fox camp (Mudgee (944)) occurs approximately 40 km from the closest point of the subject land. The project would not directly impact on a known roost camp / breeding or maternity site. Extensive foraging resources are available in the locality that would provide suitable resources during the maternity season. The habitats in the subject land are not limiting for this species. Consequently, there is no real chance or possibility that the project will disrupt the breeding cycle of this species.

MODIFY, DESTROY, REMOVE OR ISOLATE OR DECREASE THE AVAILABILITY OR QUALITY OF HABITAT TO THE EXTENT THAT THE SPECIES IS LIKELY TO DECLINE

The project would reduce the availability of suitable foraging habitat. However, given the surrounding landscape and remaining habitat availability, it is unlikely that the project would cause change to the extent that the species is likely to decline. The habitat to be removed from the subject land is not limiting for this species and extensive foraging grounds for this species will remain in the locality. Breeding habitat will not be impacted. Consequently, there is no real chance or possibility that the project will modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline.

RESULT IN INVASIVE SPECIES THAT ARE HARMFUL TO A VULNERABLE SPECIES BECOMING ESTABLISHED IN THE VULNERABLE SPECIES' HABITAT

The project is unlikely to result in an invasive species harmful to the Grey-headed Flying-fox becoming established in the habitat. The potential for weed invasion was considered possible with a project of this nature and appropriate controls are required during construction and operation to reduce this threat. Invasive species would be managed under the construction environmental management plan using best practice methods. Consequently, there is no real chance or possibility that the project will result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat.

INTRODUCE DISEASE THAT MAY CAUSE THE SPECIES TO DECLINE

There are no known disease issues affecting this species in relation to the project. The project would be unlikely to increase the potential for significant disease vectors to affect the species. It is the intention to use current best practice hygiene protocols as part of the construction environmental management plan to prevent the introduction or spread of pathogens. Consequently, there is no real chance or possibility that the project will introduce disease that may cause the species to decline.

INTERFERE SUBSTANTIALLY WITH THE RECOVERY OF THE SPECIES

The National Recovery Plan for the Grey-headed Flying-fox '*Pteropus poliocephalus*' (Department of Agriculture Water and the Environment 2021) outlines the following objectives to improve the national population trend of this species:

- Identify, protect and increase native foraging habitat that is critical to the survival of the Grey-headed Flying-fox
- Identify, protect and increase roosting habitat of Grey-headed Flying-fox camps.
- Determine trends in the Grey-headed Flying-fox population so as to monitor the species' national distribution, habitat use and conservation status.
- Build community capacity to coexist with flying-foxes and minimise the impacts on urban settlements from new and existing camps while avoiding interventions to move on or relocate entire camps.
- Increase public awareness and understanding of Grey-headed Flying-foxes and the recovery program, and involve the community in the recovery program where appropriate.
- Improve the management of Grey-headed Flying-fox camps in areas where interaction with humans is likely.
- Significantly reduce levels of licenced harm to Grey-headed Flying-foxes associated with commercial horticulture.
- Support research activities that will improve the conservation status and management of Grey-headed Flying-foxes.
- Reduce the impact on Grey-headed Flying-foxes of electrocution on power lines, and entanglement in netting and on barbed-wire.

The project would interfere slightly with the first action 'Identify, protect and increase native foraging habitat that is critical to the survival of the Grey-headed Flying-fox'. However, as discussed above the project will remove only a small proportion of potential foraging habitat for this species. As this species is highly mobile, with individuals foraging up to 50 km from roost sites, it is likely that suitable foraging resources could be accessed widely throughout the locality and beyond. Consequently, there is no real chance or possibility that the project will adversely affect habitat critical to the survival of this species and therefore the project will not interfere substantially with the recovery of the species.

CONCLUSION

The closest known Grey headed Flying-fox camp (Mudgee (944)) occurs approximately 40 km from the closest point of the subject land. No impact to breeding habitat would occur as part of the project. The subject land could be used as foraging habitat, and the species is thus retained as an ecosystem credit species and assumed present within all of the PCTs within the subject land excluding DNG habitats. Foraging habitat impacts have been captured as part of ecosystem credits (see Refer to Section 10 and 11 of the BDAR).

Based on the assessment completed above, there is no real chance or possibility that the project is likely to have a significant impact on Grey headed Flying-fox.

NSW Assessment Bilateral requirements

DESCRIPTION OF THE HABITAT (INCLUDING IDENTIFICATION AND MAPPING OF SUITABLE BREEDING HABITAT, SUITABLE FORAGING HABITAT, IMPORTANT POPULATIONS AND HABITAT CRITICAL FOR SURVIVAL), WITH CONSIDERATION OF, AND REFERENCE TO, ANY RELEVANT COMMONWEALTH GUIDELINES AND POLICY STATEMENTS INCLUDING LISTING ADVICE, CONSERVATION ADVICE AND RECOVERY PLAN

A description of habitat for this species, important populations, habitat critical for survival and relevant Commonwealth documents are provided above, with a map showing the modelled distribution of the species provided in Figure C.34.

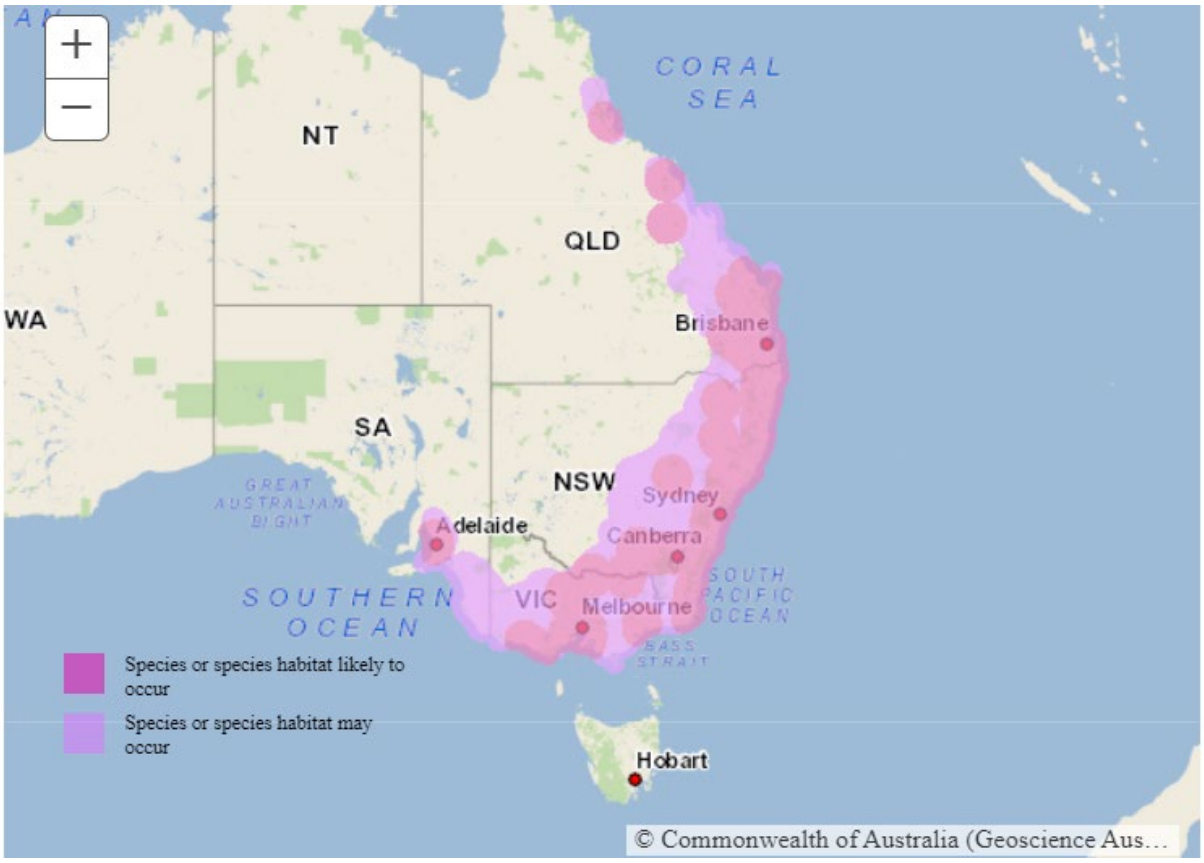

Figure C.34 Current distribution map for Grey-headed Flying-fox (Pteropus poliocephalus) taken from the SPRAT

DETAILS OF THE SCOPE, TIMING AND METHODOLOGY FOR STUDIES OR SURVEYS USED AND HOW THEY ARE CONSISTENT WITH (OR JUSTIFICATION FOR DIVERGENCE FROM) PUBLISHED AUSTRALIAN GOVERNMENT GUIDELINES AND POLICY STATEMENTS

Grey headed Flying-fox is a dual credit species. Species credits, and therefore targeted survey, is only required for breeding habitat. The closest known Grey headed Flying-fox camp (Mudgee (944)) occurs approximately 40 km from the closest point of the subject land. There was opportunity to survey the subject land for the presence of Grey headed Flying-fox camps during every field survey that was undertaken for the project. Section 2 of the BDAR outlines the survey methods undertaken for the project.

Spotlighting was used to target threatened nocturnal arboreal, flying and ground-dwelling mammals, birds, reptiles and amphibians. Spotlighting was completed after dusk generally following the targeted nocturnal searches and was undertaken for at least 1 hour at each survey spot. Surveys were completed on foot using high-powered headlamps and hand torches. Sighted animals were identified to the species level. Twenty-three spotlighting surveys and 10 stag watches were undertaken across the subject land. The location of spotlighting & stag watch survey sites is shown BDAR Figure 14-5 with survey periods outlined in BDAR Table 2 6.

DESCRIPTION OF THE SPECIFIC IMPACTS AND ITS REGARD TO THE FULL NATIONAL EXTENT OF THE SPECIES OR COMMUNITY'S RANGE

The project will clear vegetation within suitable habitat. As an ecosystem credit species, the Grey-headed Flying-fox is assumed present in most PCTs and as such contributes to the offset requirements for these PCTs.

Figure C.34 provides the current known generalised distribution from the conservation advice and the SPRAT database which are indicative distribution maps of the present distribution of the species based on best available knowledge. The project occurs approximately in the centre of the species range.

DESCRIPTION OF THE SPECIFIC PROPOSED AVOIDANCE AND MITIGATION MEASURES TO DEAL WITH RELEVANT IMPACTS OF THE ACTION

The proposed avoidance and mitigation measures are outlined in Section 7 of the BDAR. Mitigation measures are provided in Section 8.4 of the BDAR.

IDENTIFICATION OF SIGNIFICANT RESIDUAL ADVERSE IMPACTS LIKELY TO OCCUR AFTER THE PROPOSED ACTIVITIES TO AVOID AND MITIGATE ALL IMPACTS ARE TAKEN INTO ACCOUNT

No impact to breeding habitat would occur as part of the project. The subject land could be used as foraging habitat, and the species is thus retained as an ecosystem credit species and assumed present within all of the PCTs within the subject land excluding DNG habitats. Foraging habitat impacts have been captured as part of ecosystem credits (see Refer to Section 10 and 11 of the BDAR).

A DESCRIPTION OF ANY OFFSETS PROPOSED TO ADDRESS RESIDUAL ADVERSE SIGNIFICANT IMPACTS AND HOW THESE OFFSETS WILL BE ESTABLISHED

Foraging habitat impacts have been captured as part of ecosystem credits (see Refer to Section 10 and 11 of the BDAR).

DETAILS OF HOW THE CURRENT PUBLISHED NSW BIODIVERSITY ASSESSMENT METHOD (BAM) HAS BEEN APPLIED IN ACCORDANCE WITH THE OBJECTS OF THE EPBC ACT TO OFFSET SIGNIFICANT RESIDUAL ADVERSE IMPACTS

The BDAR specifically addresses Section 10 of the BAM and provides information on the application of the no net loss standard and the proposed biodiversity offset obligations.

DETAILS OF THE OFFSET PACKAGE TO COMPENSATE FOR SIGNIFICANT RESIDUAL IMPACTS INCLUDING DETAILS OF THE CREDIT PROFILES REQUIRED TO OFFSET THE ACTION IN ACCORDANCE WITH THE BAM AND/OR MAPPING AND DESCRIPTIONS OF THE EXTENT AND CONDITION OF THE RELEVANT HABITAT AND/OR THREATENED COMMUNITIES OCCURRING ON PROPOSED OFFSET SITES

Section 11 of the BDAR outlines the biodiversity credit requirements for the project. The offset obligations will be met through implementing a combination of the following offset delivery options, being:

- the purchase and retirement of existing biodiversity credits currently available on the biodiversity credit register
- establishing a biodiversity stewardship site(s) on lands with like for like biodiversity values to those impacted by the project
- through making a payment into the Biodiversity Conservation Fund.

C3.4 Migratory species

Based on the results of the database searches, 19 listed migratory species may occur in the broader locality (refer to Appendix D-2). The following EPBC Act listed Migratory species are considered moderately likely to occur in, or adjacent to, the project study area based on the presence of suitable habitats:

- Migratory marine birds – Fork-tailed Swift.
- Migratory wetland species – Common Sandpiper, Sharp-tailed Sandpiper, Latham's Snipe.
- Migratory terrestrial species - Satin Flycatcher White-throated Needletail, Black-faced Monarch, Yellow Wagtail and Rufous Fantail.

None of these EPBC Act listed Migratory species were recorded during field surveys.

Is the habitat to be impacted important?

Important habitat for EPBC Act listed Migratory species is defined as (Department of Environment, 2013):

- habitat utilised by a migratory species occasionally or periodically within a region that supports an ecologically significant proportion of the population of the species
- habitat that is of critical importance to the species at particular life-cycle stages
- habitat utilised by a migratory species which is at the limit of the species range
- habitat within an area where the species is declining.

While some migratory species of bird are likely to use the project study area and locality, it would not be classed as an 'important habitat' for the following reasons:

- No nationally or internationally important habitats for migratory wetlands species (Common Sandpiper, Sharp-tailed Sandpiper, Latham's Snipe) are present in the subject land according to the definition provided in the *EPBC Act Policy Statement 3.21—Industry guidelines for avoiding, assessing and mitigating impacts on EPBC Act listed migratory shorebird species* (Department of the Environment, 2015b).
- An ecologically significant proportion of the population of Satin Flycatcher White-throated Needletail, Black-faced Monarch, Yellow Wagtail and Rufous Fantail are not present in the subject land according to the *Draft Referral guideline for 14 birds listed as migratory species under the EPBC Act* (Department of the Environment, 2015d).
- The project area does not contain any known important foraging grounds for listed Migratory species and the project would not impact on any significant foraging habitats.
- The project area does not contain any known important staging grounds for migration.
- The project area does not contain habitat that is at the limit of a listed Migratory species' range.
- The project area is not located within an area where a listed Migratory species is known to be declining.

As such the project is not likely to have a significant impact on a migratory species as the project will not:

- substantially modify (including by fragmenting, altering fire regimes, altering nutrient cycles or altering hydrological cycles), destroy or isolate an area of important habitat for a migratory species
- result in an invasive species that is harmful to the migratory species becoming established in an area of important habitat for the migratory species, or
- seriously disrupt the lifecycle (breeding, feeding, migration or resting behaviour) of an ecologically significant proportion of the population of a migratory species.

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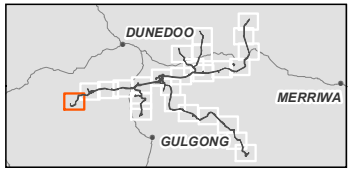
Figure C-1
Site map
Map 1 of 26

Legend

- Biodiversity Study Area
- 330kv transmission line
- 330 kV switching station
- Road
- Watercourse
- Waterbody
- Dam
- Dwelling
- Shed
- IBRA Regions and Subregions
- NPWS estate



Coordinate system: GDA 1994 MGA Zone 55
Scale ratio correct when printed at A4

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Data sources: WSP 2023, NSWSS, EnergyCo

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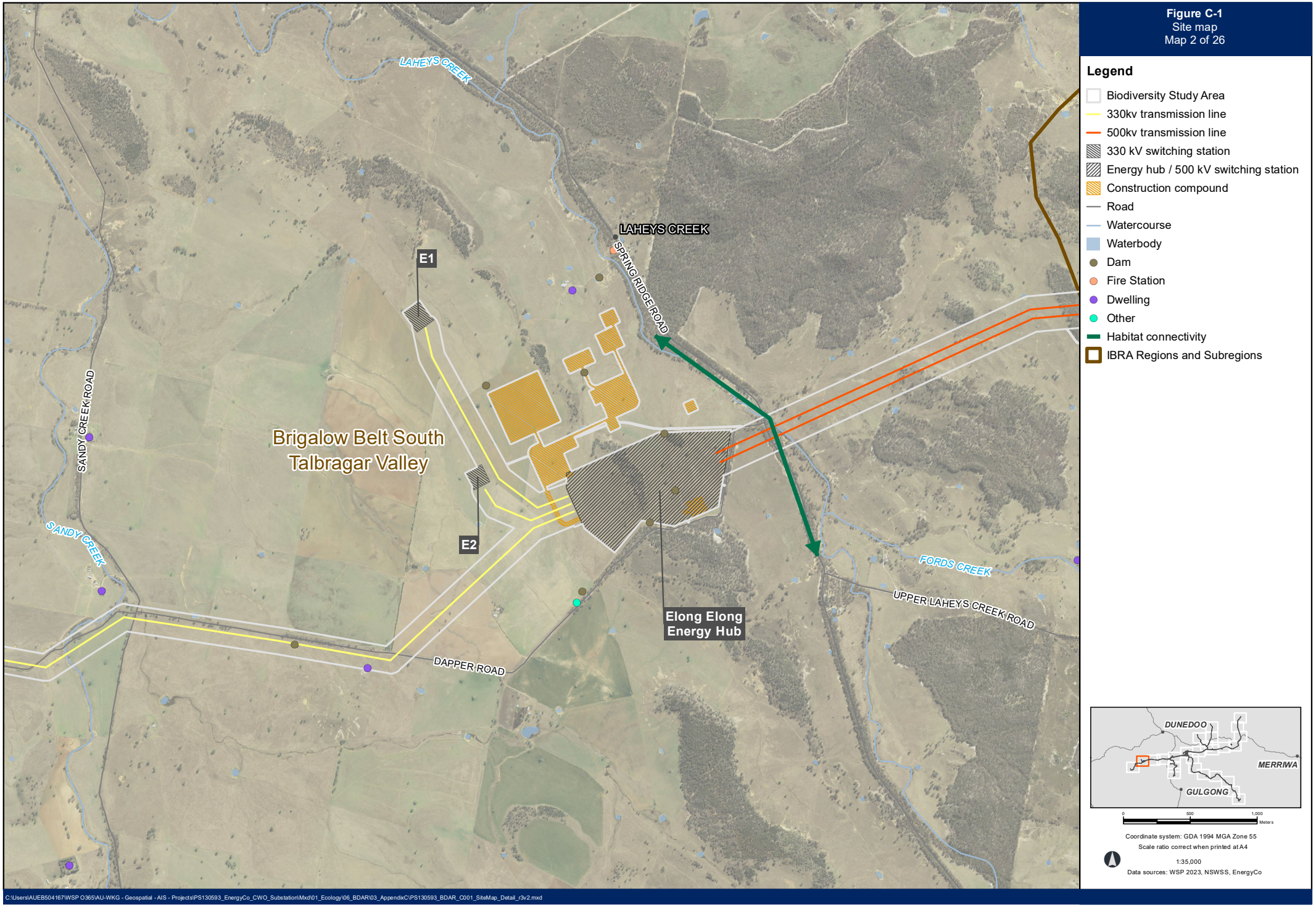

Figure C-1
Site map
Map 2 of 26

Legend

- Biodiversity Study Area
- 330kv transmission line
- 500kv transmission line
- 330 kV switching station
- Energy hub / 500 kV switching station
- Construction compound
- Road
- Watercourse
- Waterbody
- Dam
- Fire Station
- Dwelling
- Other
- Habitat connectivity
- IBRA Regions and Subregions

Coordinate system: GDA 1994 MGA Zone 55
Scale ratio correct when printed at A4

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Data sources: WSP 2023, NSWSS, EnergyCo

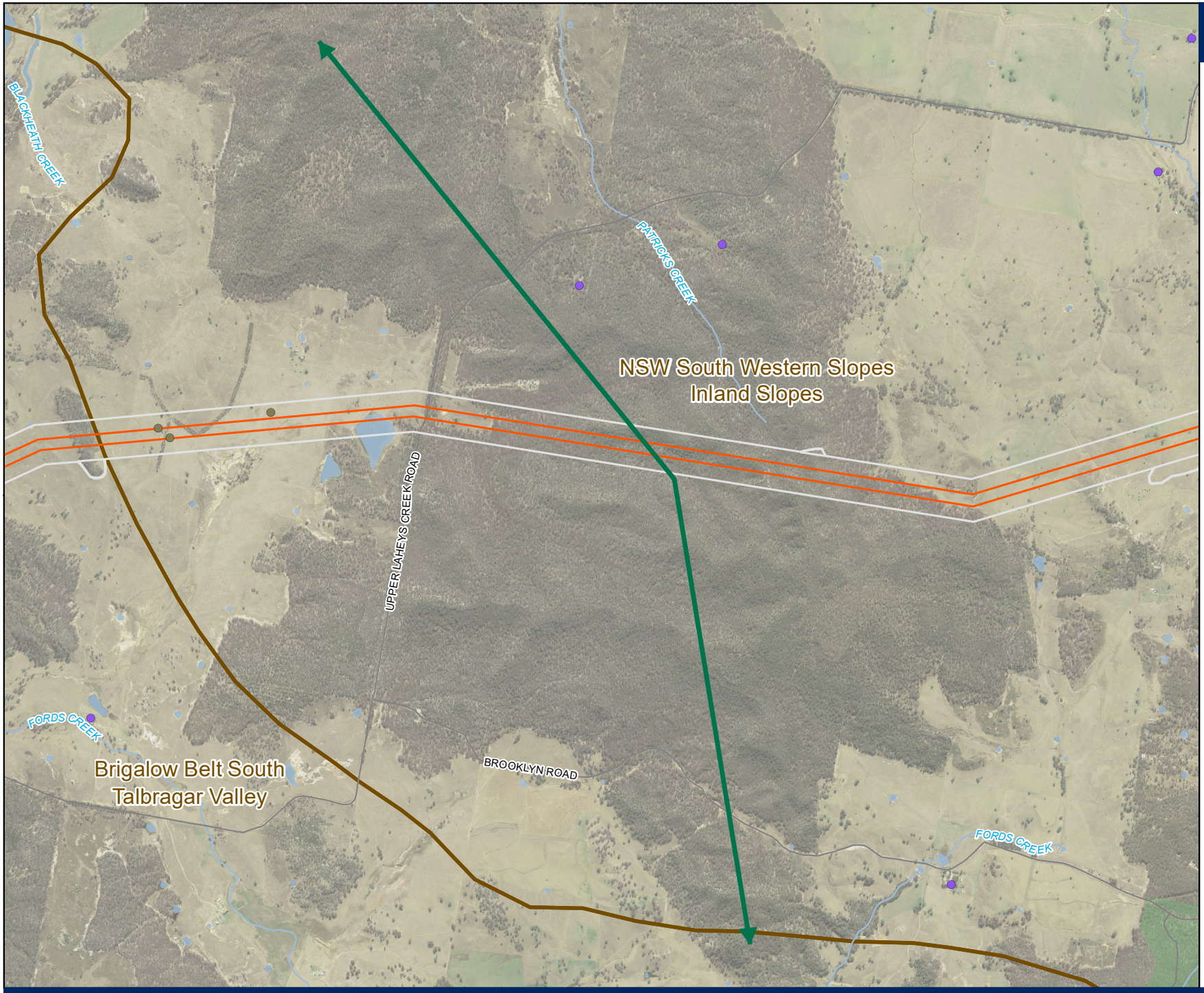
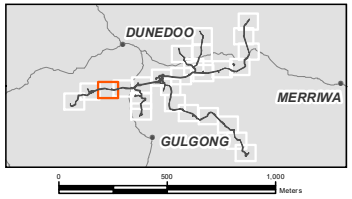


Figure C-1
Site map
Map 3 of 26

Legend

- Biodiversity Study Area
- 500kv transmission line
- Road
- Watercourse
- Waterbody
- Dam
- Dwelling
- Habitat connectivity
- IBRA Regions and Subregions
- NPWS estate



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Data sources: WSP 2023, NSWSS, EnergyCo

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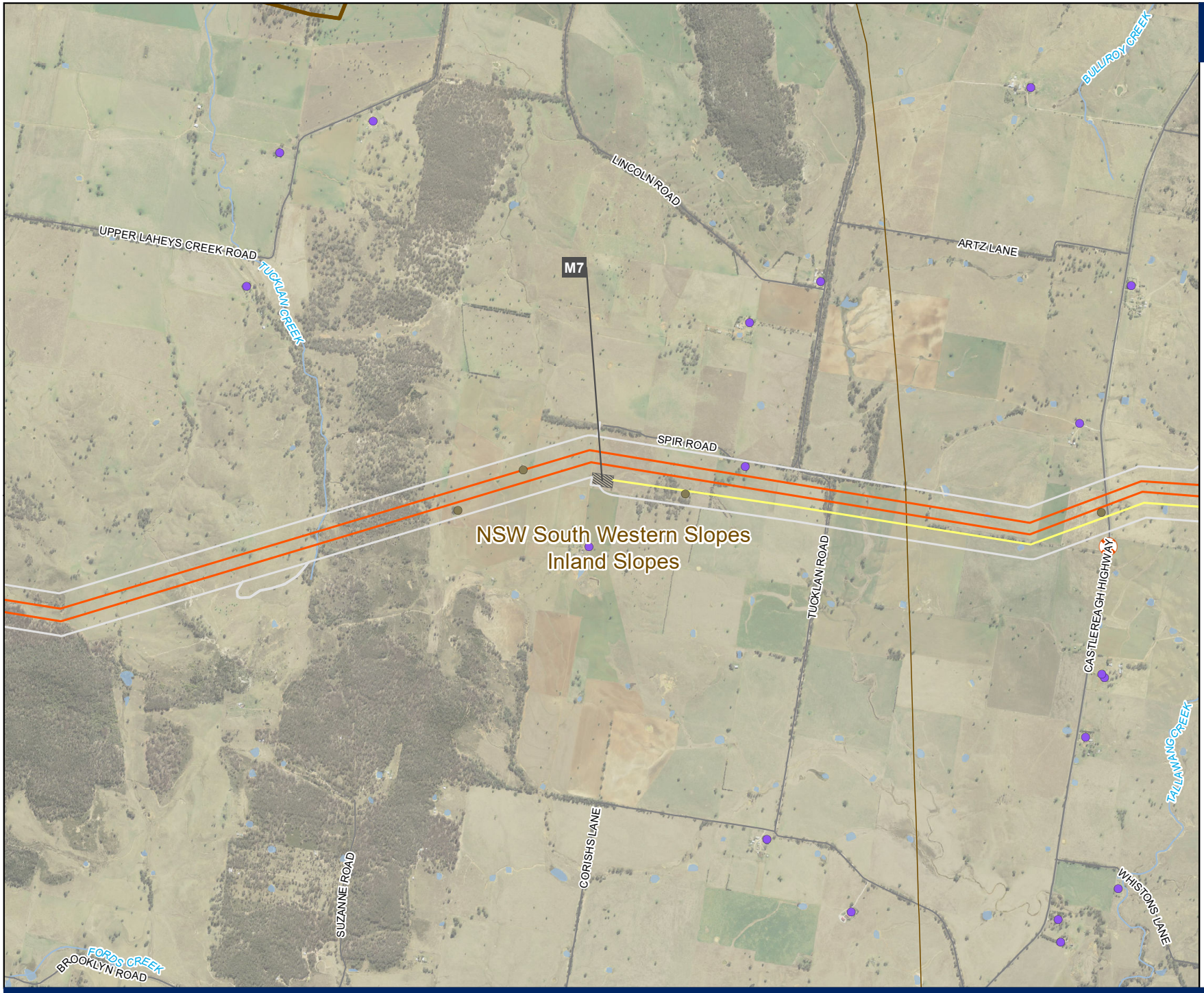
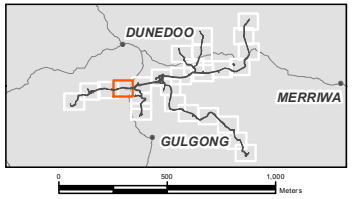


Figure C-1
Site map
Map 4 of 26

Legend

- Biodiversity Study Area
- 330kv transmission line
- 500kv transmission line
- 330 kV switching station
- Existing transmission line
- Road
- Watercourse
- Waterbody
- Potential locations of vehicle strike
- Dam
- Dwelling
- IBRA Regions and Subregions



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Data sources: WSP 2023, NSWSS, EnergyCo

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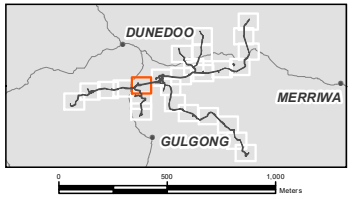
Figure C-1
Site map
Map 5 of 26

Legend

- Biodiversity Study Area
- 330kv transmission line
- 500kv transmission line
- 330 kV switching station
- Road
- Railway
- Watercourse
- Waterbody
- Dam
- Dwelling
- Other
- Habitat connectivity
- Cliff lines
- IBRA Regions and Subregions



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Data sources: WSP 2023, NSWSS, EnergyCo

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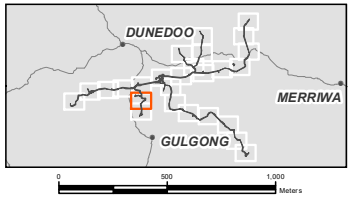
Figure C-1
Site map
Map 6 of 26

Legend

- Biodiversity Study Area
- 330kv transmission line
- 330 kV switching station
- Road
- Railway
- Watercourse
- Waterbody
- Dwelling
- Habitat connectivity
- Cliff lines
- IBRA Regions and Subregions



Coordinate system: GDA 1994 MGA Zone 55
Scale ratio correct when printed at A4

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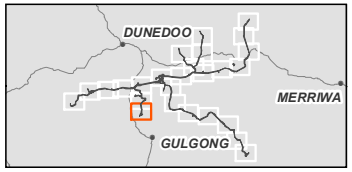
Data sources: WSP 2023, NSWSS, EnergyCo

Figure C-1
Site map
Map 7 of 26

Legend

- Biodiversity Study Area
- 330kv transmission line
- 330 kV switching station
- Existing transmission line
- Road
- Railway
- Watercourse
- Waterbody
- Dwelling
- Shed
- Habitat connectivity
- IBRA Regions and Subregions



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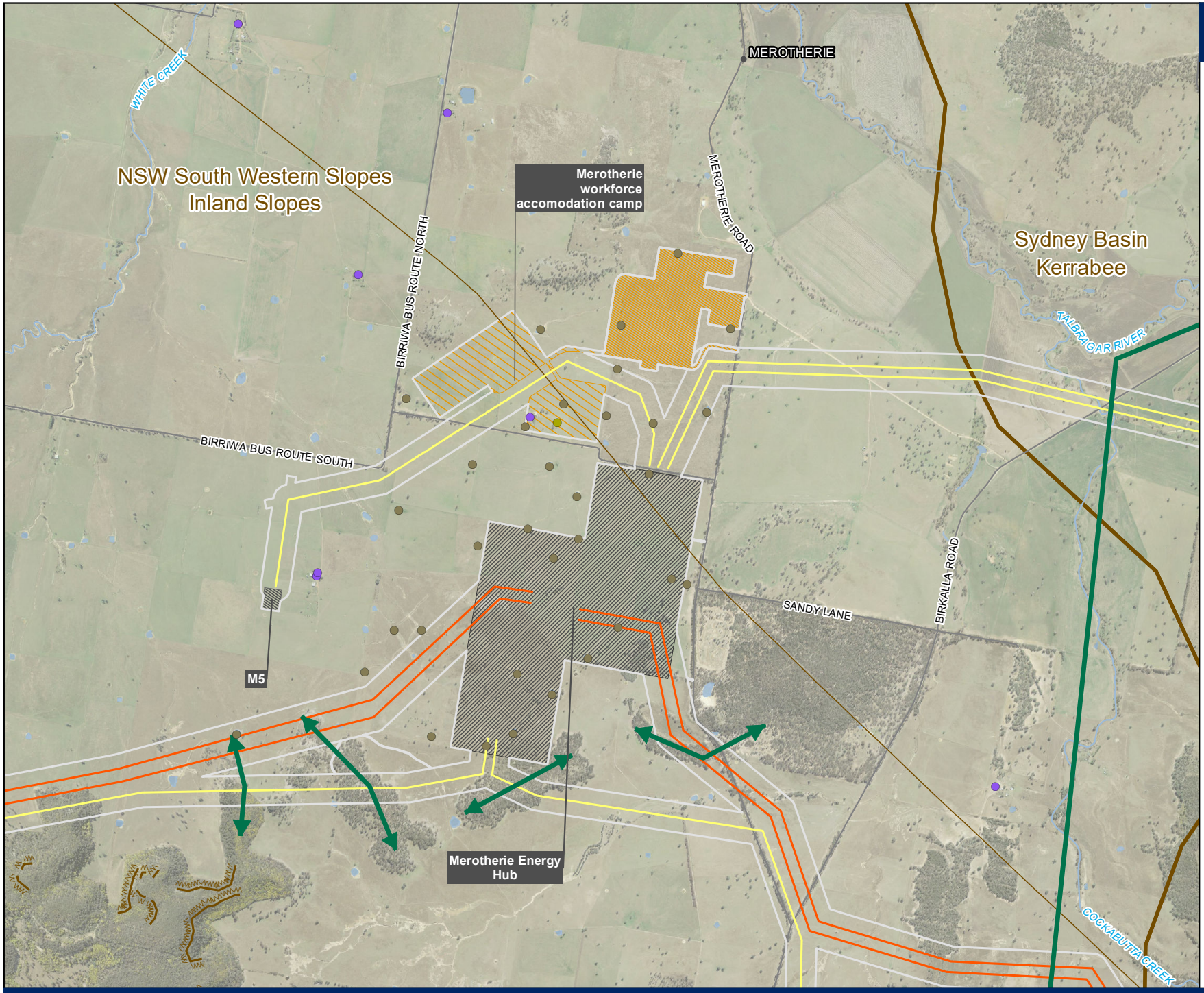
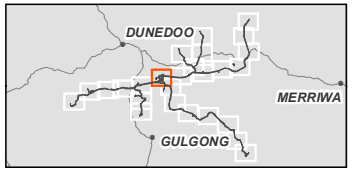


Figure C-1
Site map
Map 8 of 26

Legend

- Biodiversity Study Area
- 330kv transmission line
- 500kv transmission line
- 330 kV switching station
- Energy hub / 500 kV switching station
- Construction compound
- Workforce accommodation camp
- Existing transmission line
- Road
- Watercourse
- Waterbody
- Dam
- Dwelling
- Shed
- Habitat connectivity
- Cliff lines
- IBRA Regions and Subregions



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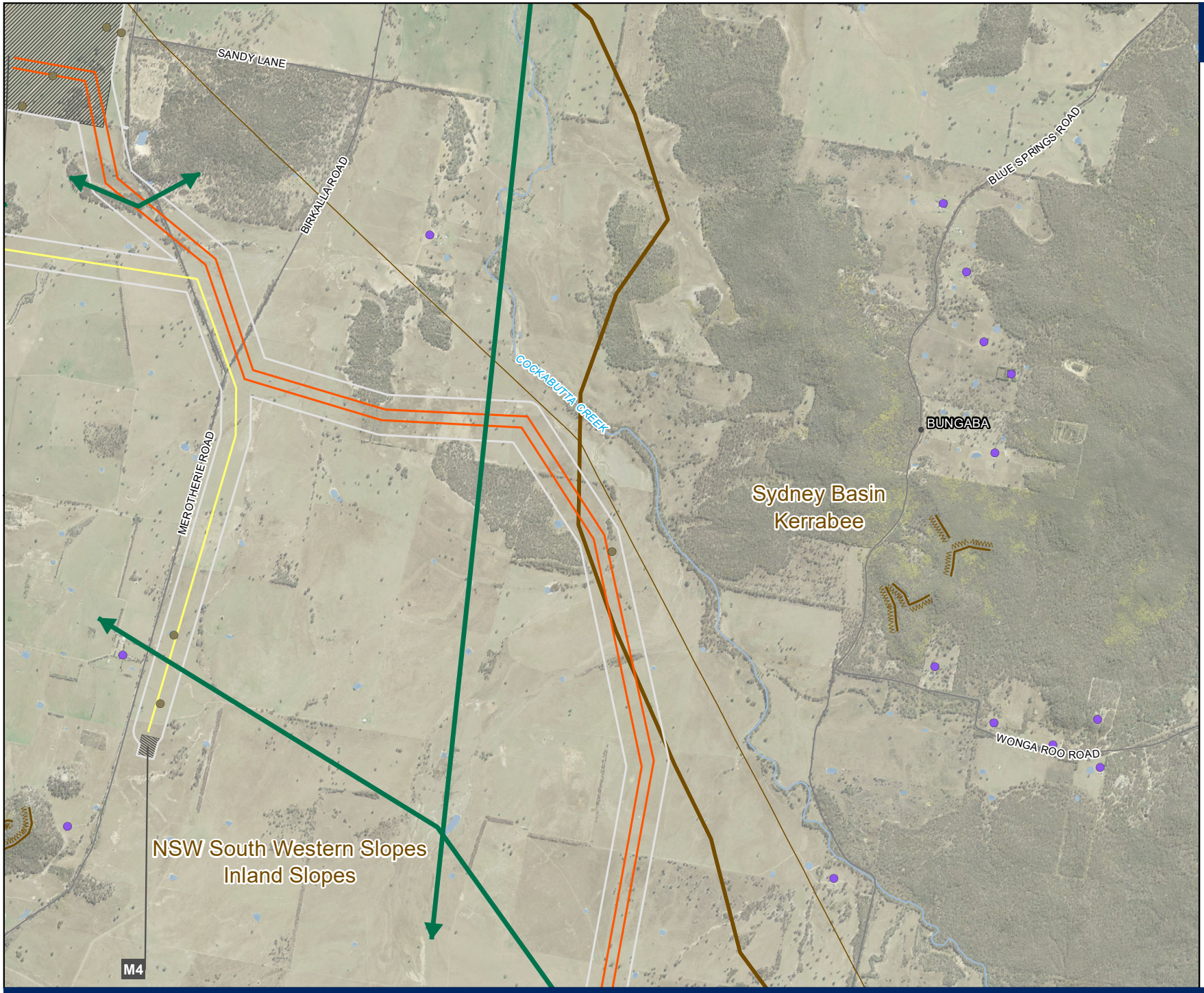
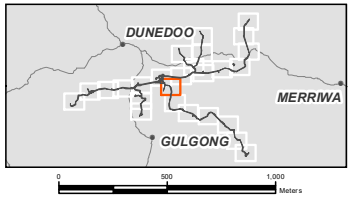


Figure C-1
Site map
Map 9 of 26

Legend

- Biodiversity Study Area
- 330kv transmission line
- 500kv transmission line
- 330 kV switching station
- Energy hub / 500 kV switching station
- Existing transmission line
- Road
- Watercourse
- Waterbody
- Dam
- Dwelling
- Habitat connectivity
- Cliff lines
- IBRA Regions and Subregions



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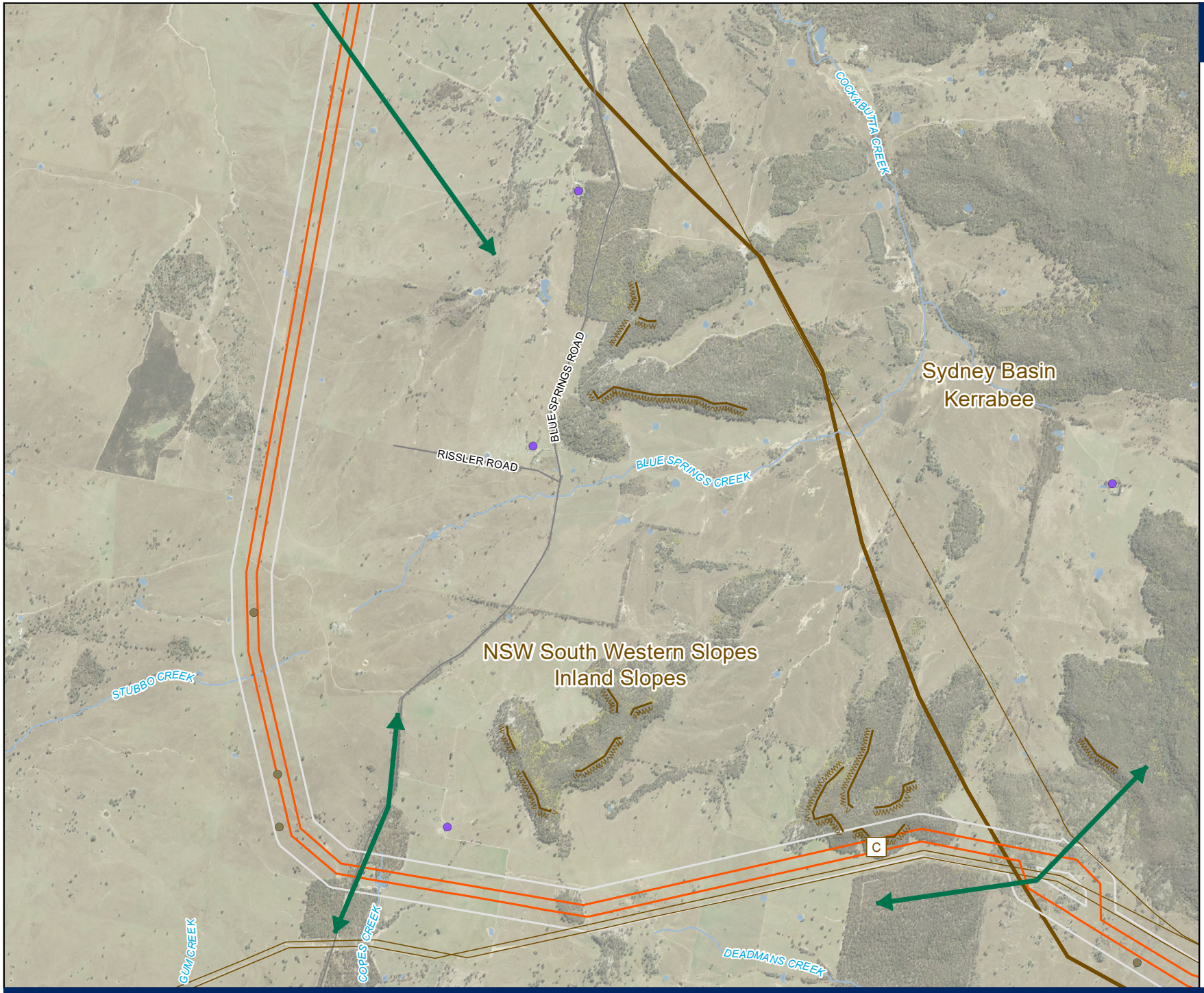
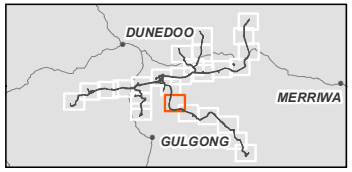


Figure C-1
Site map
Map 10 of 26

Legend

- Biodiversity Study Area
- 500kv transmission line
- Existing transmission line
- Road
- Watercourse
- Waterbody
- C — Caves and rocky areas
- Dam
- Dwelling
- Habitat connectivity
- Cliff lines
- IBRA Regions and Subregions



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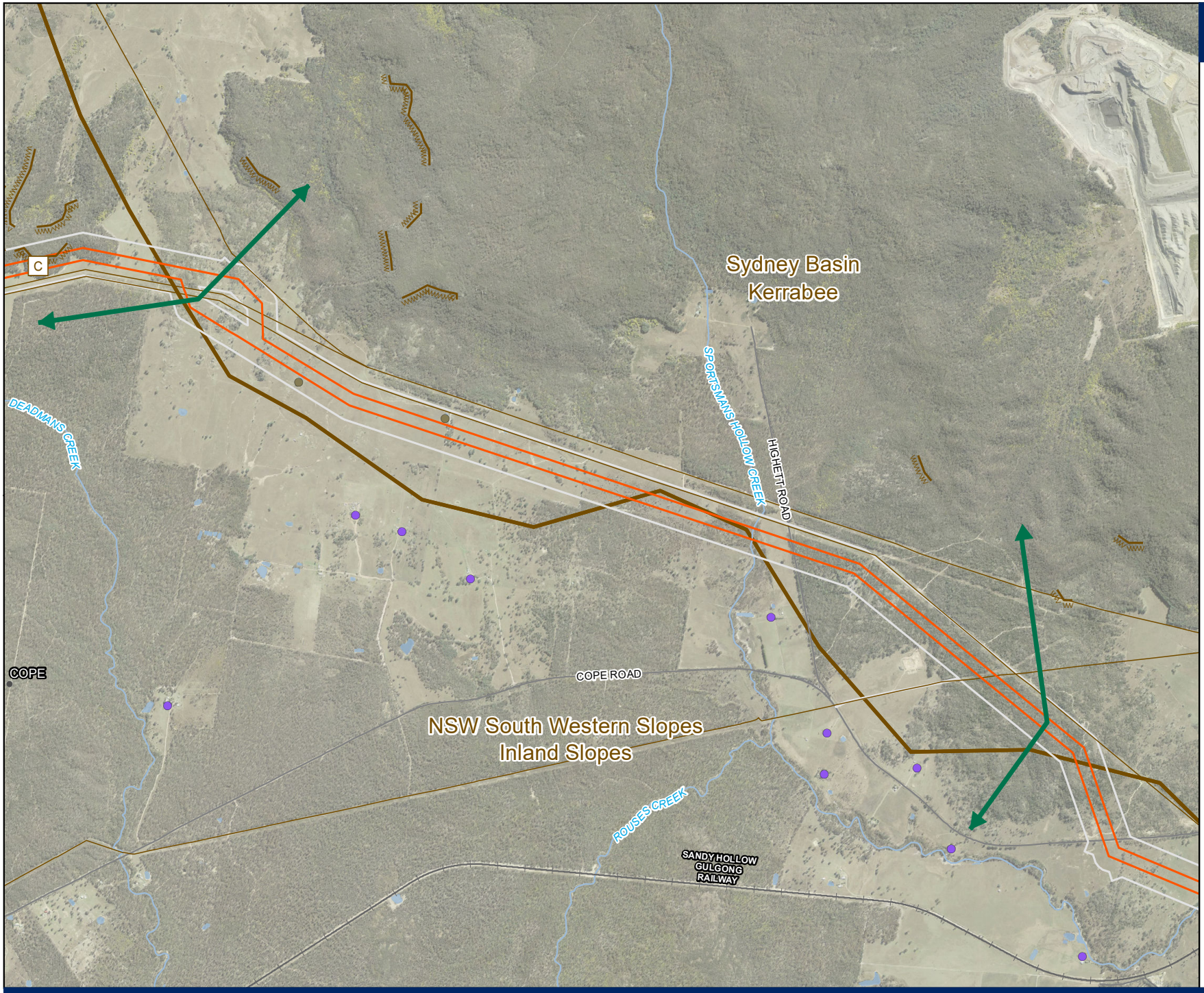

Figure C-1
Site map
Map 11 of 26

Legend

- Biodiversity Study Area
- 500kv transmission line
- Existing transmission line
- Road
- Railway
- Watercourse
- Waterbody
- C — Caves and rocky areas
- Dam
- Dwelling
- Ulan Mine
- Habitat connectivity
- Cliff lines
- IBRA Regions and Subregions

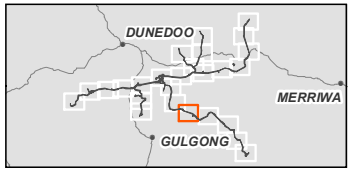

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Figure C-1
Site map
Map 12 of 26

Legend

- Biodiversity Study Area
- 500kv transmission line
- Existing transmission line
- Road
- Railway
- Watercourse
- Waterbody
- Dam
- Dwelling
- Other
- School
- Habitat connectivity
- Cliff lines
- IBRA Regions and Subregions
- NPWS estate

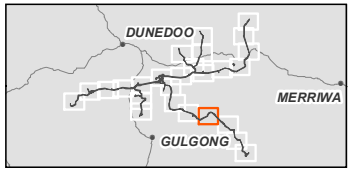

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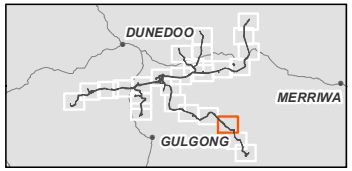
Figure C-1
Site map
Map 13 of 26

Legend

- Biodiversity Study Area
- 500kv transmission line
- Existing transmission line
- Road
- Railway
- Watercourse
- Waterbody
- C Caves and rocky areas
- Dwelling
- Other
- Shed
- Habitat connectivity
- Cliff lines
- IBRA Regions and Subregions
- NPWS estate



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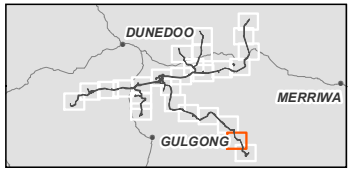
Data sources: WSP 2023, NSWSS, EnergyCo

Figure C-1
Site map
Map 14 of 26

Legend

- Biodiversity Study Area
- 500kv transmission line
- Existing transmission line
- Road
- Railway
- Watercourse
- Waterbody
- Dam
- Dwelling
- Other
- Wilponjong Mine
- Habitat connectivity
- Cliff lines
- IBRA Regions and Subregions
- NPWS estate



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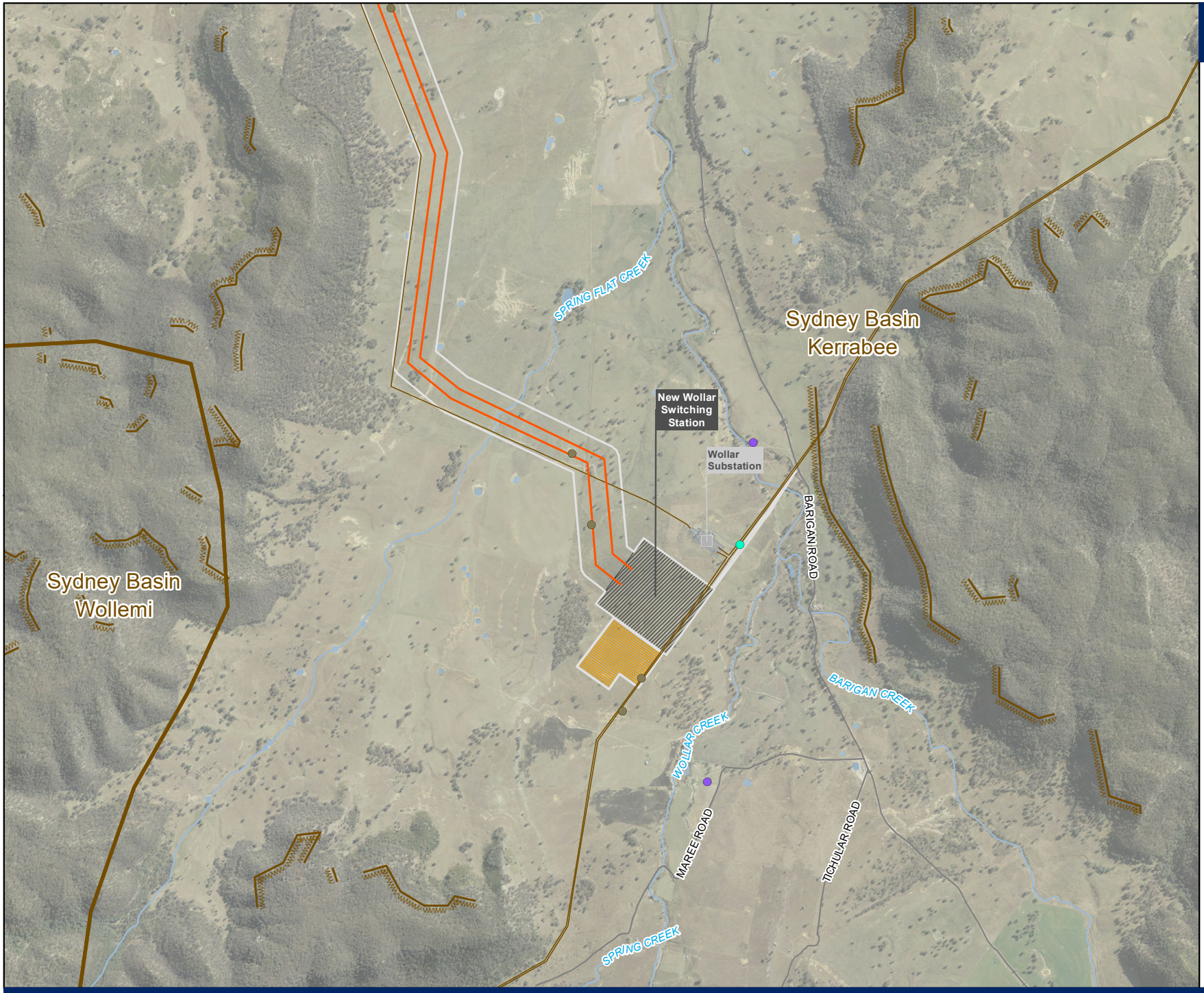
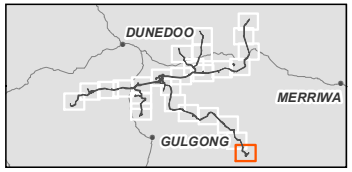


Figure C-1
Site map
Map 15 of 26

Legend

- Biodiversity Study Area
- 500kv transmission line
- Energy hub / 500 kV switching station
- Construction compound
- Existing substation
- Existing transmission line
- Road
- Watercourse
- Waterbody
- Dam
- Dwelling
- Other
- Cliff lines
- IBRA Regions and Subregions



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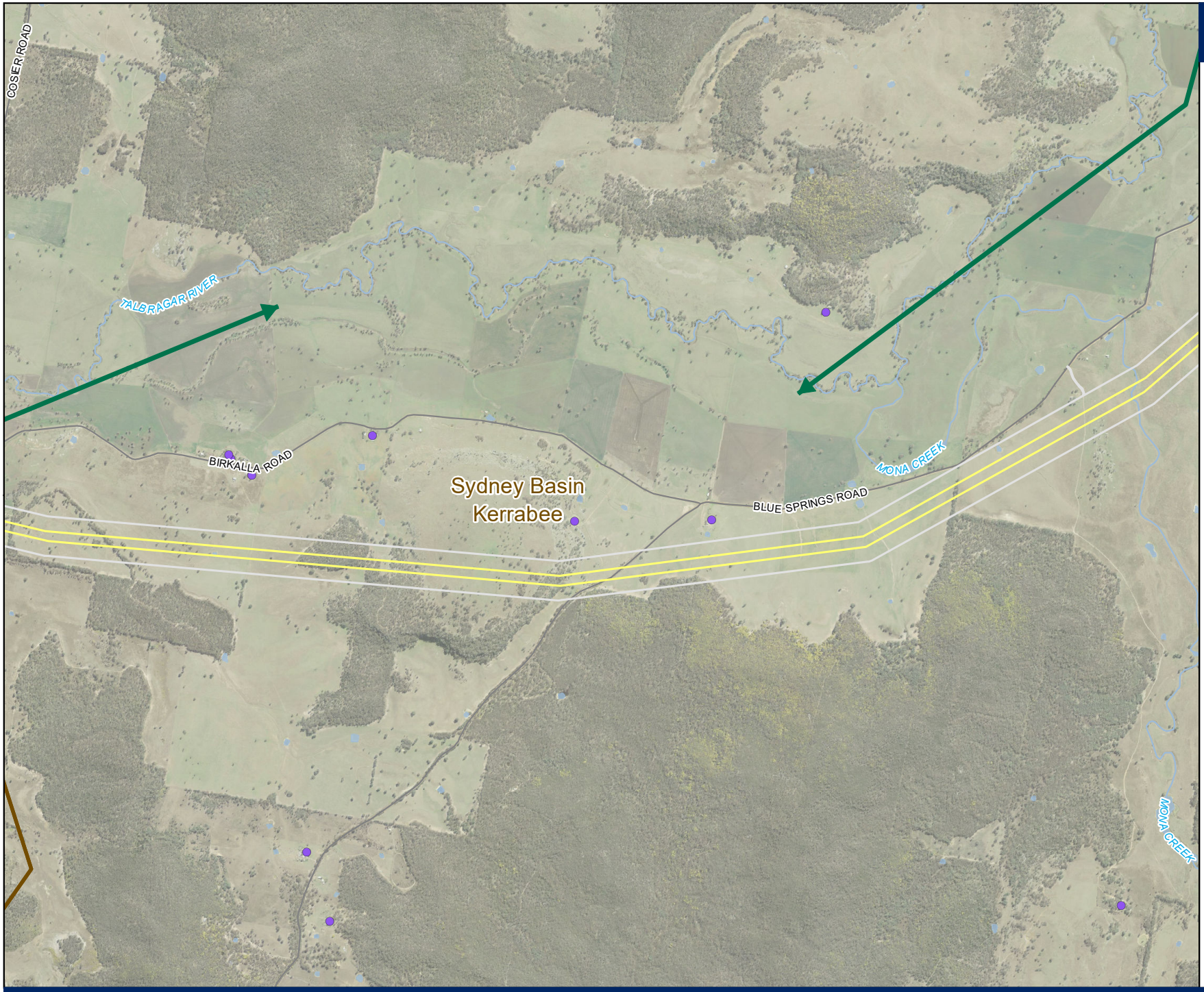
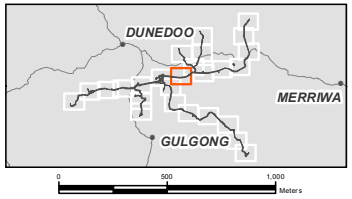


Figure C-1
Site map
Map 16 of 26

Legend

- Biodiversity Study Area
- 330kv transmission line
- Road
- Watercourse
- Waterbody
- Dwelling
- Habitat connectivity
- IBRA Regions and Subregions



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Data sources: WSP 2023, NSWSS, EnergyCo

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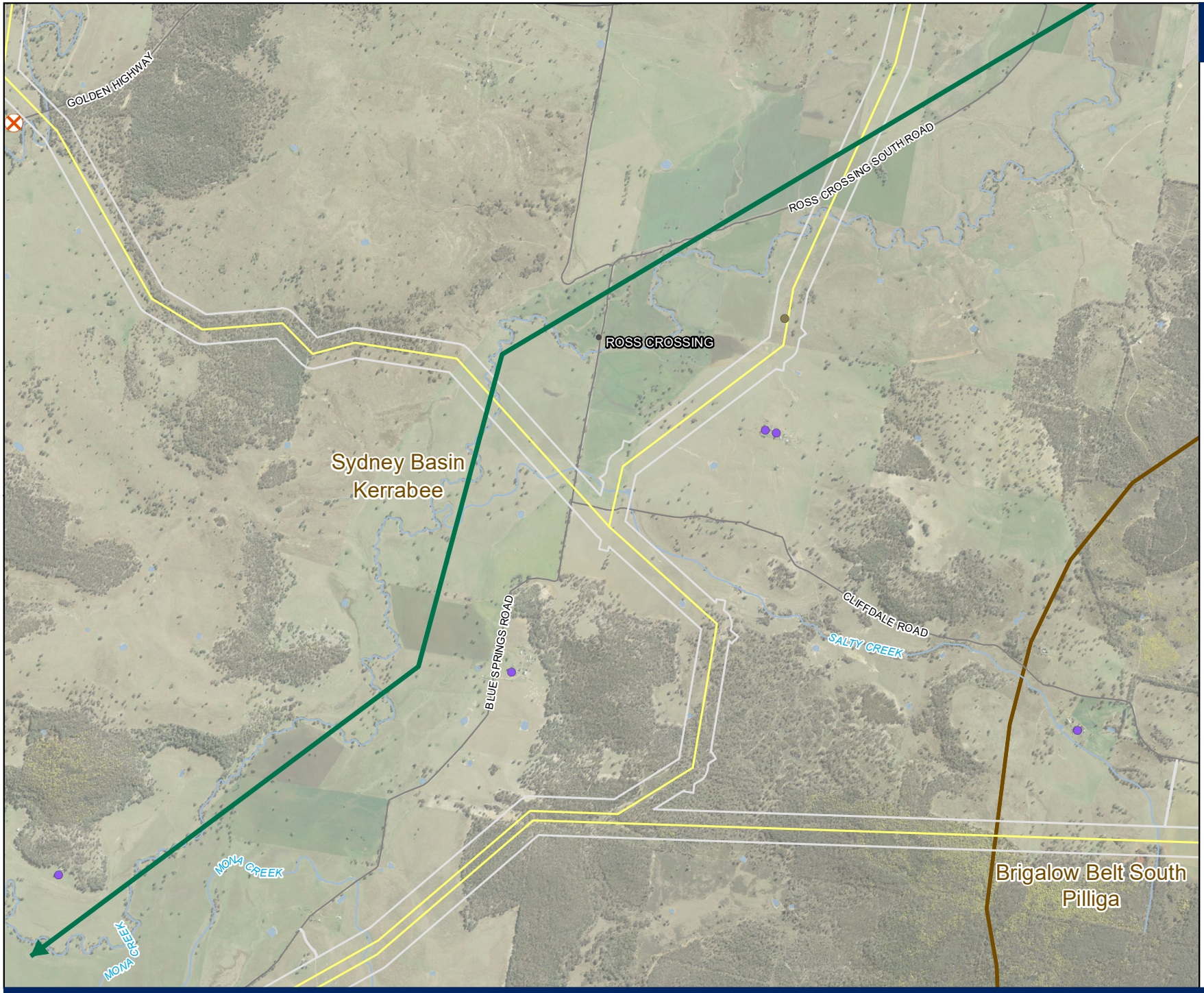
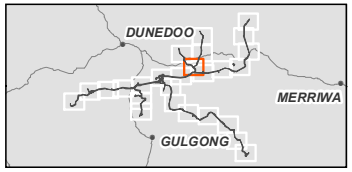


Figure C-1
Site map
Map 17 of 26

Legend

- Biodiversity Study Area
- 330kv transmission line
- Road
- Watercourse
- Waterbody
- Potential locations of vehicle strike
- Dam
- Dwelling
- Habitat connectivity
- IBRA Regions and Subregions



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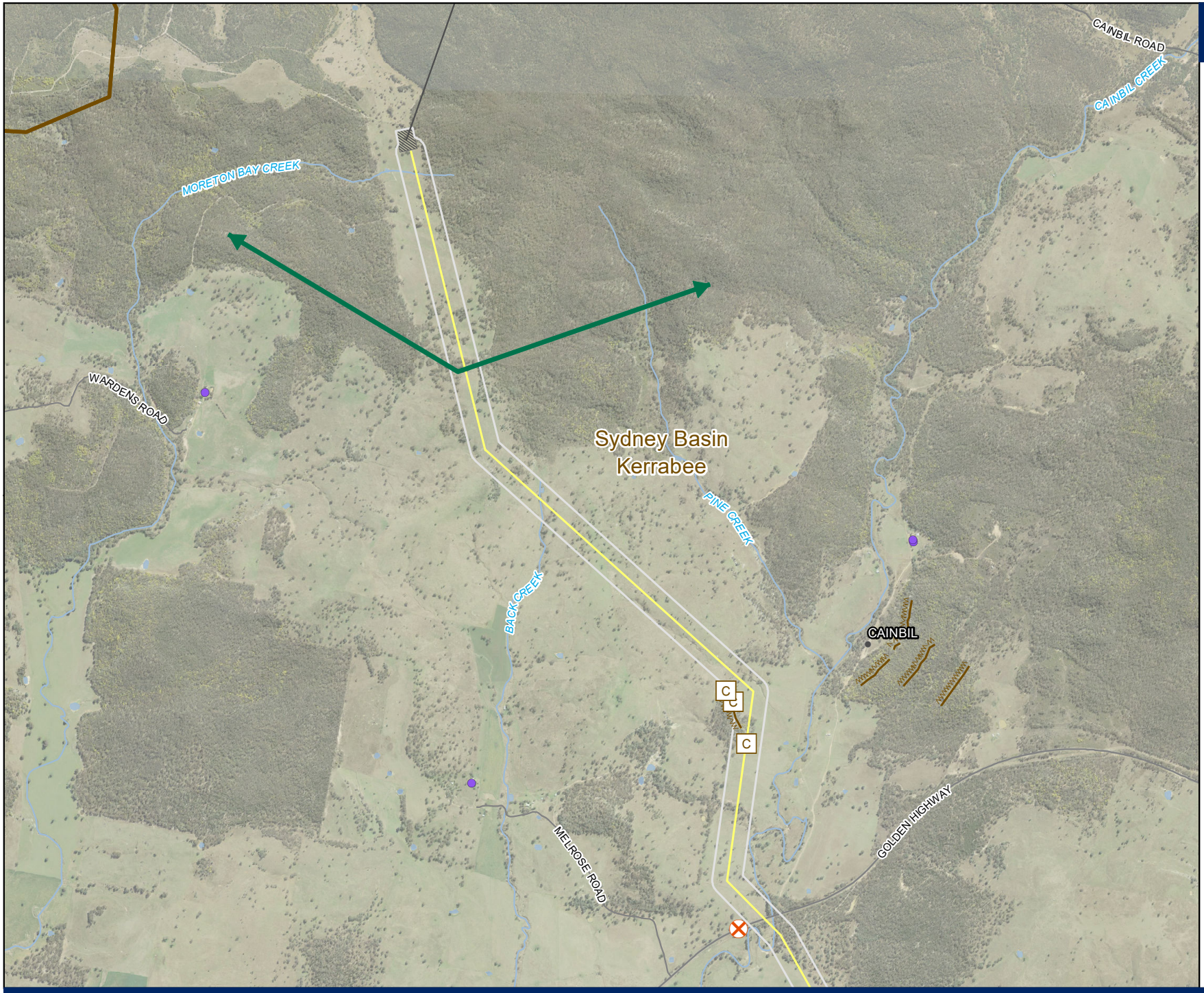
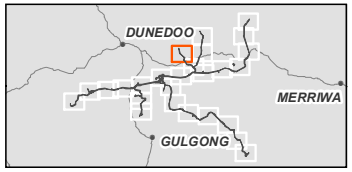


Figure C-1
Site map
Map 18 of 26

Legend

- Biodiversity Study Area
- 330kv transmission line
- 330 kV switching station
- Road
- Watercourse
- Waterbody
- Potential locations of vehicle strike
- C — Caves and rocky areas
- Dwelling
- Habitat connectivity
- Cliff lines
- IBRA Regions and Subregions



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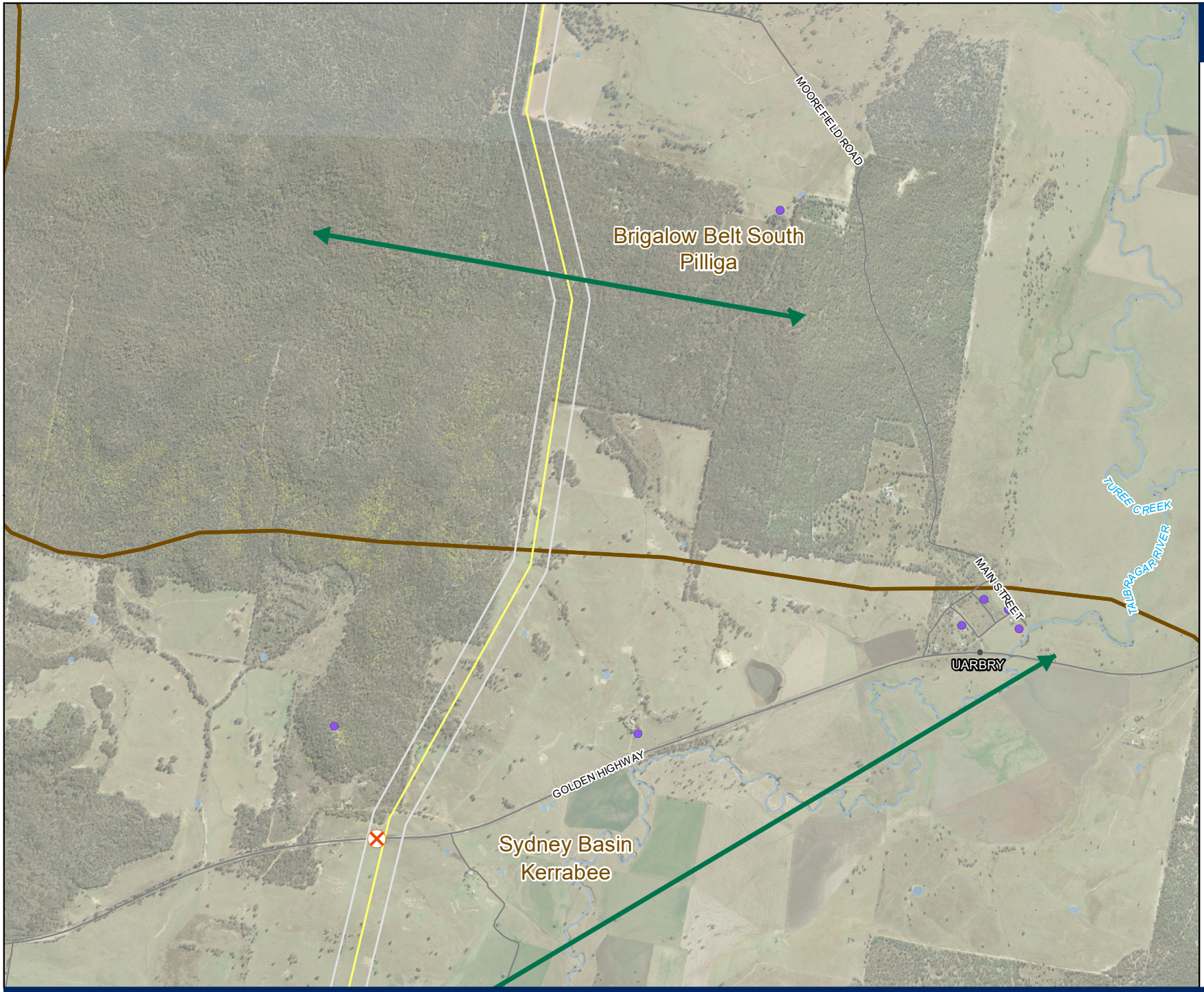
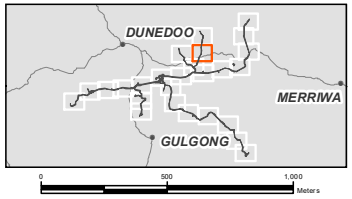


Figure C-1
Site map
Map 19 of 26

Legend

- Biodiversity Study Area
- 330kv transmission line
- Road
- Watercourse
- Waterbody
- Potential locations of vehicle strike
- Dwelling
- Habitat connectivity
- IBRA Regions and Subregions



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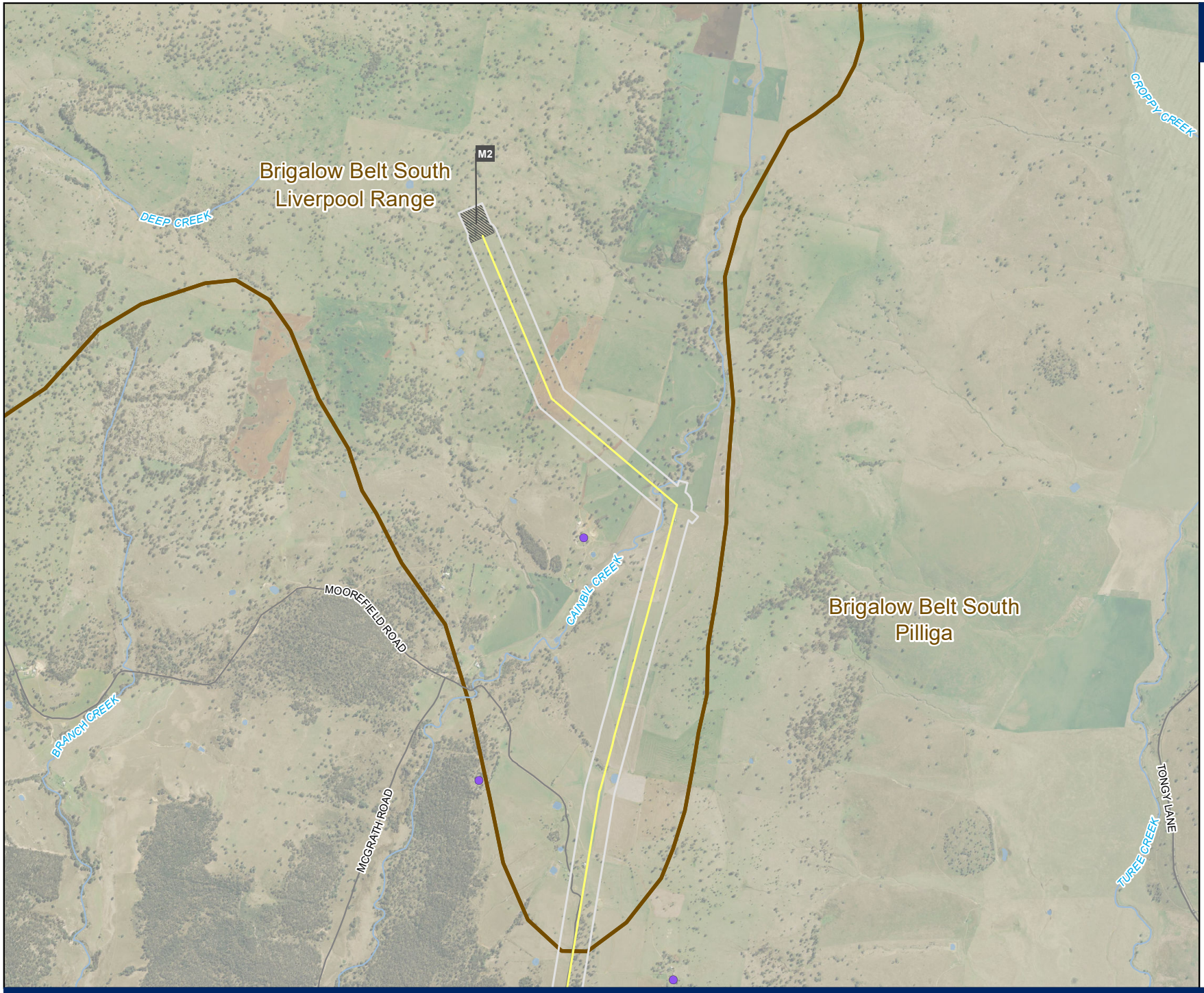
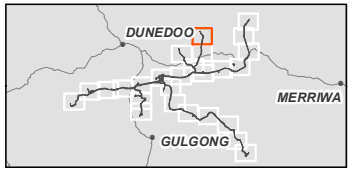


Figure C-1
Site map
Map 20 of 26

Legend

- Biodiversity Study Area
- 330kv transmission line
- 330 kV switching station
- Road
- Watercourse
- Waterbody
- Dwelling
- IBRA Regions and Subregions



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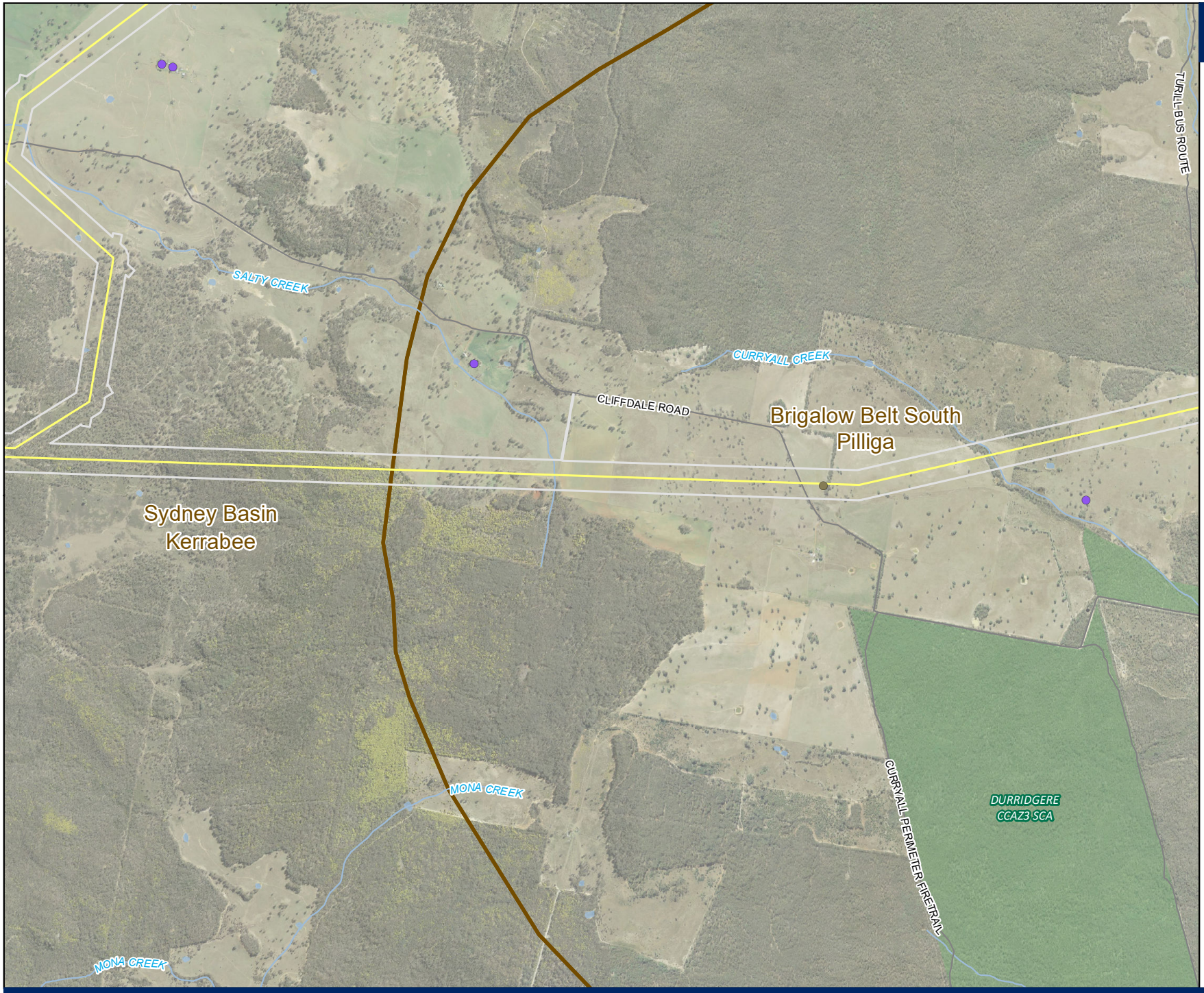
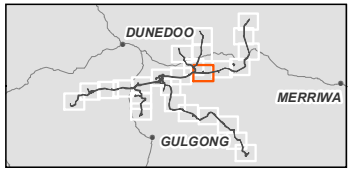


Figure C-1
Site map
Map 21 of 26

Legend

- Biodiversity Study Area
- 330kv transmission line
- Road
- Watercourse
- Waterbody
- Dam
- Dwelling
- IBRA Regions and Subregions
- NPWS estate



Coordinate system: GDA 1994 MGA Zone 55
Scale ratio correct when printed at A4

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Data sources: WSP 2023, NSWSS, EnergyCo

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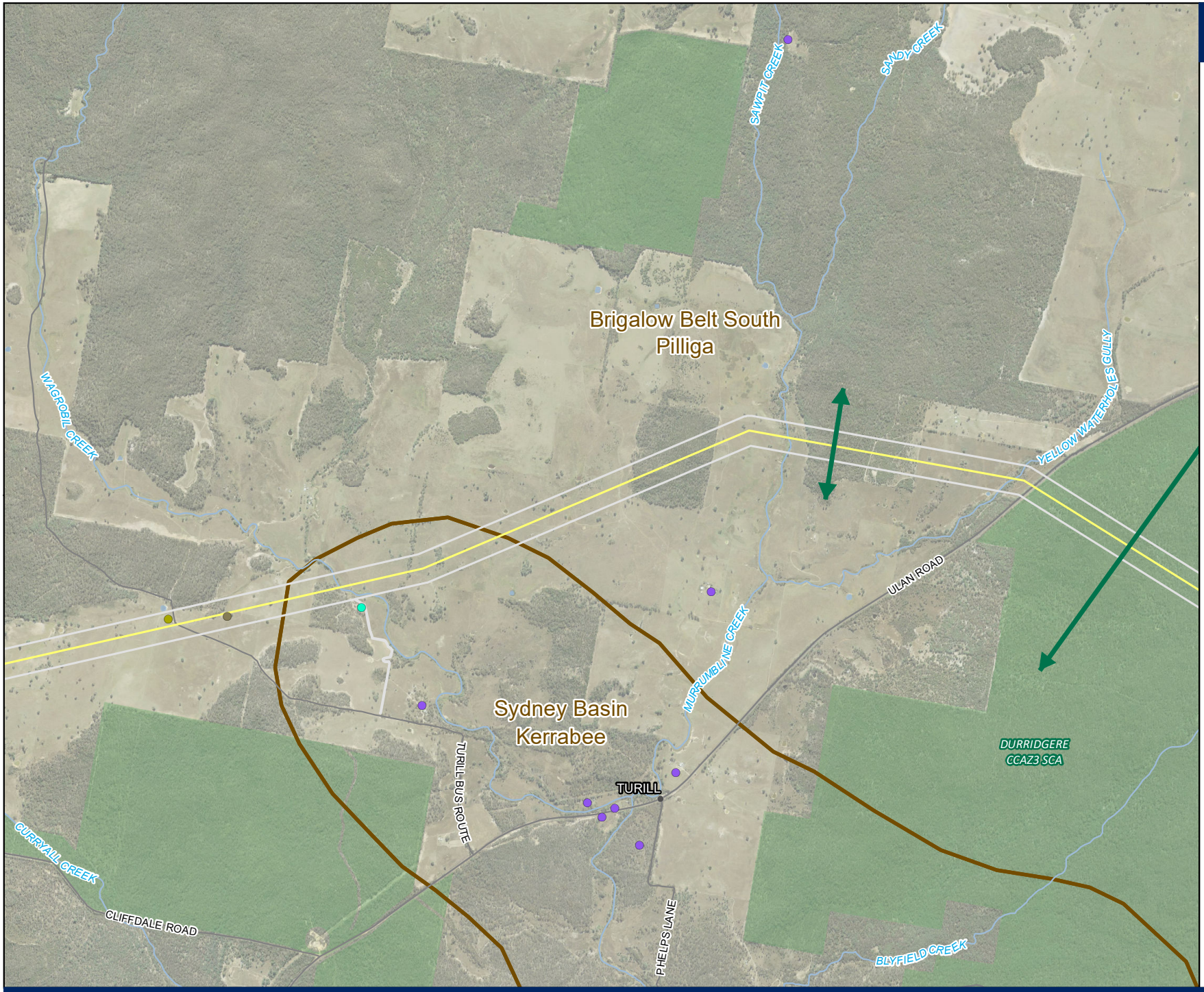
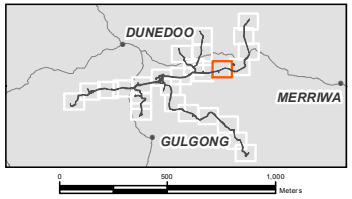


Figure C-1
Site map
Map 22 of 26

Legend

- Biodiversity Study Area
- 330kv transmission line
- Road
- Watercourse
- Waterbody
- Dam
- Dwelling
- Other
- Shed
- Habitat connectivity
- IBRA Regions and Subregions
- NPWS estate



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Data sources: WSP 2023, NSWSS, EnergyCo

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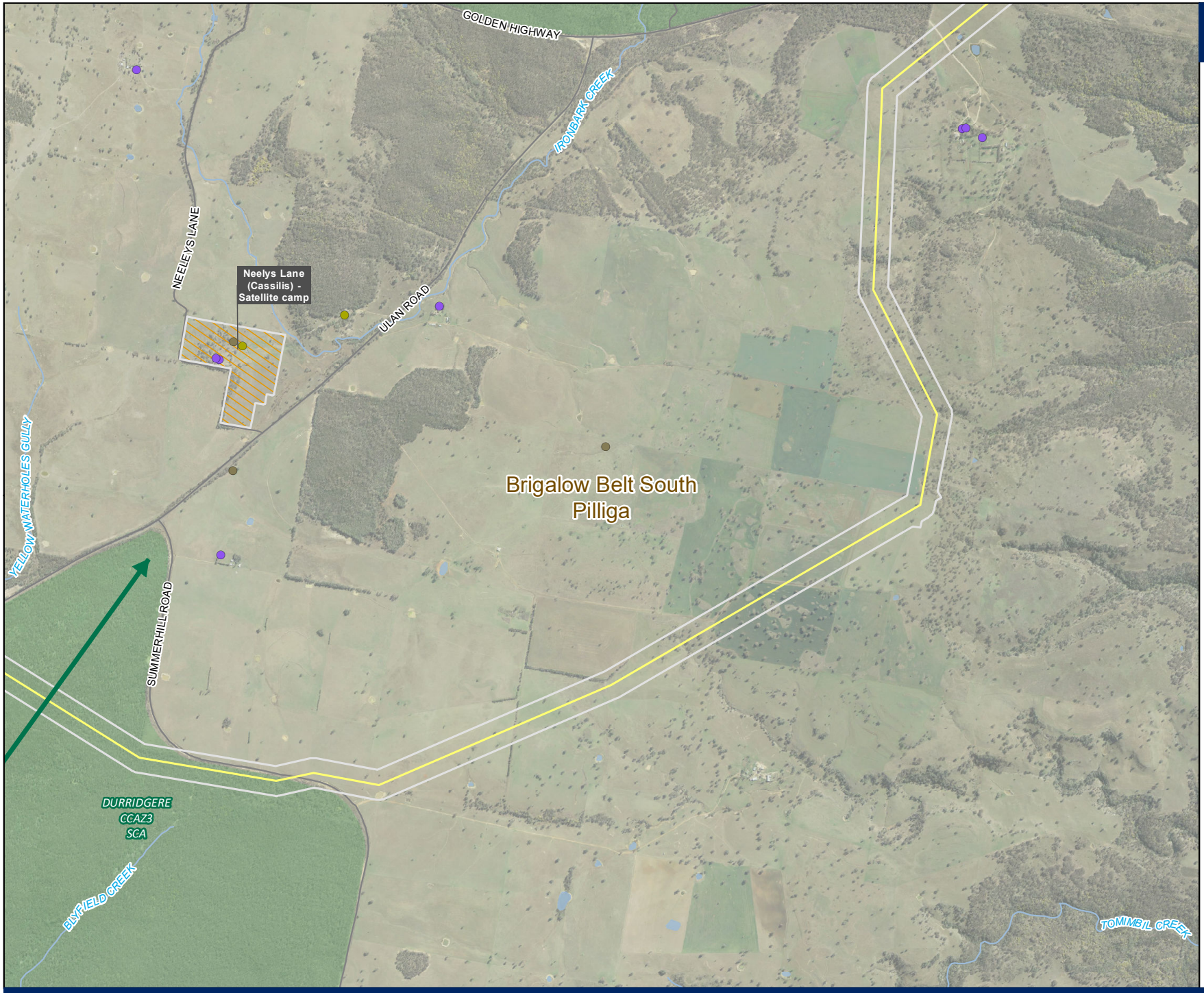
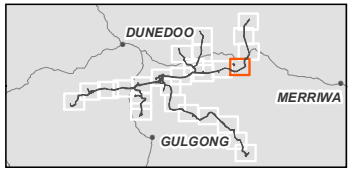


Figure C-1
Site map
Map 23 of 26

Legend

- Biodiversity Study Area
- 330kv transmission line
- Workforce accommodation camp
- Road
- Watercourse
- Waterbody
- Dam
- Dwelling
- Shed
- Habitat connectivity
- IBRA Regions and Subregions
- NPWS estate



0 500 1,000 Meters

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Data sources: WSP 2023, NSWSS, EnergyCo

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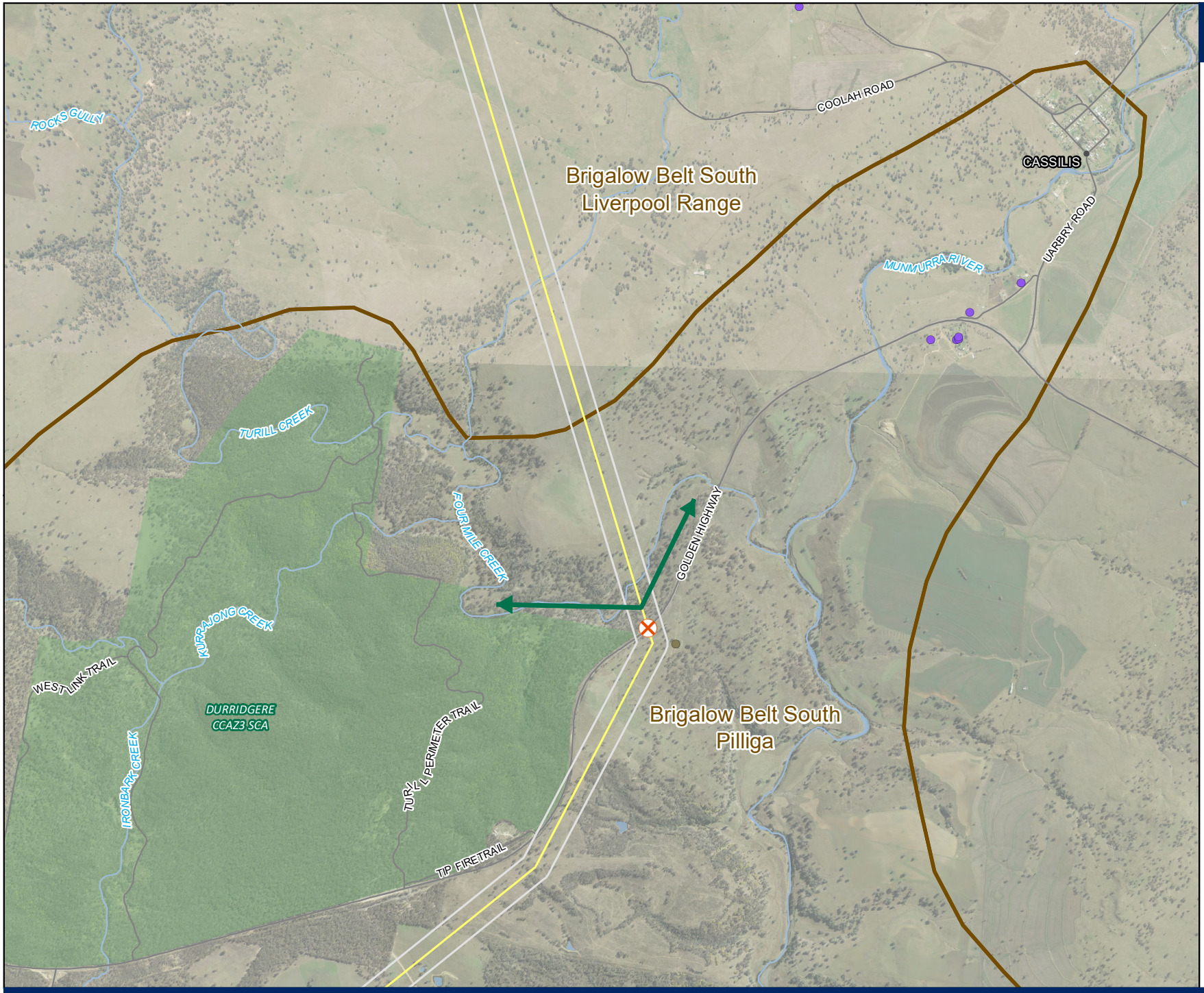
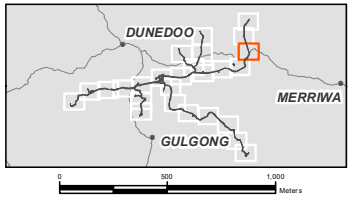


Figure C-1
Site map
Map 24 of 26

Legend

- Biodiversity Study Area
- 330kv transmission line
- Road
- Watercourse
- Waterbody
- Potential locations of vehicle strike
- Dam
- Dwelling
- Habitat connectivity
- IBRA Regions and Subregions
- NPWS estate



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Data sources: WSP 2023, NSWSS, EnergyCo

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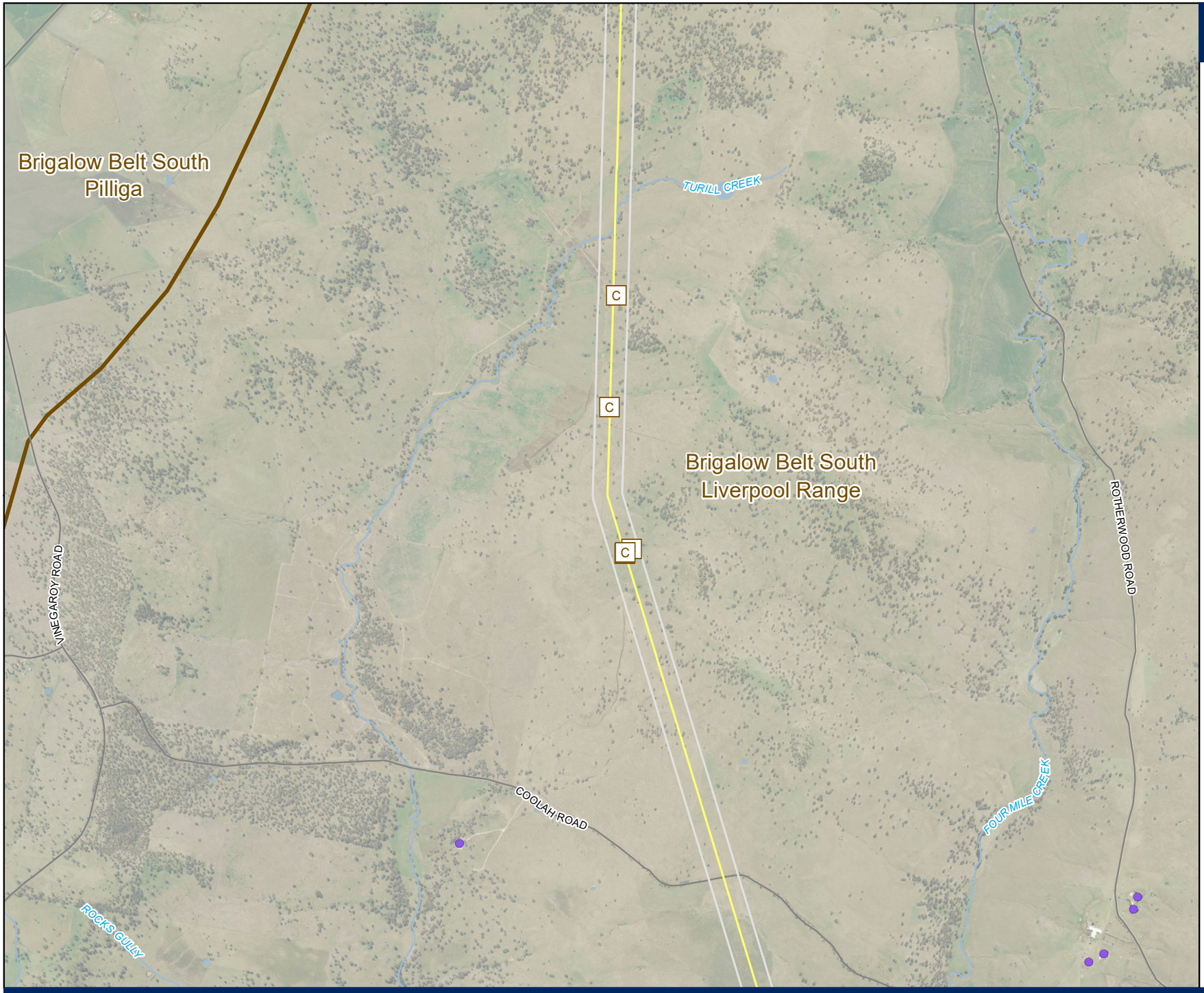
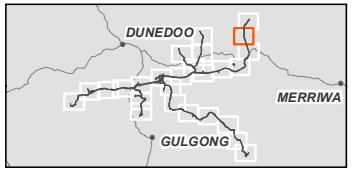


Figure C-1
Site map
Map 25 of 26

Legend

- Biodiversity Study Area
- 330kv transmission line
- Road
- Watercourse
- Waterbody
- C Caves and rocky areas
- Dwelling
- IBRA Regions and Subregions



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Data sources: WSP 2023, NSWSS, EnergyCo

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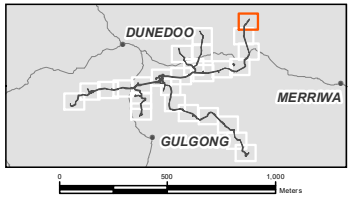
Figure C-1
Site map
Map 26 of 26

Legend

- Biodiversity Study Area
- 330kv transmission line
- 330 kV switching station
- Road
- Watercourse
- Dwelling
- IBRA Regions and Subregions



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Data sources: WSP 2023, NSWSS, EnergyCo

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Figure C1
Threatened Flora Species / Polygons
1 of 50

Legend

- Biodiversity Study Area
- 330kv transmission line
- Switching Station
- Road
- Waterbody
- State Forests

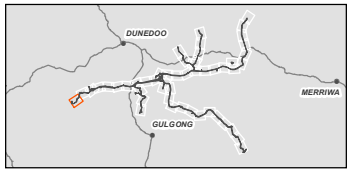
Flora Survey Transects (Season)

Survey Season

- Autumn
- Spring

Survey Type

- Cat 1/PCT verification rapid
- BAM Quadrant



0 400 Meters

Coordinate system: GDA 1994 MGA Zone 55
Scale ratio correct when printed at A4

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Data sources: WSP 2023, NSWSS

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Figure C1
Threatened Flora Species / Polygons
2 of 50

Legend

- Biodiversity Study Area
- 330kv transmission line
- Switching Station
- Road
- Watercourse
- Waterbody

Flora Survey Transects (Season)

Survey Season

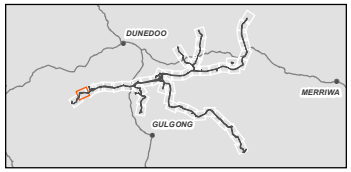
- Autumn
- Spring
- Summer

Survey Type

- Cat 1/PCT verification rapid
- BAM Quadrant

Assumed Species Presence Polygon

- *Dicanthium setosum*
- *Swainsona sericea*
- *Tylophora linearis*



0 500 Meters

Coordinate system: GDA 1994 MGA Zone 55
Scale ratio correct when printed at A4

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Data sources: WSP 2023, NSWSS

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Figure C1
Threatened Flora Species / Polygons
3 of 50

Legend

- Biodiversity Study Area
- 330kv transmission line
- 500kv transmission line
- Switching Station
- Road
- Watercourse
- Waterbody

Flora Survey Transects (Season)

Survey Season

- Spring
- Summer
- Winter

Survey Type

- Cat 1/PCT verification rapid
- BAM Quadrant

Flora Species Polygon

- *Swainsona sericea*

Assumed Species Presence Polygon

- *Dicanthium setosum*
- *Homoranthus darwinioides*
- *Swainsona sericea*
- *Tylophora linearis*

0 500 Meters

Coordinate system: GDA 1994 MGA Zone 55
Scale ratio correct when printed at A4

1:25,000

Data sources: WSP 2023, NSWSS

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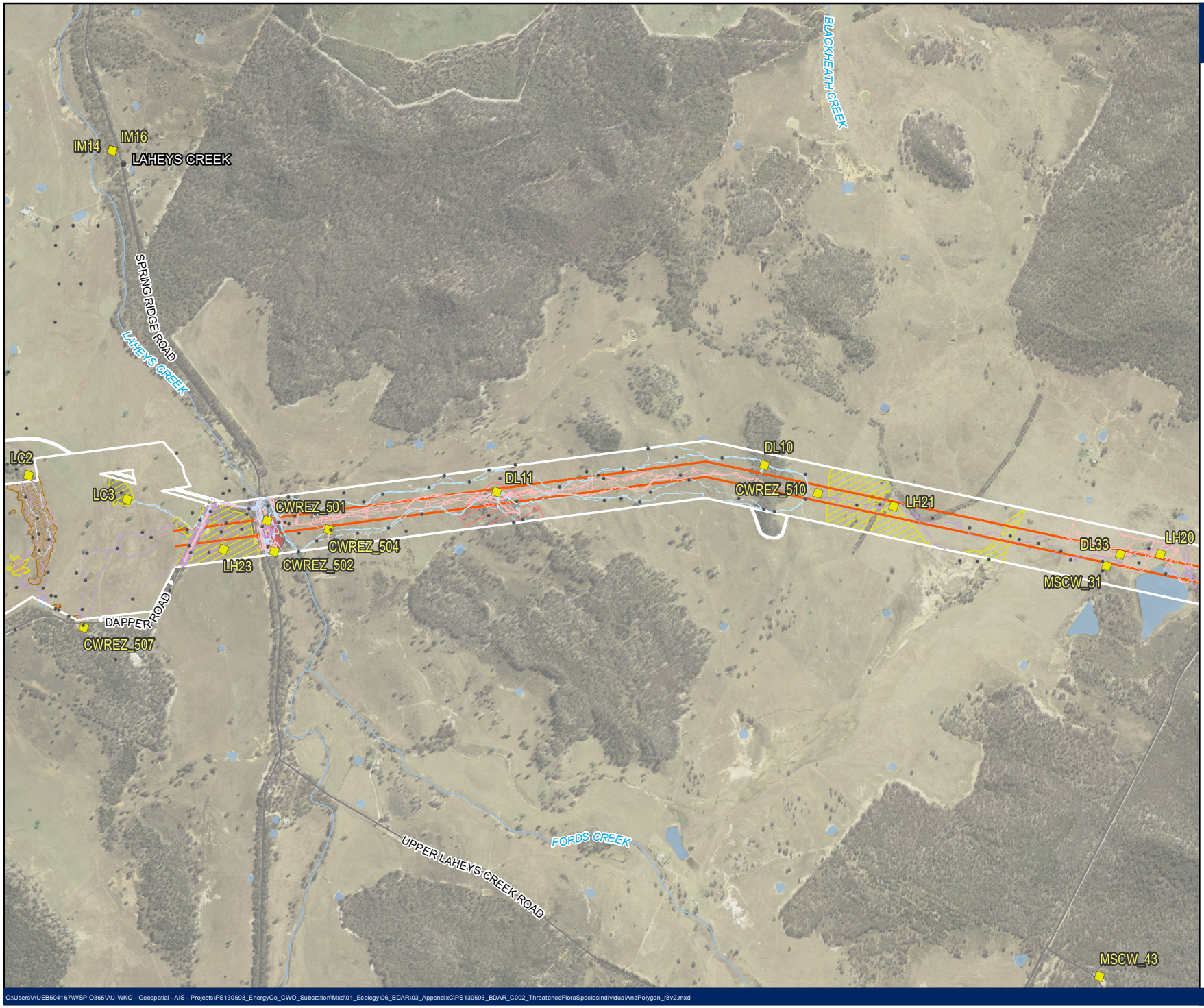

Figure C1
Threatened Flora Species / Polygons
4 of 50

Legend

- Biodiversity Study Area
- 500kv transmission line
- Road
- Watercourse
- Waterbody

Flora Survey Transects (Season)

Survey Season

- Autumn
- Spring
- Summer
- Winter

Survey Type

- Cat 1/PCT verification rapid
- BAM Quadrant

Flora Species Polygon

- *Swainsona sericea*

Assumed Species Presence Polygon

- *Dicanthium setosum*
- *Homoranthus darwinioides*
- *Swainsona sericea*
- *Tylophora linearis*

0 500 Meters

Coordinate system: GDA 1994 MGA Zone 55
Scale ratio correct when printed at A4

1:25,000

Data sources: WSP 2023, NSWSS

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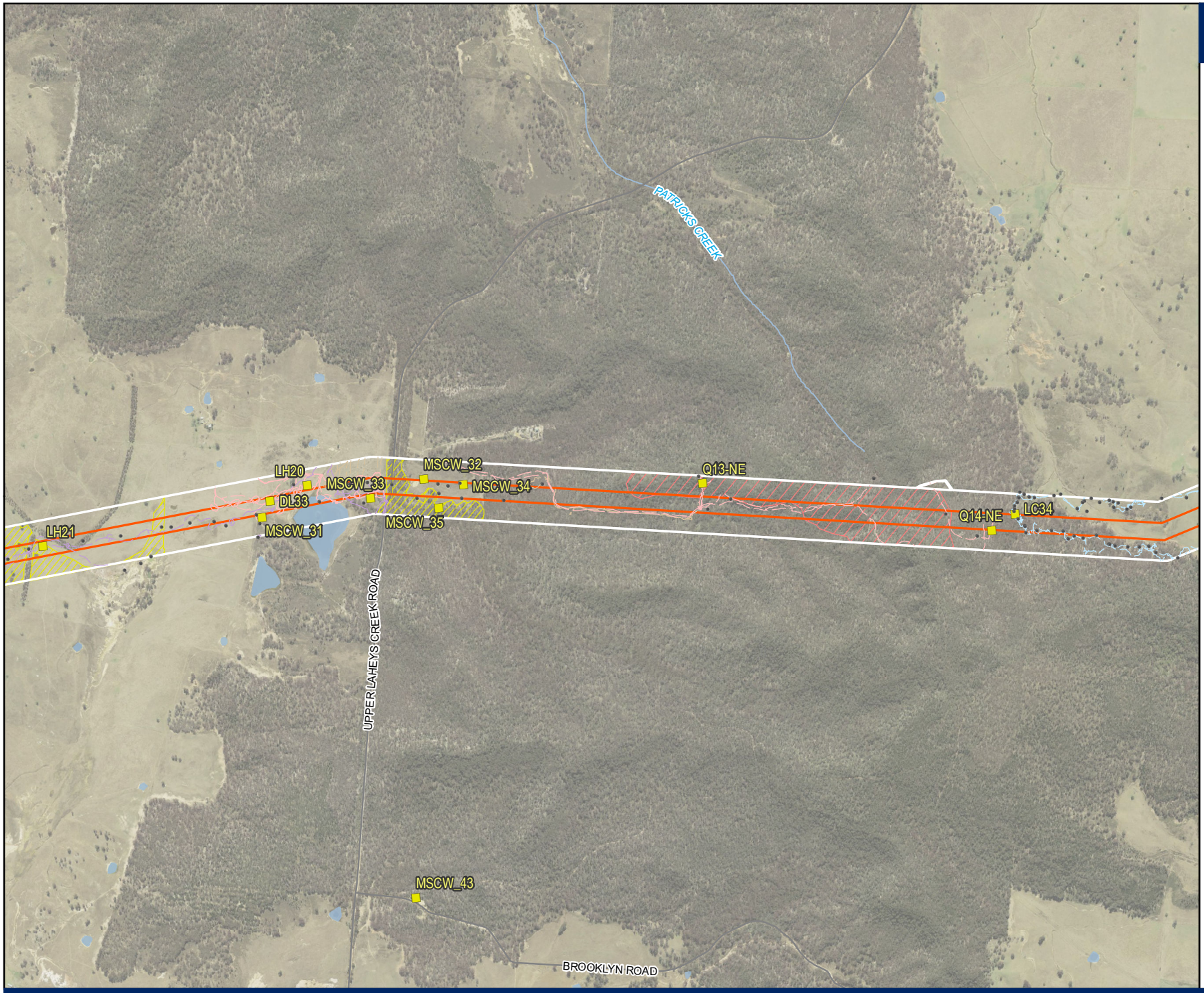

Figure C1
Threatened Flora Species / Polygons
5 of 50

Legend

- Biodiversity Study Area
- 500kv transmission line
- Road
- Watercourse
- Waterbody

Flora Survey Transects (Season)

Survey Season

- Autumn
- Spring
- Summer
- Winter

Survey Type

- Cat 1/PCT verification rapid
- BAM Quadrant

Assumed Species Presence Polygon

- *Dicanthium setosum*
- *Swainsona sericea*

0 500 Meters

Coordinate system: GDA 1994 MGA Zone 55
Scale ratio correct when printed at A4

1:25,000

Data sources: WSP 2023, NSWSS

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Figure C1
Threatened Flora Species / Polygons
6 of 50

Legend

- Biodiversity Study Area
- 330kv transmission line
- 500kv transmission line
- Switching Station
- Road
- Watercourse
- Waterbody

Flora Survey Transects (Season)

Survey Season

- Summer
- Winter

Survey Type

- Cat 1/PCT verification rapid
- BAM Quadrant

Assumed Species Presence Polygon

- *Euphrasia arguta*
- *Swainsona recta*
- *Swainsona sericea*

0 500 Meters

Coordinate system: GDA 1994 MGA Zone 55
Scale ratio correct when printed at A4

1:25,000

Data sources: WSP 2023, NSWSS

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Figure C1
Threatened Flora Species / Polygons
7 of 50

Legend

- Biodiversity Study Area
- 330kv transmission line
- 500kv transmission line
- Existing transmission line
- Switching Station
- Road
- Watercourse
- Waterbody

Flora Survey Transects (Season)

Survey Season

- Spring
- Summer
- Winter

Survey Type

- Cat 1/PCT verification rapid
- BAM Quadrant

Assumed Species Presence Polygon

- *Dicanthium setosum*
- *Euphrasia arguta*
- *Swainsona recta*
- *Swainsona sericea*

0 500 Meters

Coordinate system: GDA 1994 MGA Zone 55
Scale ratio correct when printed at A4

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Data sources: WSP 2023, NSWSS

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Figure C1
Threatened Flora Species / Polygons
8 of 50

Legend

- Biodiversity Study Area
- 330kv transmission line
- 500kv transmission line
- Switching Station
- Road
- Railway
- Watercourse
- Waterbody

Flora Survey Transects (Season)

Survey Season

- Spring
- Summer
- Winter

Survey Type

- Cat 1/PCT verification rapid
- BAM Quadrant

Assumed Species Presence Polygon

- *Dicanthium setosum*
- *Euphrasia arguta*
- *Swainsona recta*
- *Swainsona sericea*

0 500 Meters

Coordinate system: GDA 1994 MGA Zone 55
Scale ratio correct when printed at A4

1:25,000

Data sources: WSP 2023, NSWSS

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Figure C1
Threatened Flora Species / Polygons
9 of 50

Legend

- Biodiversity Study Area
- 330kv transmission line
- 500kv transmission line
- Road
- Railway
- Watercourse
- Waterbody

Flora Survey Transects (Season)

Survey Season

- Spring
- Winter

Survey Type

- Cat 1/PCT verification rapid
- BAM Quadrant

Assumed Species Presence Polygon

- *Dicanthium setosum*
- *Euphrasia arguta*

Coordinate system: GDA 1994 MGA Zone 55
Scale ratio correct when printed at A4

1:25,000

Data sources: WSP 2023, NSWSS

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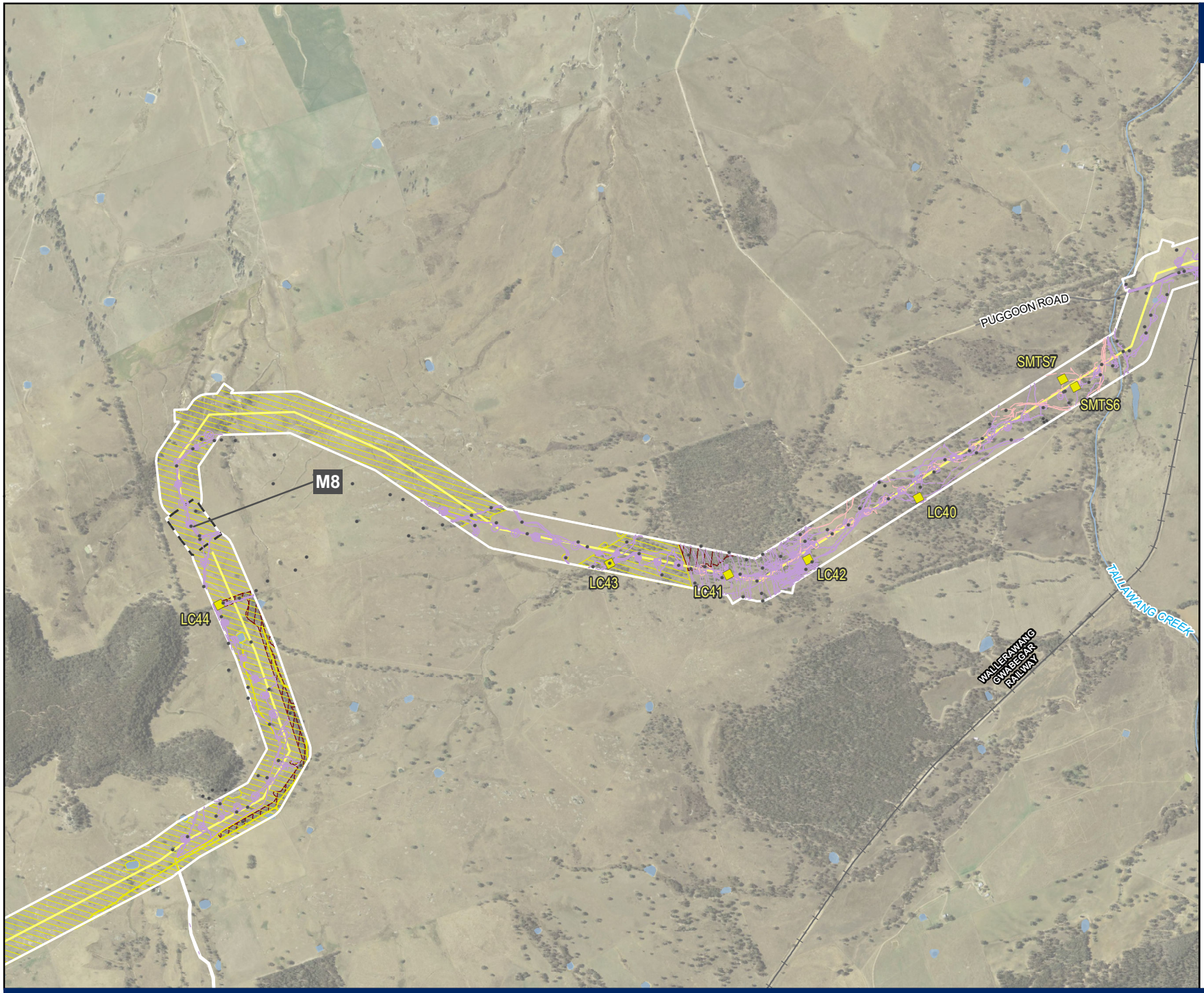


Figure C1
Threatened Flora Species / Polygons
10 of 50

Legend

- Biodiversity Study Area
- 330kv transmission line
- Switching Station
- Road
- Railway
- Watercourse
- Waterbody

Flora Survey Transects (Season)

Survey Season

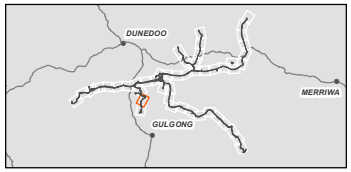
- Spring
- Summer

Survey Type

- Cat 1/PCT verification rapid
- BAM Quadrant

Assumed Species Presence Polygon

- *Dicanthium setosum*
- *Euphrasia arguta*



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Data sources: WSP 2023, NSWSS

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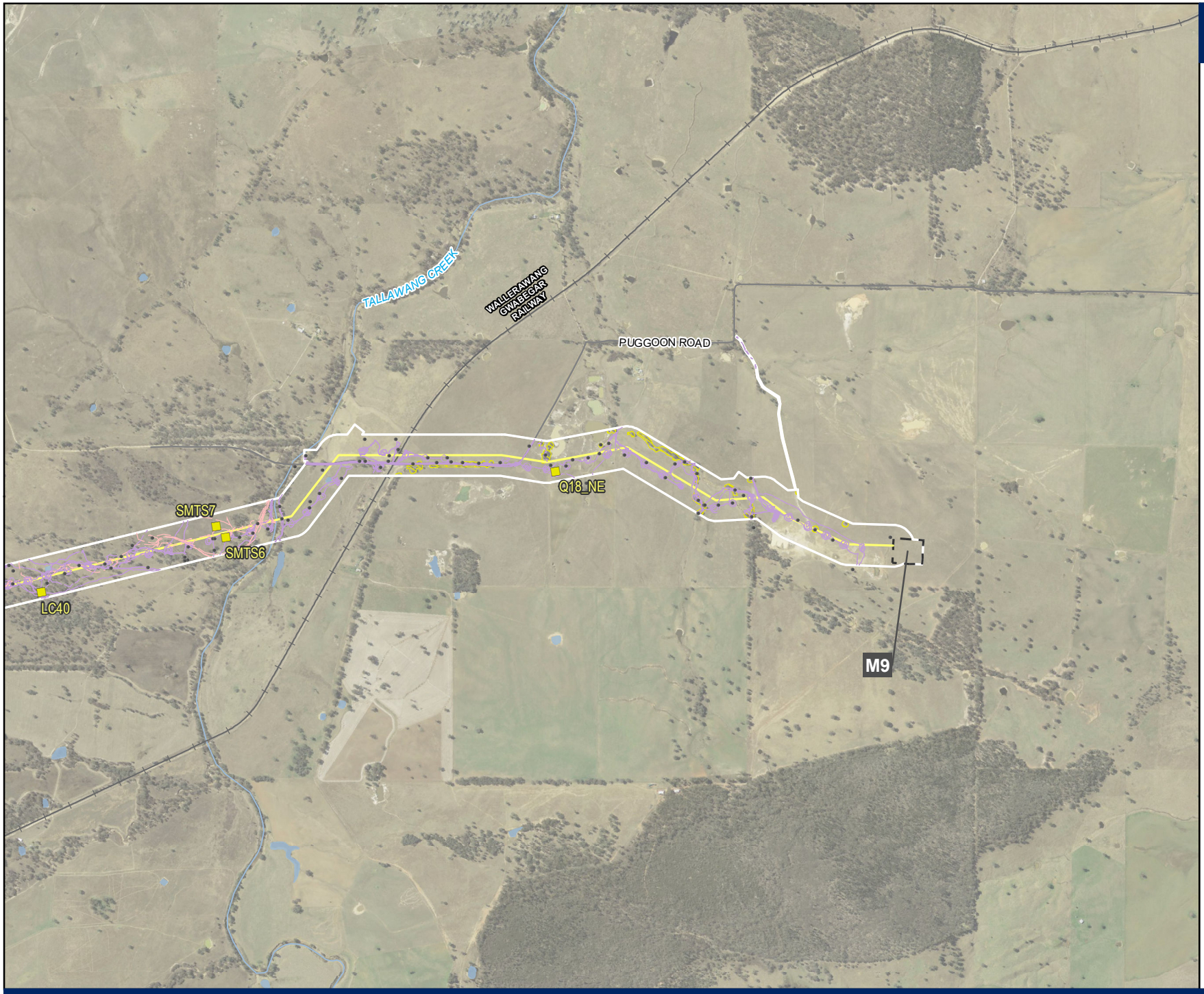


Figure C1
Threatened Flora Species / Polygons
11 of 50

Legend

- Biodiversity Study Area
- 330kv transmission line
- Switching Station
- Road
- Railway
- Watercourse
- Waterbody

Flora Survey Transects (Season)

Survey Season

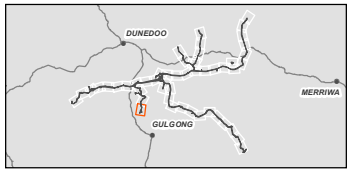
- Spring
- Summer

Survey Type

- Cat 1/PCT verification rapid
- BAM Quadrant

Assumed Species Presence Polygon

- *Dicanthium setosum*



0 500 Meters

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Data sources: WSP 2023, NSWSS

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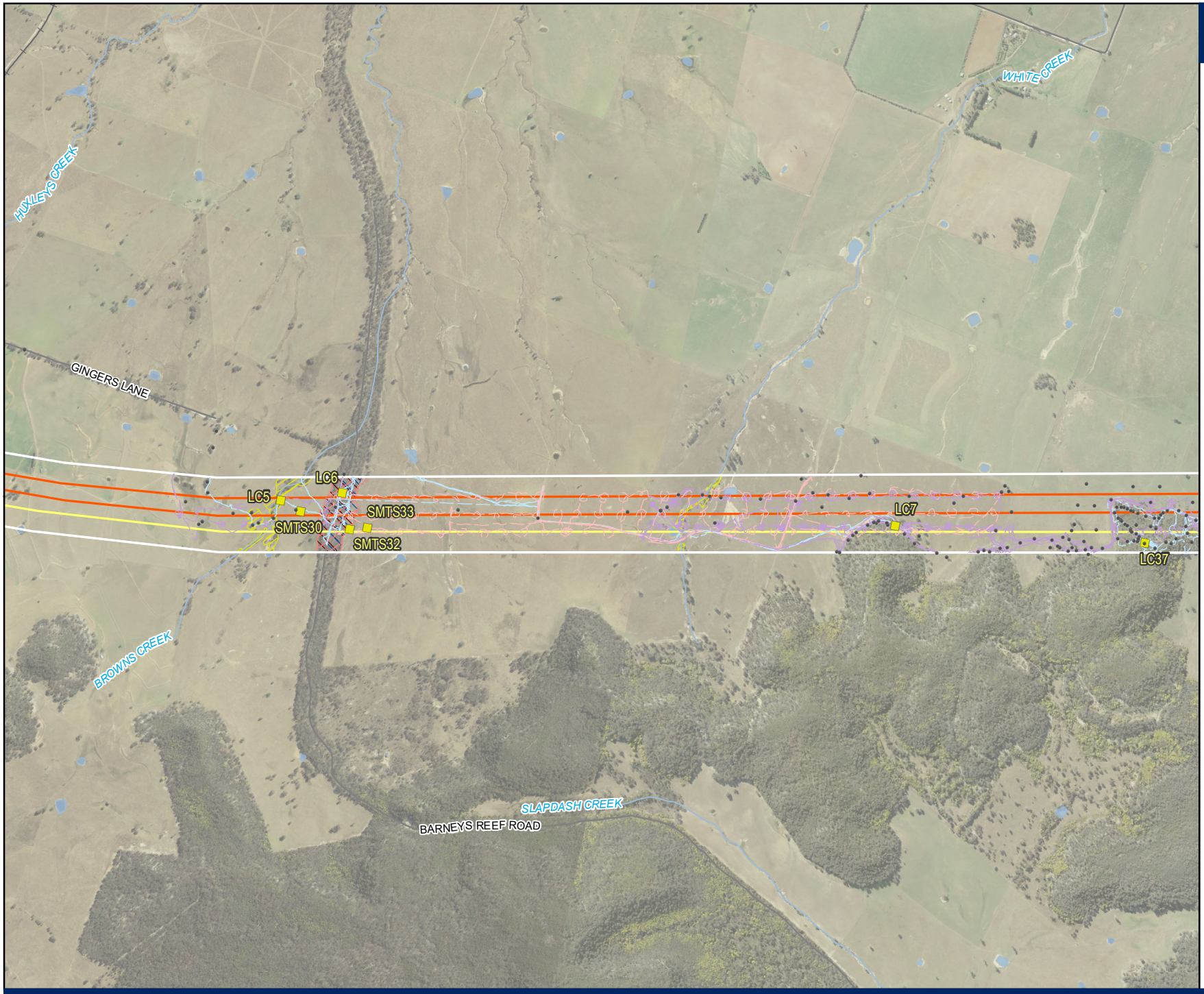

Figure C1
Threatened Flora Species / Polygons
12 of 50

Legend

- Biodiversity Study Area
- 330kv transmission line
- 500kv transmission line
- Road
- Railway
- Watercourse
- Waterbody

Flora Survey Transects (Season)

Survey Season

- Spring
- Summer
- Winter

Survey Type

- Cat 1/PCT verification rapid
- BAM Quadrant

Assumed Species Presence Polygon

- *Dicanthium setosum*
- *Euphrasia arguta*
- *Swainsona recta*
- *Swainsona sericea*

0 500 Meters

Coordinate system: GDA 1994 MGA Zone 55
Scale ratio correct when printed at A4

1:25,000

Data sources: WSP 2023, NSWSS

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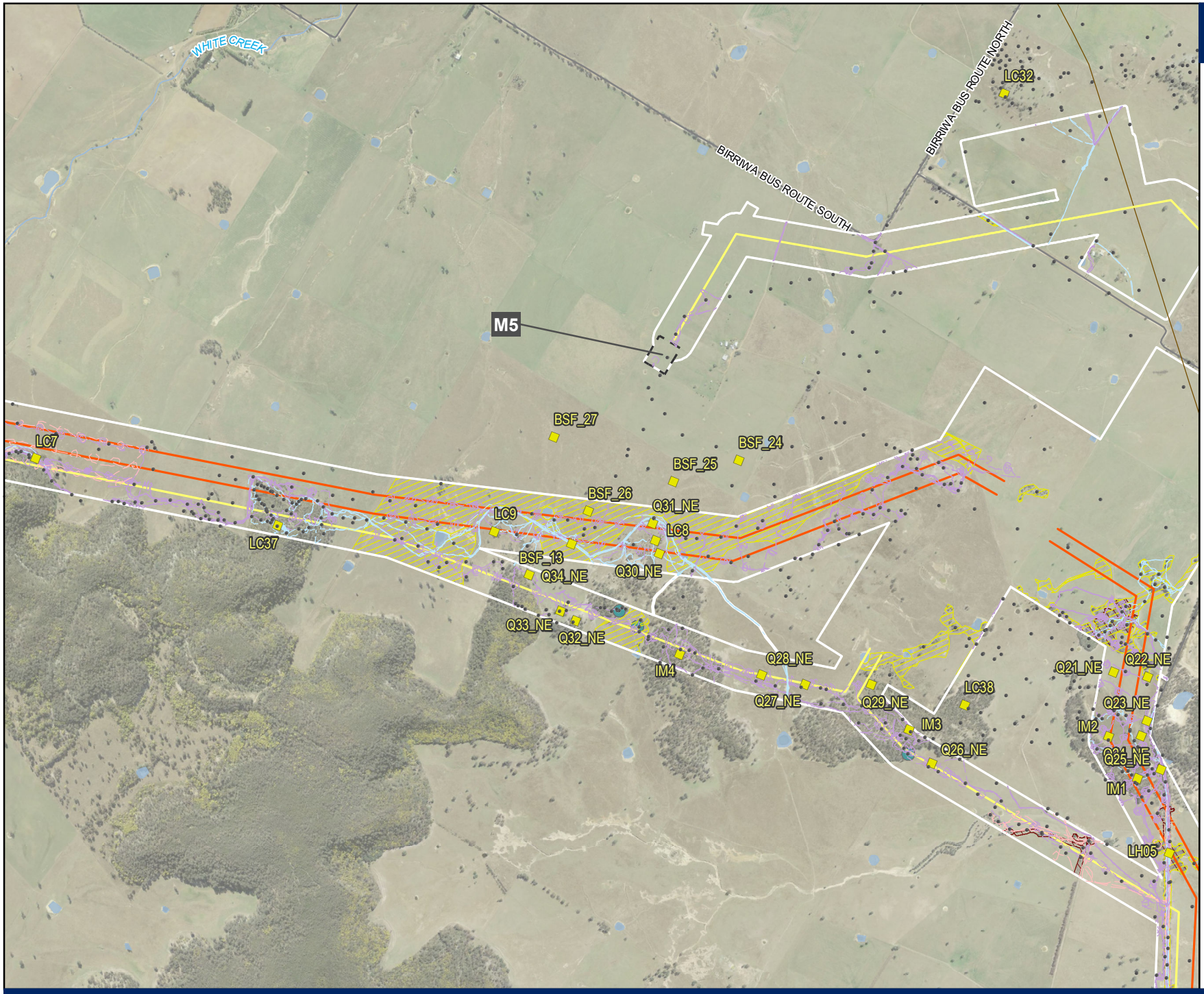

Figure C1
Threatened Flora Species / Polygons
13 of 50

Legend

- Biodiversity Study Area
- 330kv transmission line
- 500kv transmission line
- Existing transmission line
- Switching Station
- Road
- Watercourse
- Waterbody

Flora Survey Transects (Season)

Survey Season

- Autumn
- Spring
- Summer
- Winter

Survey Type

- Cat 1/PCT verification rapid
- BAM Quadrant

Flora Species Polygon

- *Eucalyptus cannonii*

Assumed Species Presence Polygon

- *Dicanthium setosum*
- *Euphrasia arguta*

0 500 Meters

Coordinate system: GDA 1994 MGA Zone 55
Scale ratio correct when printed at A4

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Data sources: WSP 2023, NSWSS

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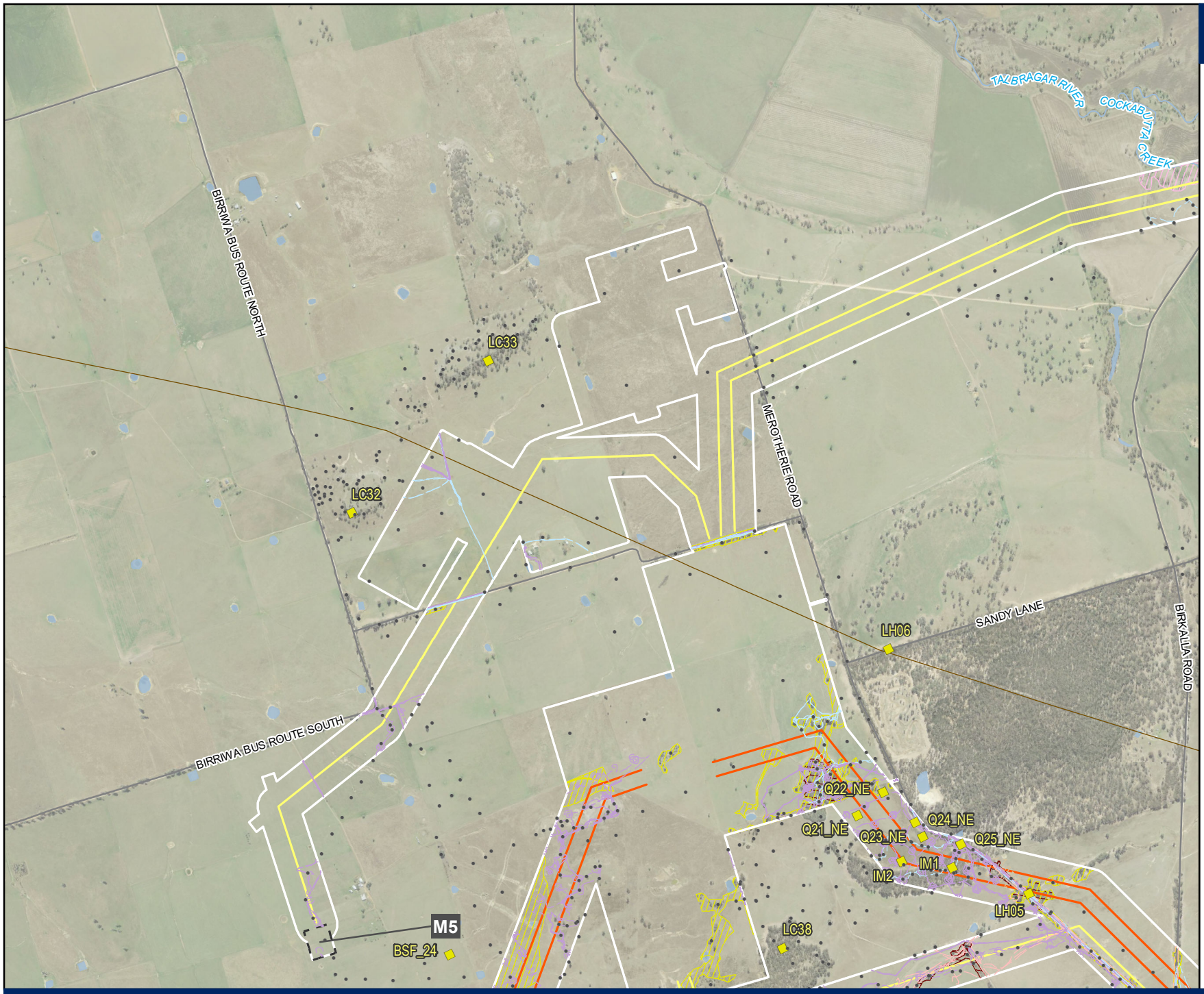

Figure C1
Threatened Flora Species / Polygons
14 of 50

Legend

- Biodiversity Study Area
- 330kv transmission line
- 500kv transmission line
- Existing transmission line
- Switching Station
- Road
- Watercourse
- Waterbody

Flora Survey Transects (Season)

Survey Season

- Autumn
- Spring
- Summer
- Winter

Survey Type

- Cat 1/PCT verification rapid
- BAM Quadrant

Assumed Species Presence Polygon

- *Acacia ausfeldii*
- *Dicanthium setosum*
- *Euphrasia arguta*

0 500 Meters

Coordinate system: GDA 1994 MGA Zone 55
Scale ratio correct when printed at A4

1:25,000

Data sources: WSP 2023, NSWSS

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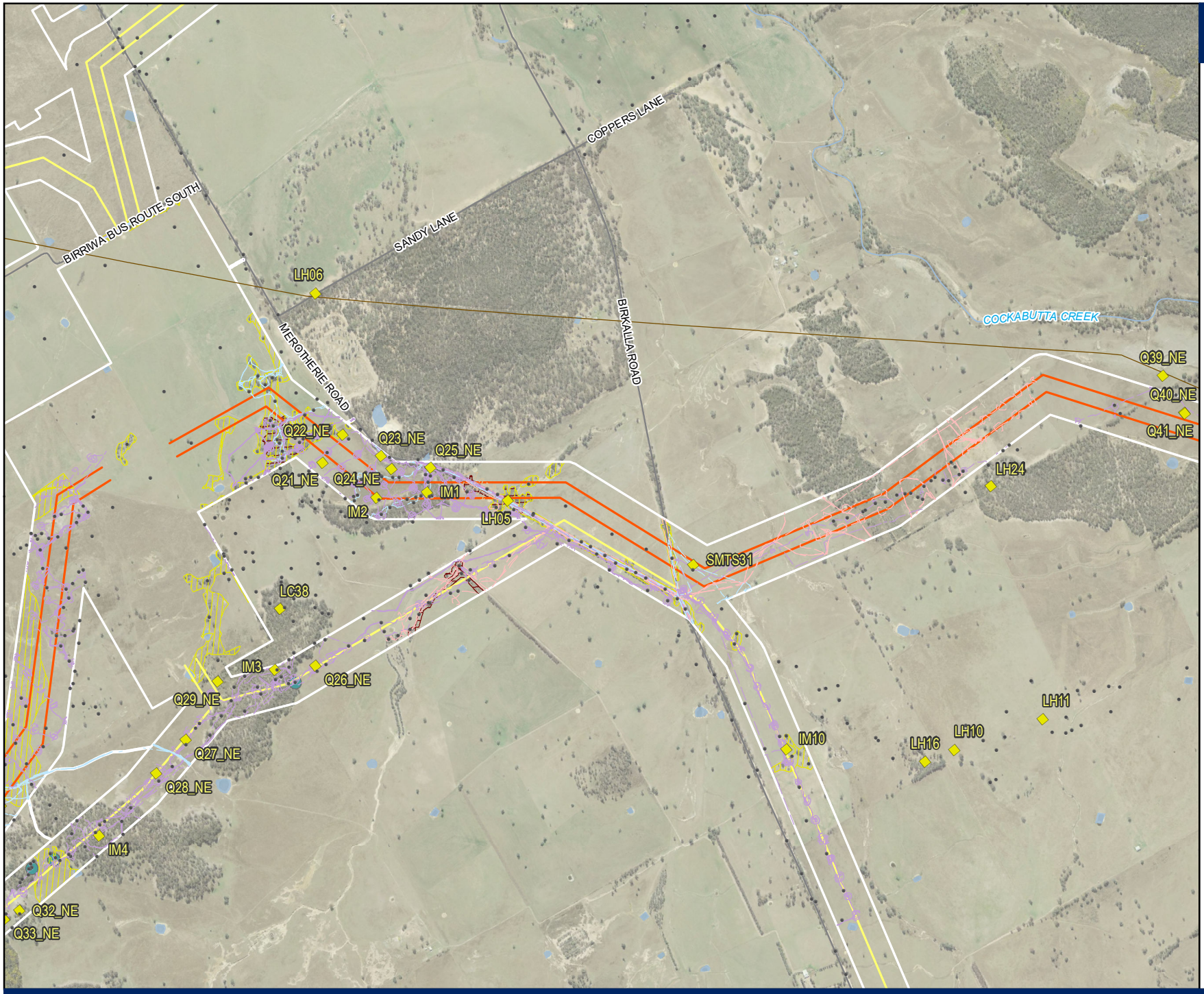

Figure C1
Threatened Flora Species / Polygons
15 of 50

Legend

- Biodiversity Study Area
- 330kv transmission line
- 500kv transmission line
- Existing transmission line
- Road
- Watercourse
- Waterbody

Flora Survey Transects (Season)

Survey Season

- Autumn
- Spring
- Summer
- Winter

Survey Type

- Cat 1/PCT verification rapid
- BAM Quadrant

Flora Species Polygon

- *Eucalyptus cannonii*

Assumed Species Presence Polygon

- *Dicanthium setosum*
- *Euphrasia arguta*

0 500 Meters

Coordinate system: GDA 1994 MGA Zone 55
Scale ratio correct when printed at A4

1:25,000

Data sources: WSP 2023, NSWSS

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Figure C1
Threatened Flora Species / Polygons
16 of 50

Legend

- Biodiversity Study Area
- 330kv transmission line
- 500kv transmission line
- Existing transmission line
- Switching Station
- Road
- Watercourse
- Waterbody

Flora Survey Transects (Season)

Survey Season

- Autumn
- Spring
- Summer
- Winter

Survey Type

- Cat 1/PCT verification rapid
- BAM Quadrant

Assumed Species Presence Polygon

- *Dicanthium setosum*
- *Euphrasia arguta*

0 500 Meters

Coordinate system: GDA 1994 MGA Zone 55
Scale ratio correct when printed at A4

1:25,000

Data sources: WSP 2023, NSWSS

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Figure C1
Threatened Flora Species / Polygons
17 of 50

Legend

- Biodiversity Study Area
- 330kv transmission line
- 500kv transmission line
- Existing transmission line
- Road
- Watercourse
- Waterbody

Flora Survey Transects (Season)

Survey Season

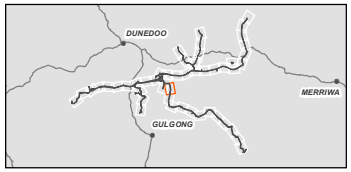
- Spring
- Summer
- Winter

Survey Type

- Cat 1/PCT verification rapid
- BAM Quadrant

Assumed Species Presence Polygon

- *Dicanthium setosum*
- *Swainsona sericea*



0 500 Meters

Coordinate system: GDA 1994 MGA Zone 55
Scale ratio correct when printed at A4

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Data sources: WSP 2023, NSWSS

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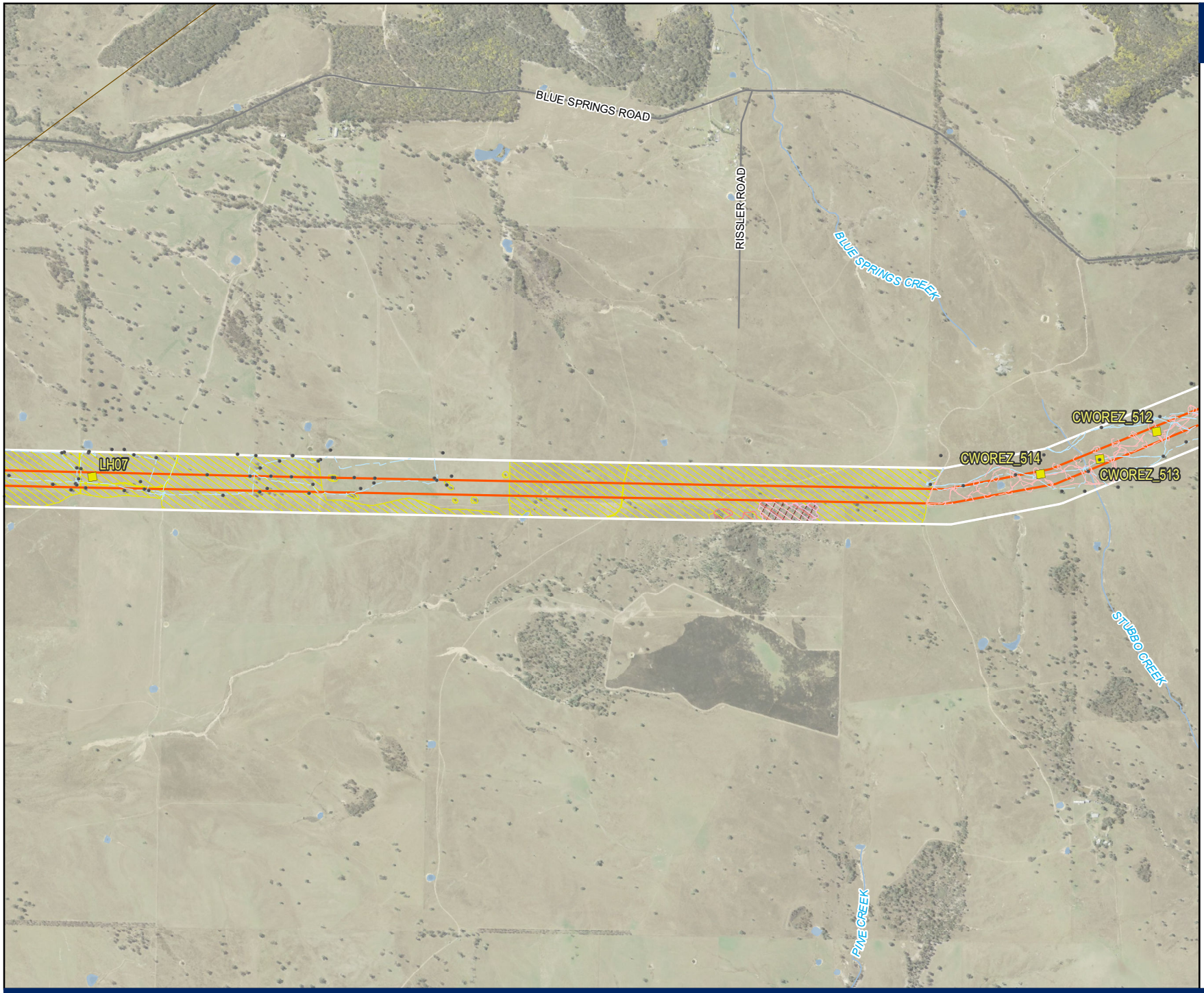


Figure C1
Threatened Flora Species / Polygons
18 of 50

Legend

- Biodiversity Study Area
- 500kv transmission line
- Existing transmission line
- Road
- Watercourse
- Waterbody

Flora Survey Transects (Season)

Survey Season

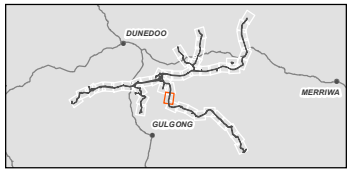
- Summer
- Winter

Survey Type

- Cat 1/PCT verification rapid
- BAM Quadrant

Assumed Species Presence Polygon

- *Acacia ausfeldii*
- *Dicanthium setosum*
- *Euphrasia arguta*
- *Swainsona sericea*



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Coordinate system: GDA 1994 MGA Zone 55
Scale ratio correct when printed at A4

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Data sources: WSP 2023, NSWSS

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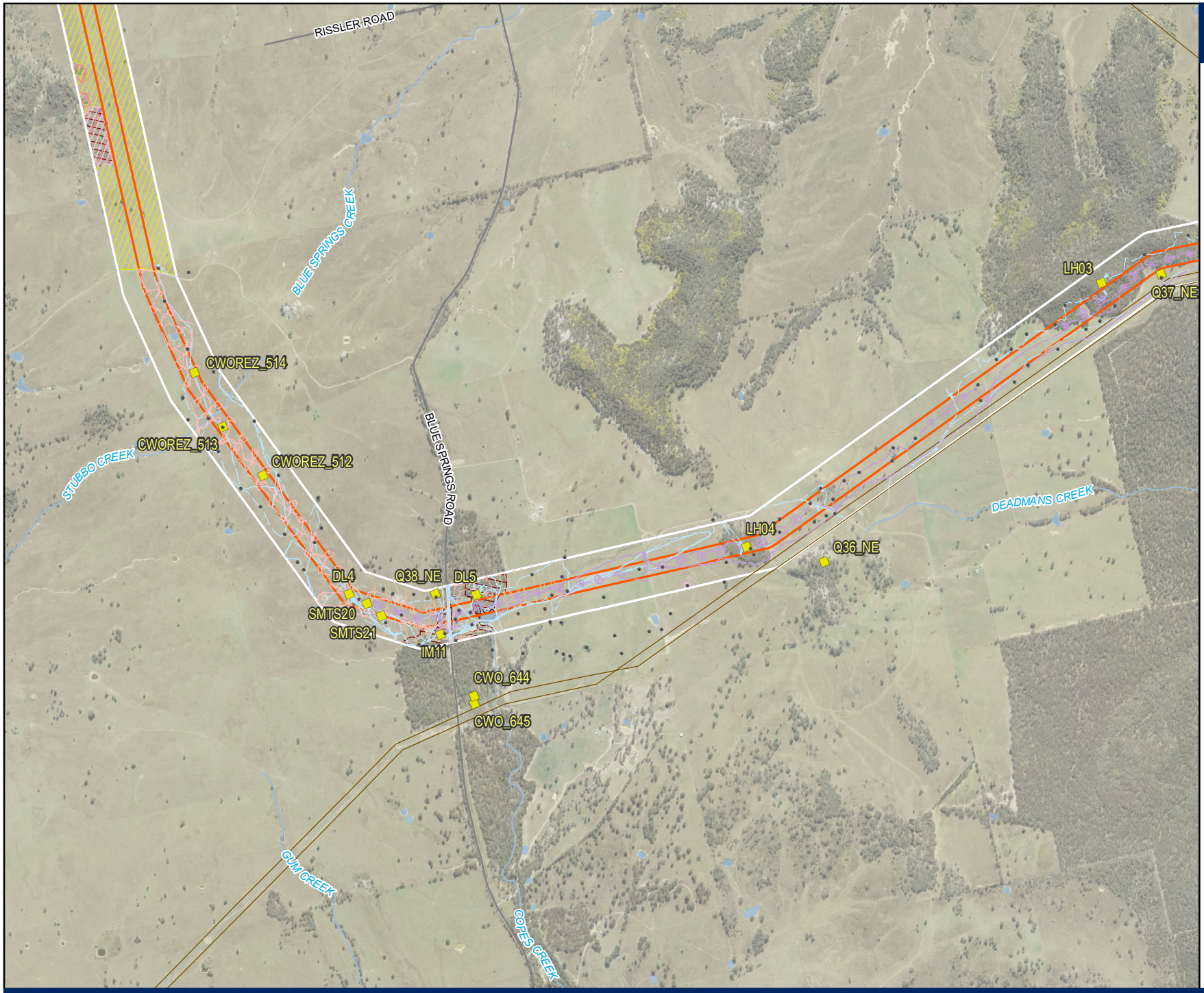

Figure C1
Threatened Flora Species / Polygons
19 of 50

Legend

- Biodiversity Study Area
- 500kv transmission line
- Existing transmission line
- Road
- Watercourse
- Waterbody

Flora Survey Transects (Season)

Survey Season

- Autumn
- Spring
- Summer
- Winter

Survey Type

- Cat 1/PCT verification rapid
- BAM Quadrant

Assumed Species Presence Polygon

- *Acacia ausfeldii*
- *Dicanthium setosum*
- *Euphrasia arguta*
- *Swainsona sericea*

0 500 Meters

Coordinate system: GDA 1994 MGA Zone 55
Scale ratio correct when printed at A4

1:25,000

Data sources: WSP 2023, NSWSS

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Figure C1
Threatened Flora Species / Polygons
20 of 50

Legend

- Biodiversity Study Area
- 500kv transmission line
- Existing transmission line
- Road
- Watercourse
- Waterbody

Flora Survey Transects (Season)

Survey Season

- Spring
- Summer
- Winter

Survey Type

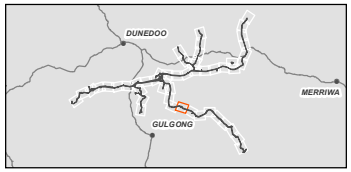
- Cat 1/PCT verification rapid
- BAM Quadrant

Flora Species Polygon

- *Acacia ausfeldii*

Assumed Species Presence Polygon

- *Acacia ausfeldii*
- *Dicanthium setosum*



0 500 Meters

Coordinate system: GDA 1994 MGA Zone 55
Scale ratio correct when printed at A4

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Data sources: WSP 2023, NSWSS

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Figure C1
Threatened Flora Species / Polygons
21 of 50

Legend

- Biodiversity Study Area
- 500kv transmission line
- Existing transmission line
- Road
- Railway
- Watercourse
- Waterbody

Flora Survey Transects (Season)

Survey Season

- Autumn
- Spring
- Summer

Survey Type

- Cat 1/PCT verification rapid
- BAM Quadrant

Threatened Flora Species

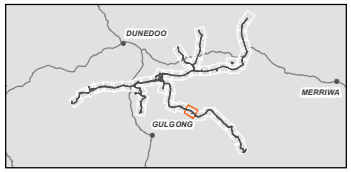
- *Leucochrysum albicans*

Flora Species Polygon

- *Acacia ausfeldii*
- *Leucochrysum albicans*

Assumed Species Presence Polygon

- *Acacia ausfeldii*
- *Dicanthium setosum*



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Coordinate system: GDA 1994 MGA Zone 55
Scale ratio correct when printed at A4

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Data sources: WSP 2023, NSWSS

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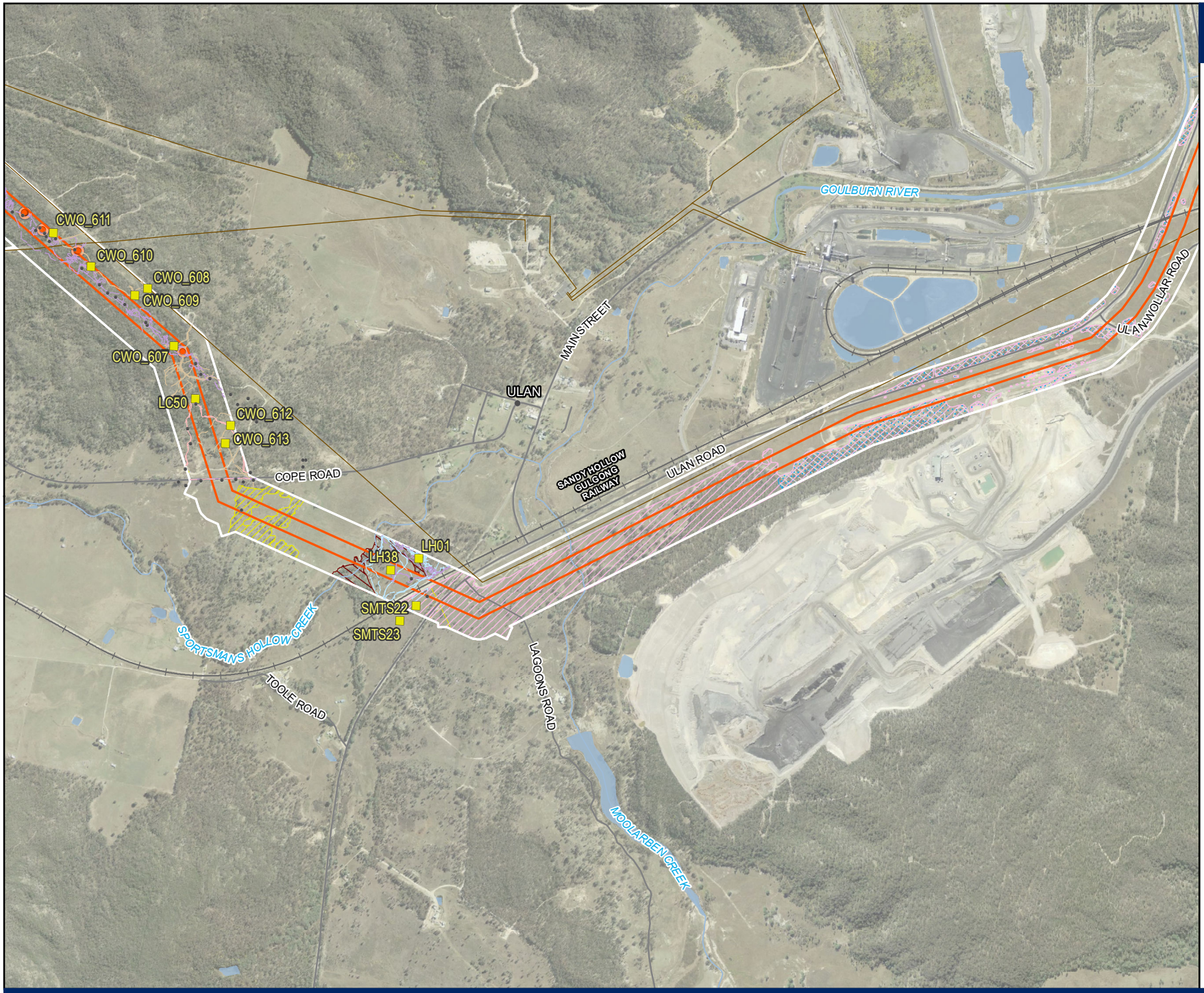

Figure C1
Threatened Flora Species / Polygons
22 of 50

Legend

- Biodiversity Study Area
- 500kv transmission line
- Existing transmission line
- Road
- Railway
- Watercourse
- Waterbody

Flora Survey Transects (Season)

Survey Season

- Autumn
- Spring
- Summer
- Winter

Survey Type

- Cat 1/PCT verification rapid
- BAM Quadrant

Threatened Flora Species

- *Leucochrysum albicans*

Flora Species Polygon

- *Leucochrysum albicans*

Assumed Species Presence Polygon

- *Acacia ausfeldii*
- *Dicanthium setosum*
- *Euphrasia arguta*
- *Monotaxis macrophylla*
- *Pomaderris cotoneaster*

0 500 Meters

Coordinate system: GDA 1994 MGA Zone 55
Scale ratio correct when printed at A4

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Data sources: WSP 2023, NSWSS

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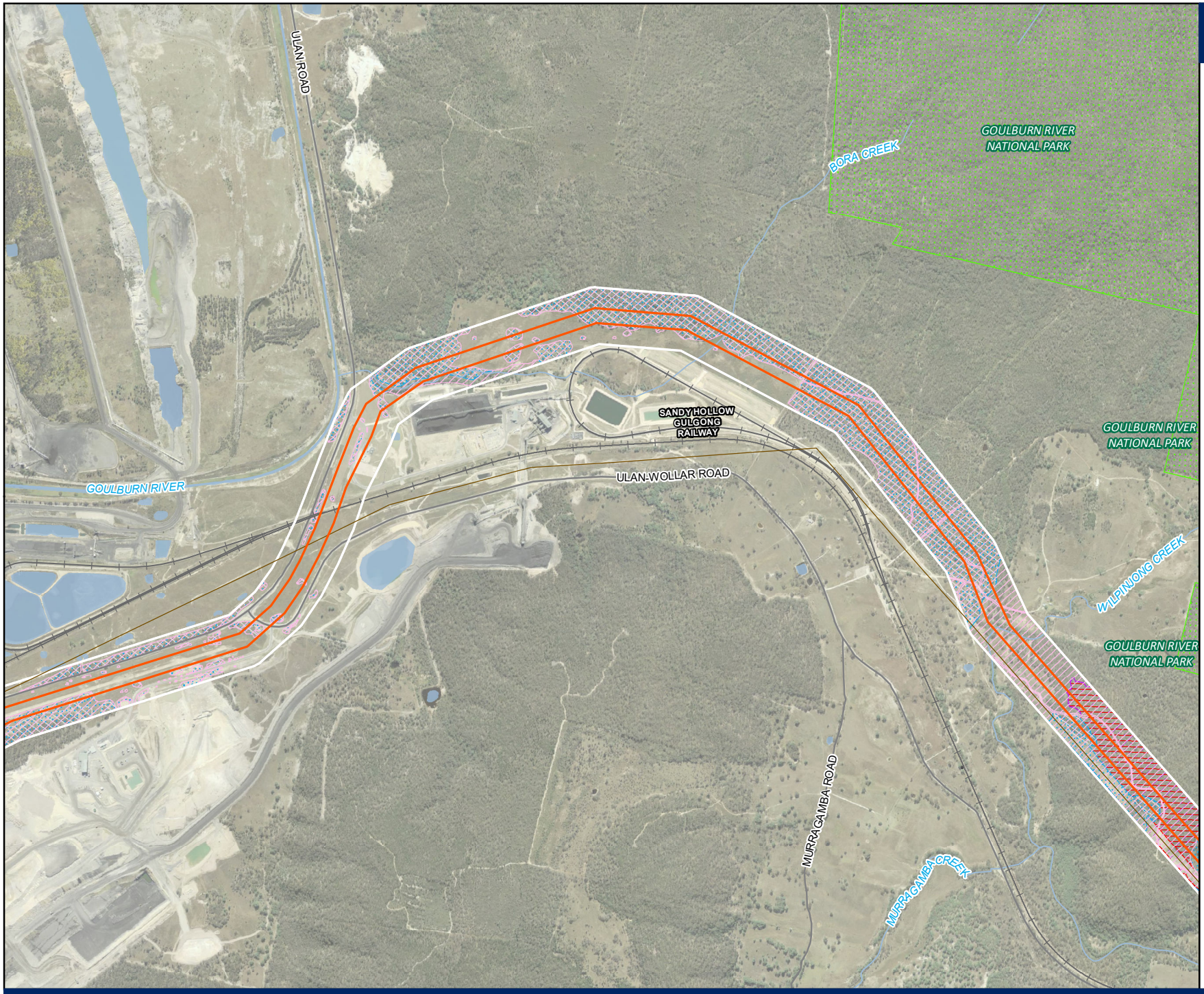


Figure C1
Threatened Flora Species / Polygons
23 of 50

Legend

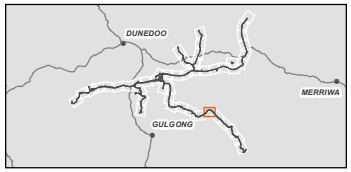
- Biodiversity Study Area
- 500kv transmission line
- Existing transmission line
- Road
- Railway
- Watercourse
- Waterbody
- State Forests

Survey Type

- Cat 1/PCT verification rapid

Assumed Species Presence Polygon

- *Acacia ausfeldii*
- *Androcalva rosea*
- *Homoranthus darwinioides*
- *Monotaxis macrophylla*
- *Ozothamnus tesselatus*
- *Pomaderris cotoneaster*



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Data sources: WSP 2023, NSWSS

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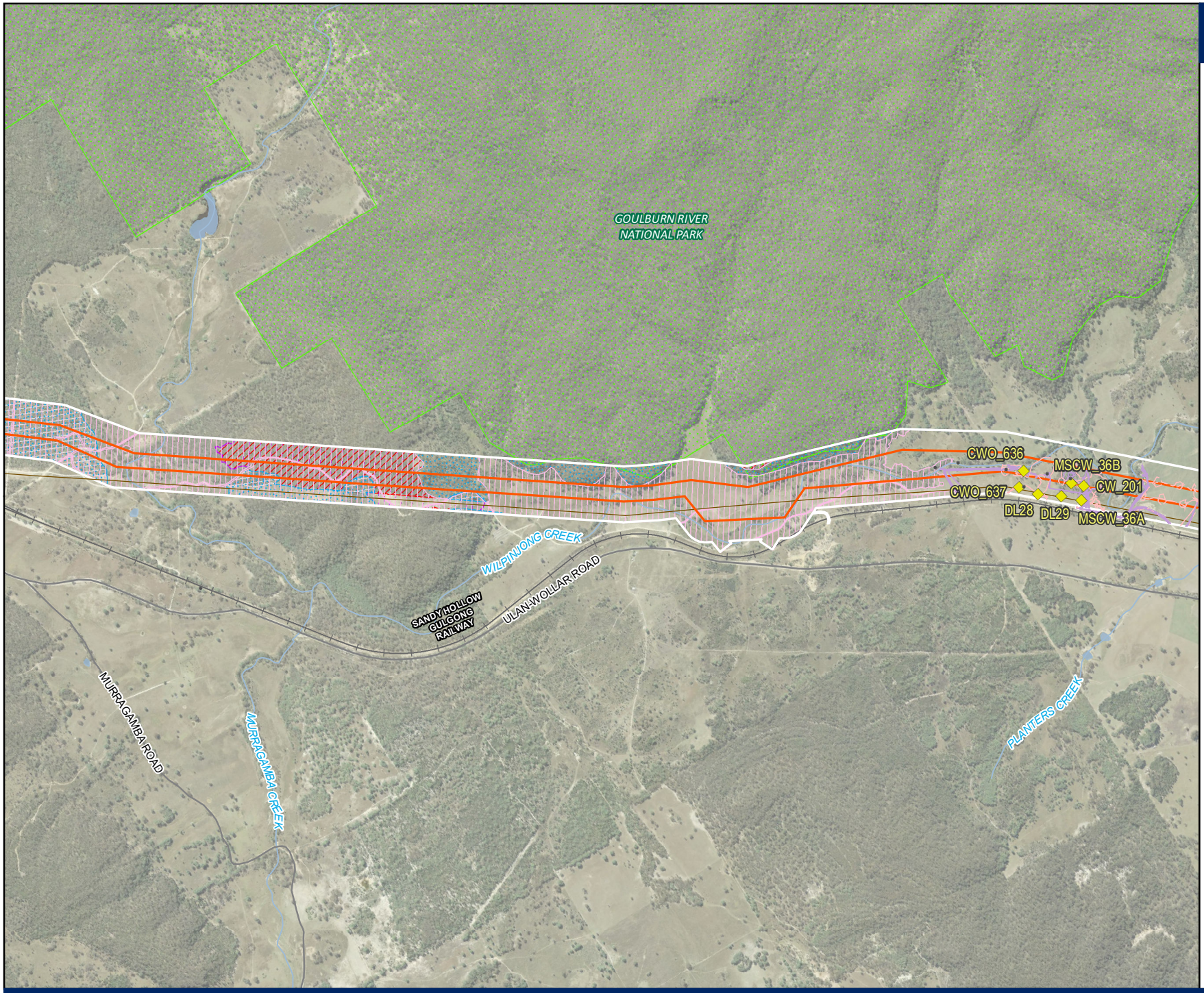

Figure C1
Threatened Flora Species / Polygons
24 of 50

Legend

- Biodiversity Study Area
- 500kv transmission line
- Existing transmission line
- Road
- Railway
- Watercourse
- Waterbody
- State Forests

Flora Survey Transects (Season)

Survey Season

- Spring
- Summer

Survey Type

- Cat 1/PCT verification rapid
- BAM Quadrant

Assumed Species Presence Polygon

- *Acacia ausfeldii*
- *Androcalva rosea*
- *Homoranthus darwinioides*
- *Monotaxis macrophylla*
- *Ozothamnus tesselatus*
- *Pomaderris cotoneaster*

0 500 Meters

Coordinate system: GDA 1994 MGA Zone 55
Scale ratio correct when printed at A4

1:25,000

Data sources: WSP 2023, NSWSS

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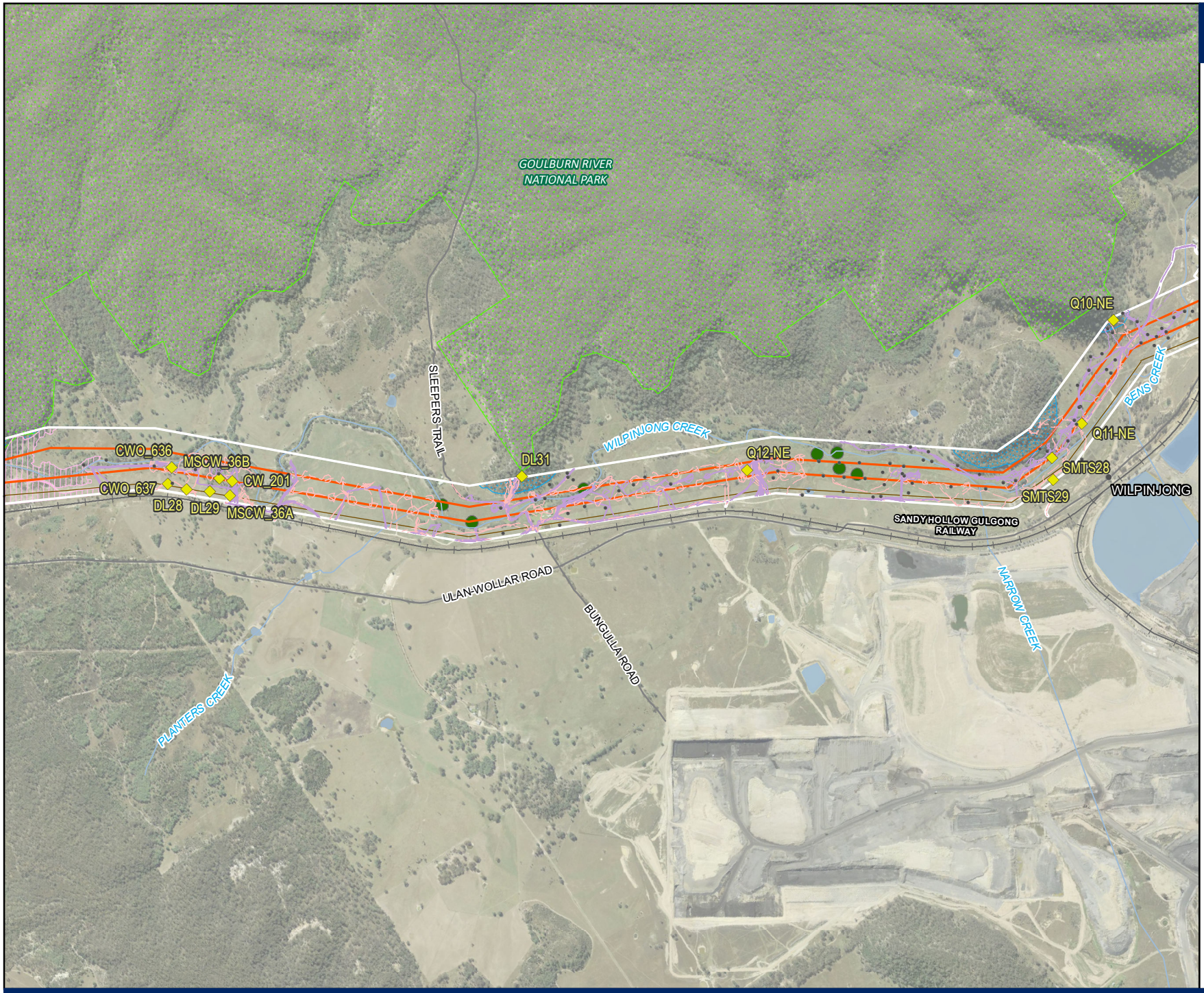


Figure C1
Threatened Flora Species / Polygons
25 of 50

Legend

- Biodiversity Study Area
- 500kv transmission line
- Existing transmission line
- Road
- Railway
- Watercourse
- Waterbody
- State Forests

Flora Survey Transects (Season)

Survey Season

- Spring
- Summer

Survey Type

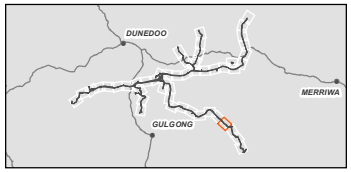
- Cat 1/PCT verification rapid
- BAM Quadrant

Flora Species Polygon

- *Eucalyptus camaldulensis*

Assumed Species Presence Polygon

- *Acacia ausfeldii*
- *Pomaderris cotoneaster*



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Coordinate system: GDA 1994 MGA Zone 55
Scale ratio correct when printed at A4

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Data sources: WSP 2023, NSWSS

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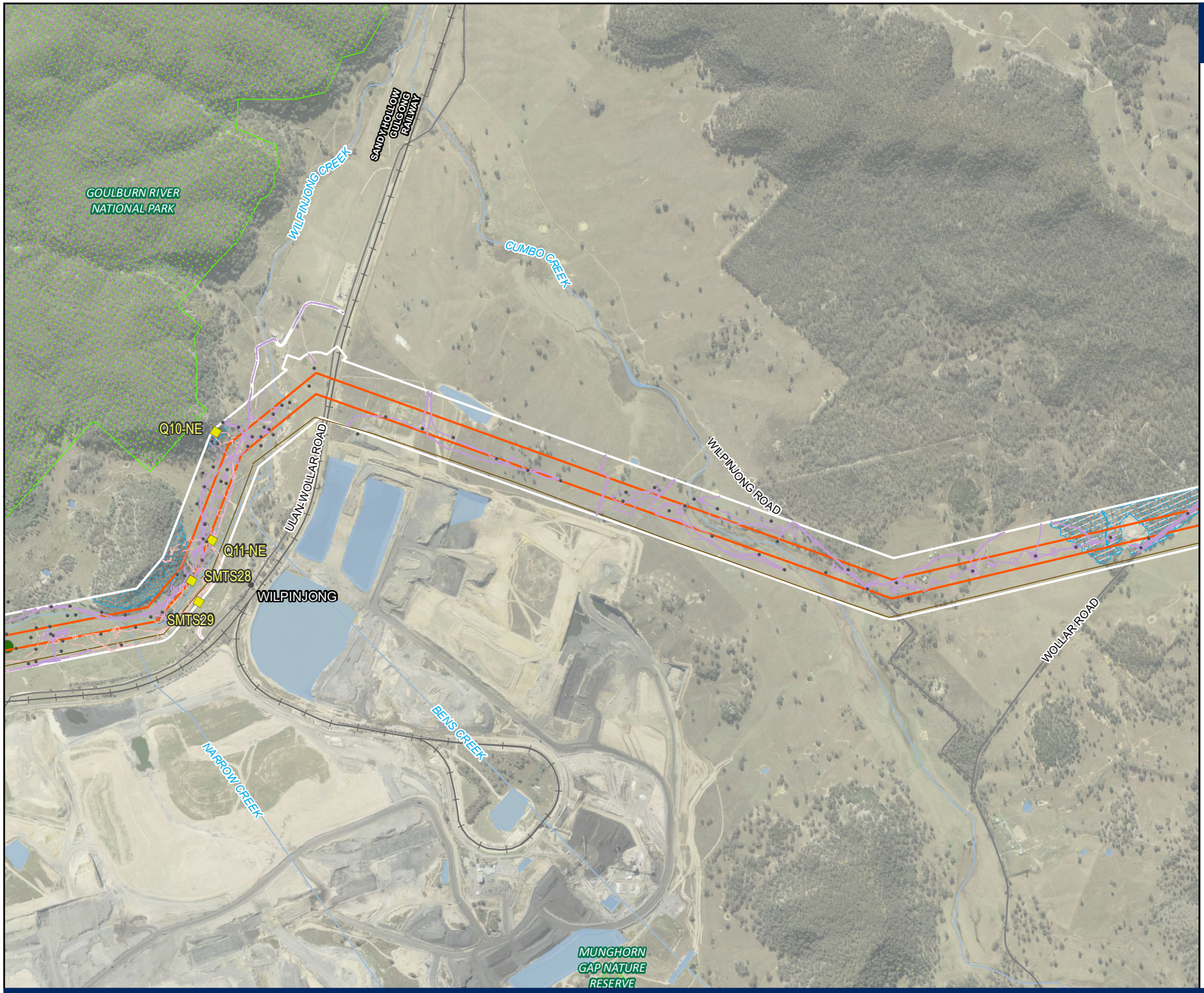


Figure C1
Threatened Flora Species / Polygons
26 of 50

Legend

- Biodiversity Study Area
- 500kv transmission line
- Existing transmission line
- Road
- Railway
- Watercourse
- Waterbody
- State Forests

Flora Survey Transects (Season)

Survey Season

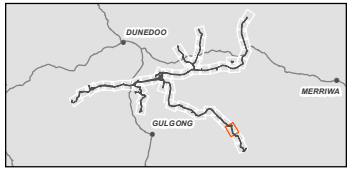
- Spring
- Summer

Survey Type

- Cat 1/PCT verification rapid
- BAM Quadrant

Assumed Species Presence Polygon

- *Monotaxis macrophylla*
- *Pomaderris cotoneaster*



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Coordinate system: GDA 1994 MGA Zone 55
Scale ratio correct when printed at A4

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Data sources: WSP 2023, NSWSS

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Figure C1
Threatened Flora Species / Polygons
27 of 50

Legend

- Biodiversity Study Area
- 500kv transmission line
- Existing transmission line
- Road
- Watercourse
- Waterbody

Flora Survey Transects (Season)

Survey Season

- Autumn
- Spring
- Summer

Survey Type

- Cat 1/PCT verification rapid
- BAM Quadrant

Assumed Species Presence Polygon

- *Monotaxis macrophylla*
- *Pomaderris cotoneaster*

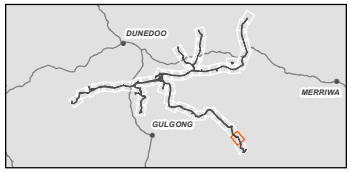

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Figure C1
Threatened Flora Species / Polygons
28 of 50

Legend

- Biodiversity Study Area
- 500kv transmission line
- Existing transmission line
- Existing substation
- Road
- Watercourse
- Waterbody

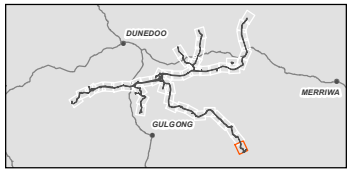
Flora Survey Transects (Season)

Survey Season

- Autumn
- Spring
- Summer

Survey Type

- Cat 1/PCT verification rapid
- BAM Quadrant



0 500 Meters

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Data sources: WSP 2023, NSWSS

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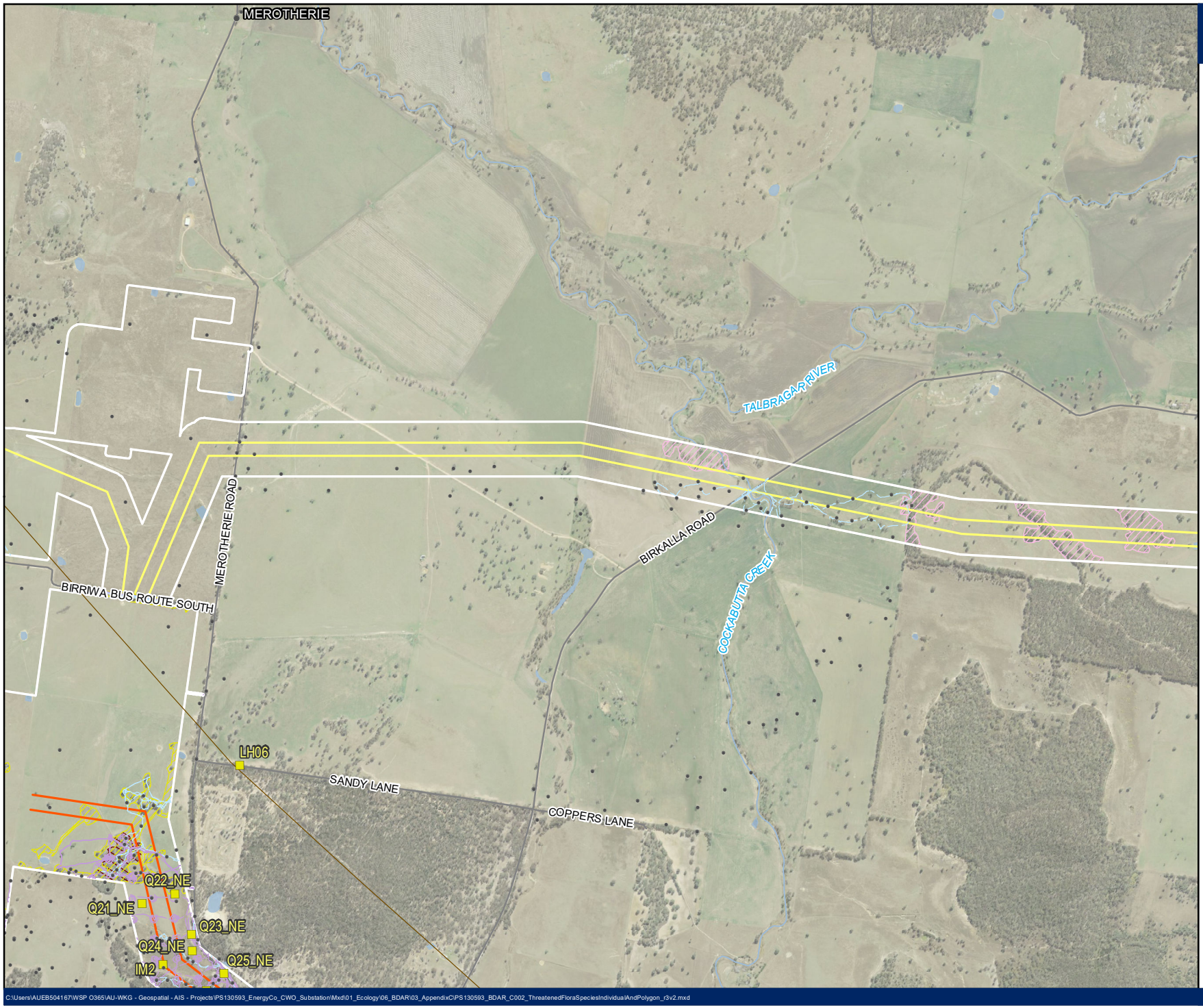

Figure C1
Threatened Flora Species / Polygons
29 of 50

Legend

- Biodiversity Study Area
- 330kv transmission line
- 500kv transmission line
- Existing transmission line
- Road
- Watercourse
- Waterbody

Flora Survey Transects (Season)

Survey Season

- Autumn
- Spring
- Summer
- Winter

Survey Type

- Cat 1/PCT verification rapid
- BAM Quadrant

Assumed Species Presence Polygon

- *Acacia ausfeldii*
- *Dicanthium setosum*
- *Euphrasia arguta*

0 500 Meters

Coordinate system: GDA 1994 MGA Zone 55
Scale ratio correct when printed at A4

1:25,000

Data sources: WSP 2023, NSWSS

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Figure C1
Threatened Flora Species / Polygons
30 of 50

Legend

- Biodiversity Study Area
- 330kv transmission line
- Road
- Watercourse
- Waterbody

Flora Survey Transects (Season)

Survey Season

- Autumn
- Winter

Survey Type

- Cat 1/PCT verification rapid
- BAM Quadrant

Assumed Species Presence Polygon

- *Acacia ausfeldii*

0 500 Meters

Coordinate system: GDA 1994 MGA Zone 55
Scale ratio correct when printed at A4

1:25,000

Data sources: WSP 2023, NSWSS

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Figure C1
Threatened Flora Species / Polygons
31 of 50

Legend

- Biodiversity Study Area
- 330kv transmission line
- Road
- Watercourse
- Waterbody

Flora Survey Transects (Season)

Survey Season

- Autumn
- Spring
- Summer

Survey Type

- Cat 1/PCT verification rapid
- BAM Quadrant

Assumed Species Presence Polygon

- *Homoranthus darwinioides*
- *Tylophora linearis*

0 500 Meters

Coordinate system: GDA 1994 MGA Zone 55
Scale ratio correct when printed at A4

1:25,000

Data sources: WSP 2023, NSWSS

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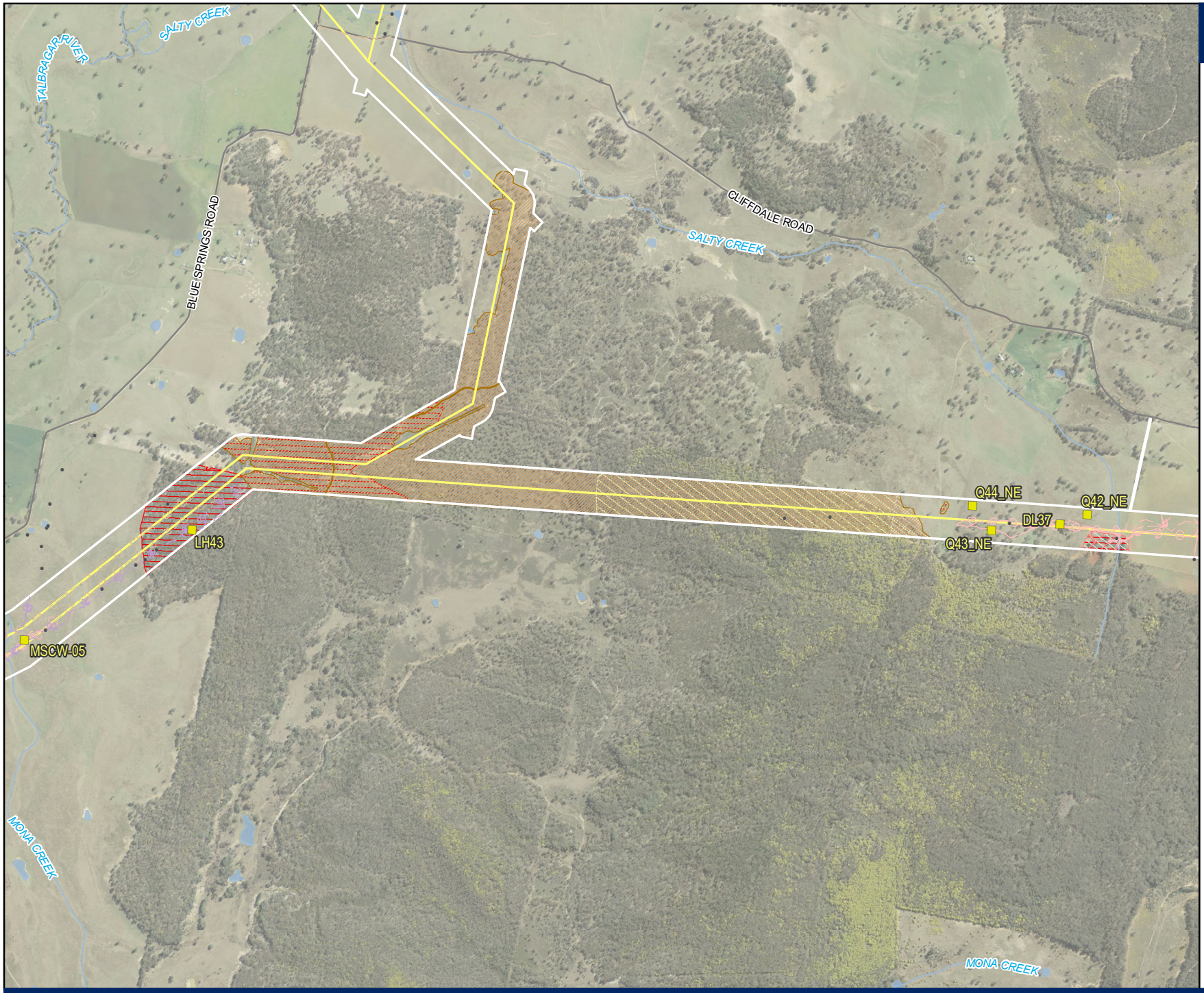

Figure C1
Threatened Flora Species / Polygons
32 of 50

Legend

- Biodiversity Study Area
- 330kv transmission line
- Road
- Watercourse
- Waterbody

Flora Survey Transects (Season)

Survey Season

- Autumn
- Spring
- Summer

Survey Type

- Cat 1/PCT verification rapid
- BAM Quadrant

Assumed Species Presence Polygon

- *Androcalva procumbens*
- *Homoranthus darwinioides*
- *Monotaxis macrophylla*
- *Swainsona sericea*
- *Tylophora linearis*

0 500 Meters

Coordinate system: GDA 1994 MGA Zone 55
Scale ratio correct when printed at A4

1:25,000

Data sources: WSP 2023, NSWSS

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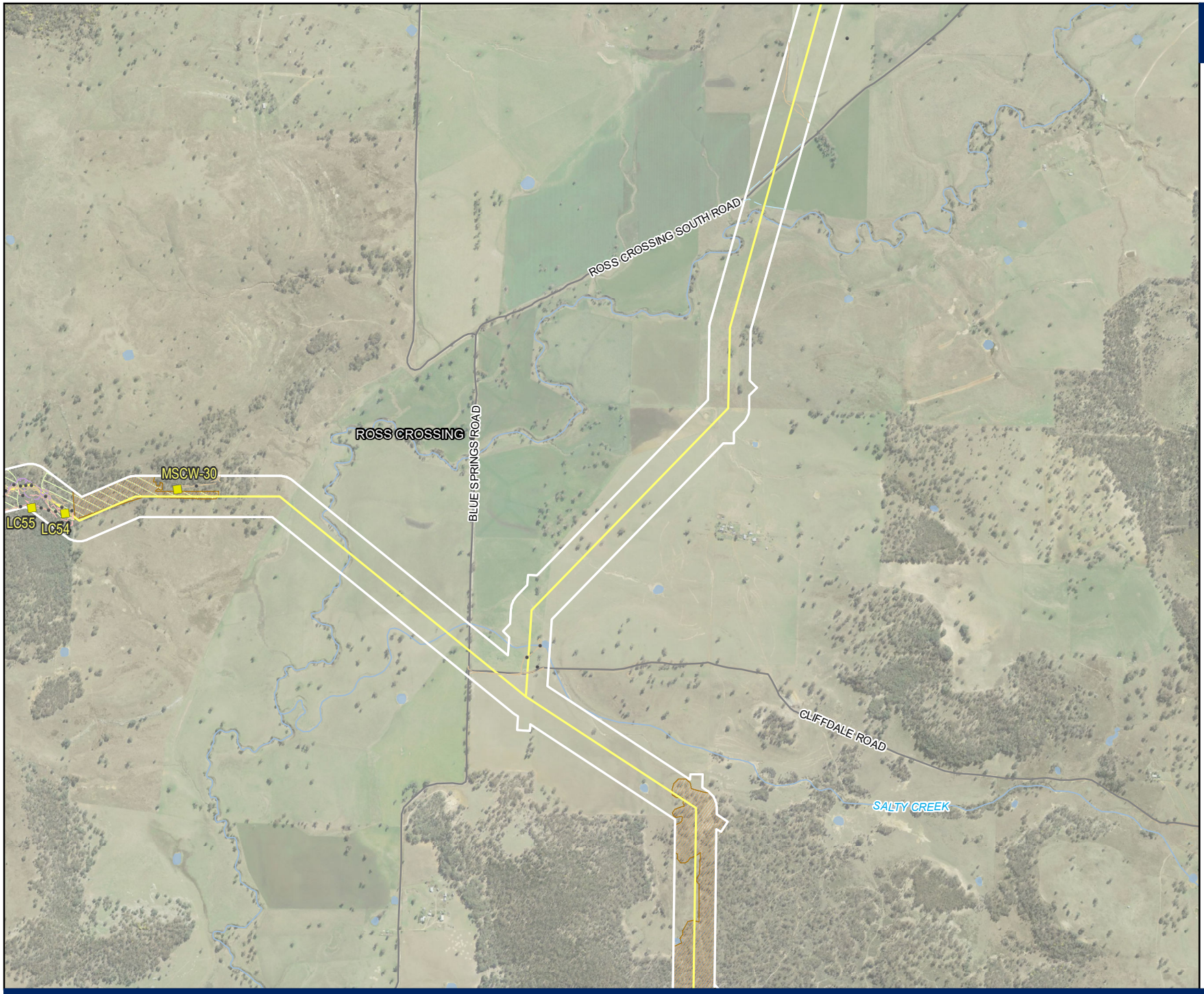

Figure C1
Threatened Flora Species / Polygons
33 of 50

Legend

- Biodiversity Study Area
- 330kv transmission line
- Road
- Watercourse
- Waterbody

Flora Survey Transects (Season)

Survey Season

- Autumn
- Spring
- Summer
- Winter

Survey Type

- Cat 1/PCT verification rapid
- BAM Quadrant

Assumed Species Presence Polygon

- *Androcalva procumbens*
- *Tylophora linearis*

0 500 Meters

Coordinate system: GDA 1994 MGA Zone 55
Scale ratio correct when printed at A4

1:25,000

Data sources: WSP 2023, NSWSS

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Figure C1
Threatened Flora Species / Polygons
34 of 50

Legend

- Biodiversity Study Area
- 330kv transmission line
- Road
- Watercourse
- Waterbody

Flora Survey Transects (Season)

Survey Season

- Autumn
- Spring
- Summer

Survey Type

- Cat 1/PCT verification rapid
- BAM Quadrant

Flora Species Polygon

- *Dichanthium setosum*

Assumed Species Presence Polygon

- *Androcalva procumbens*
- *Tylophora linearis*

0 500 Meters

Coordinate system: GDA 1994 MGA Zone 55
Scale ratio correct when printed at A4

1:25,000

Data sources: WSP 2023, NSWSS

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Figure C1
Threatened Flora Species / Polygons
35 of 50

Legend

- Biodiversity Study Area
- 330kv transmission line
- Switching Station
- Road
- Watercourse
- Waterbody

Flora Survey Transects (Season)

Survey Season

- Autumn
- Spring
- Summer

Survey Type

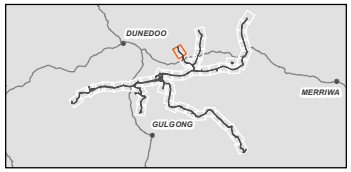
- Cat 1/PCT verification rapid
- BAM Quadrant

Flora Species Polygon

- *Dichanthium setosum*

Assumed Species Presence Polygon

- *Androcalva procumbens*



0 500 Meters

Coordinate system: GDA 1994 MGA Zone 55
Scale ratio correct when printed at A4

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Data sources: WSP 2023, NSWSS

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Figure C1
Threatened Flora Species / Polygons
36 of 50

Legend

- Biodiversity Study Area
- 330kv transmission line
- Road
- Watercourse
- Waterbody

Flora Survey Transects (Season)

Survey Season

- Autumn
- Winter

Survey Type

- Cat 1/PCT verification rapid
- BAM Quadrant

Assumed Species Presence Polygon

- *Androcalva procumbens*
- *Tylophora linearis*

0 500 Meters

Coordinate system: GDA 1994 MGA Zone 55
Scale ratio correct when printed at A4

1:25,000

Data sources: WSP 2023, NSWSS

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Figure C1
Threatened Flora Species / Polygons
37 of 50

Legend

- Biodiversity Study Area
- 330kv transmission line
- Road
- Watercourse
- Waterbody

Flora Survey Transects (Season)

Survey Season

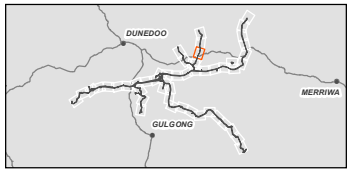
- Autumn
- Spring
- Winter

Survey Type

- Cat 1/PCT verification rapid
- BAM Quadrant

Assumed Species Presence Polygon

- *Androcalva procumbens*
- <ITA>Digitaria porrecta <ITA>
- *Homoranthus darwinioides*
- *Monotaxis macrophylla*
- *Thesium australe*



0 500 Meters

Coordinate system: GDA 1994 MGA Zone 55
Scale ratio correct when printed at A4

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Data sources: WSP 2023, NSWSS

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Figure C1
Threatened Flora Species / Polygons
38 of 50

Legend

- Biodiversity Study Area
- 330kv transmission line
- Road
- Watercourse
- Waterbody

Flora Survey Transects (Season)

Survey Season

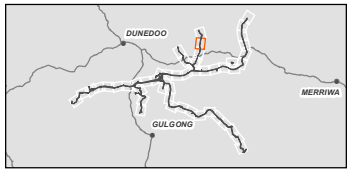
- Autumn
- Spring
- Winter

Survey Type

- Cat 1/PCT verification rapid
- BAM Quadrant

Assumed Species Presence Polygon

- *Androcalva procumbens*
- *Dicanthium setosum*
- <ITA>Digitaria porrecta <ITA>
- *Homoranthus darwinioides*
- *Monotaxis macrophylla*
- *Thesium australe*
- *Tylophora linearis*



0 500 Meters

Coordinate system: GDA 1994 MGA Zone 55
Scale ratio correct when printed at A4

1:25,000

Data sources: WSP 2023, NSWSS

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Figure C1
Threatened Flora Species / Polygons
39 of 50

Legend

- Biodiversity Study Area
- 330kv transmission line
- Switching Station
- Road
- Watercourse
- Waterbody

Flora Survey Transects (Season)

Survey Season

- Spring
- Winter

Survey Type

- Cat 1/PCT verification rapid
- BAM Quadrant

Assumed Species Presence Polygon

- *Dicanthium setosum*

0 500 Meters

Coordinate system: GDA 1994 MGA Zone 55
Scale ratio correct when printed at A4

1:25,000

Data sources: WSP 2023, NSWSS

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Figure C1
Threatened Flora Species / Polygons
40 of 50

Legend

- Biodiversity Study Area
- 330kv transmission line
- Road
- Watercourse
- Waterbody
- State Forests

Flora Survey Transects (Season)

Survey Season

- Summer

Survey Type

- Cat 1/PCT verification rapid
- BAM Quadrant

Assumed Species Presence Polygon

- *Androcalva procumbens*
- *Dicanthium setosum*
- *Homoranthus darwinioides*
- *Monotaxis macrophylla*
- *Pomaderris queenslandica*
- *Swainsona sericea*
- *Tylophora linearis*

0 500 Meters

Coordinate system: GDA 1994 MGA Zone 55
Scale ratio correct when printed at A4

1:25,000

Data sources: WSP 2023, NSWSS

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Figure C1
Threatened Flora Species / Polygons
41 of 50

Legend

- Biodiversity Study Area
- 330kv transmission line
- Road
- Watercourse
- Waterbody
- State Forests

Flora Survey Transects (Season)

Survey Season

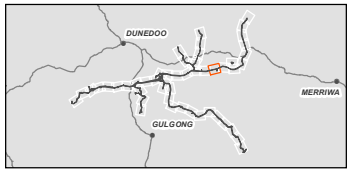
- Autumn
- Spring

Survey Type

- Cat 1/PCT verification rapid
- BAM Quadrant

Assumed Species Presence Polygon

- *Acacia ausfeldii*
- *Androcalva procumbens*
- *Dicanthium setosum*
- *Monotaxis macrophylla*
- *Pomaderris queenslandica*
- *Swainsona sericea*
- *Tylophora linearis*



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Scale ratio correct when printed at A4

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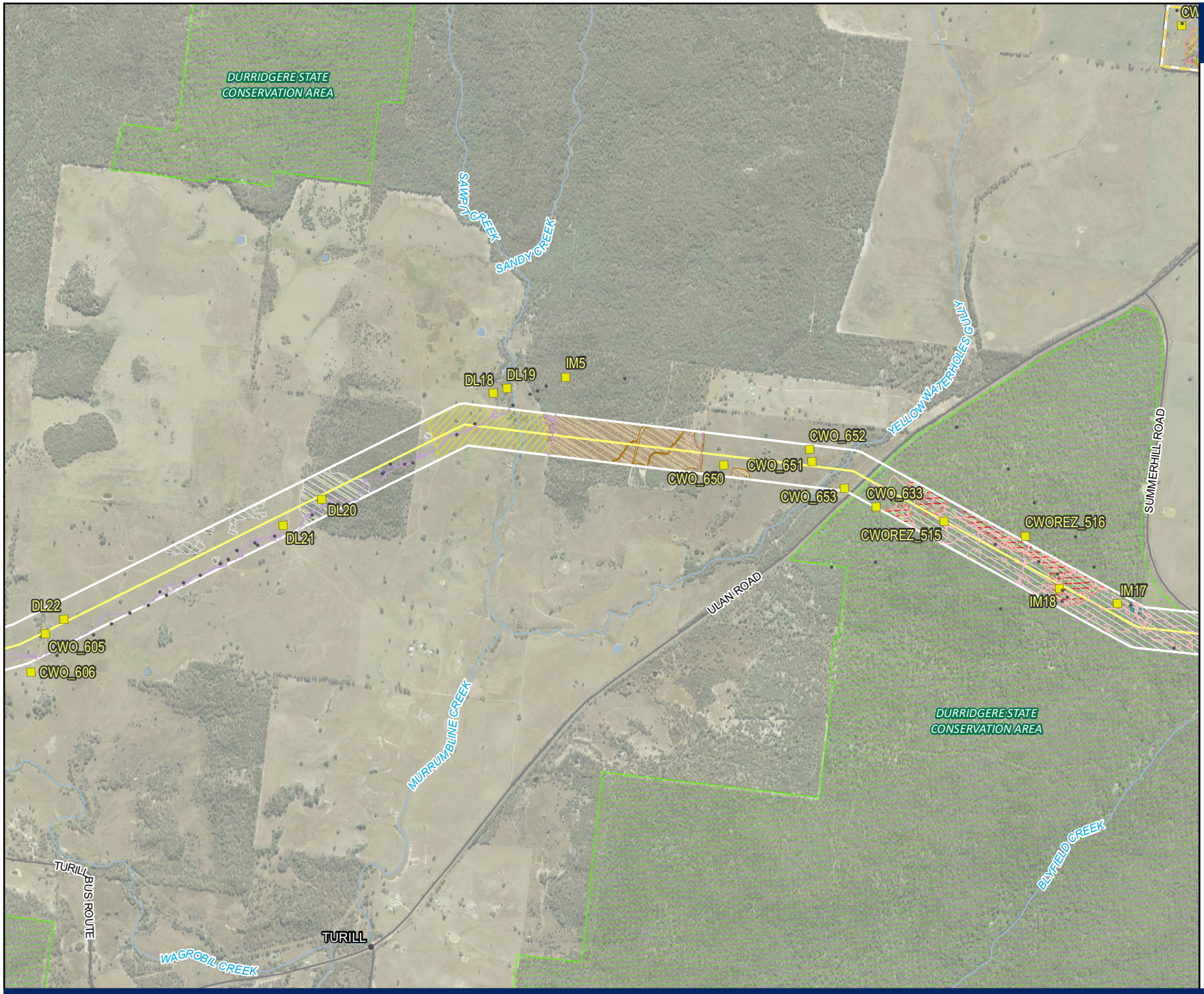

Figure C1
Threatened Flora Species / Polygons
42 of 50

Legend

- Biodiversity Study Area
- 330kv transmission line
- Workforce accommodation camp
- Road
- Watercourse
- Waterbody
- State Forests

Flora Survey Transects (Season)

Survey Season

- Autumn
- Spring
- Summer

Survey Type

- Cat 1/PCT verification rapid
- BAM Quadrant

Assumed Species Presence Polygon

- *Androcalva procumbens*
- *Dicanthium setosum*
- *Homoranthus darwinioides*
- *Monotaxis macrophylla*
- *Swainsona sericea*
- *Tylophora linearis*

0 500 Meters

Coordinate system: GDA 1994 MGA Zone 55
Scale ratio correct when printed at A4

1:25,000

Data sources: WSP 2023, NSWSS

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Figure C1
Threatened Flora Species / Polygons
43 of 50

Legend

- Biodiversity Study Area
- 330kv transmission line
- Workforce accommodation camp
- Road
- Watercourse
- Waterbody
- State Forests

Flora Survey Transects (Season)

Survey Season

- Autumn
- Summer

Survey Type

- Cat 1/PCT verification rapid
- BAM Quadrant

Flora Species Polygon

- *Eucalyptus cannonii*

Assumed Species Presence Polygon

- *Androcalva procumbens*
- *Dicanthium setosum*
- *Homoranthus darwinioides*
- *Monotaxis macrophylla*
- *Swainsona sericea*

0 500 Meters

Coordinate system: GDA 1994 MGA Zone 55
Scale ratio correct when printed at A4

1:25,000

Data sources: WSP 2023, NSWSS

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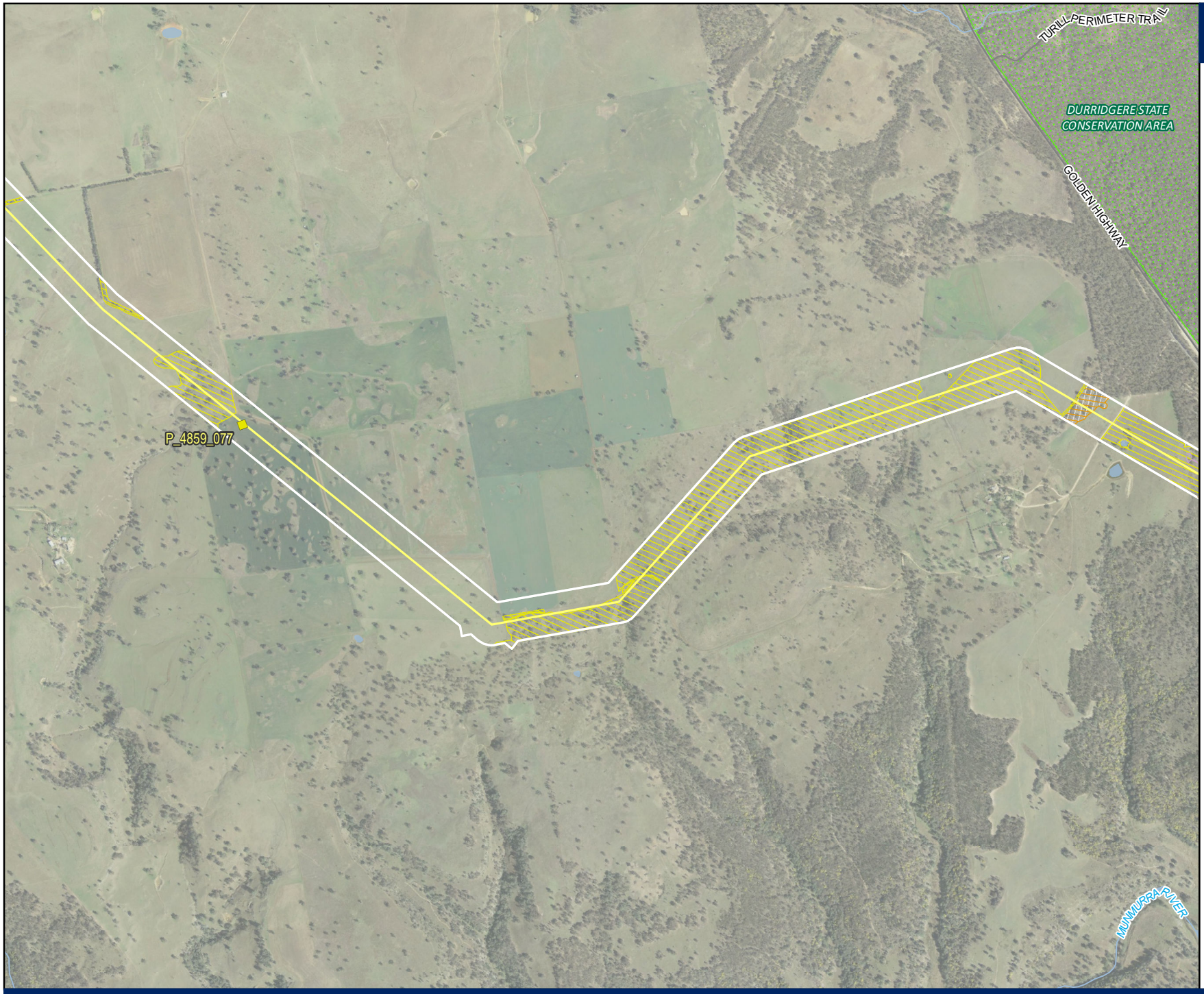

Figure C1
Threatened Flora Species / Polygons
44 of 50

Legend

- Biodiversity Study Area
- 330kv transmission line
- Road
- Watercourse
- Waterbody
- State Forests

Flora Survey Transects (Season)

Survey Season

- Autumn
- Spring
- BAM Quadrant

Assumed Species Presence Polygon

- *Dicanthium setosum*
- *Monotaxis macrophylla*
- *Pomaderris queenslandica*

0 500 Meters

Coordinate system: GDA 1994 MGA Zone 55
Scale ratio correct when printed at A4

1:25,000

Data sources: WSP 2023, NSWSS

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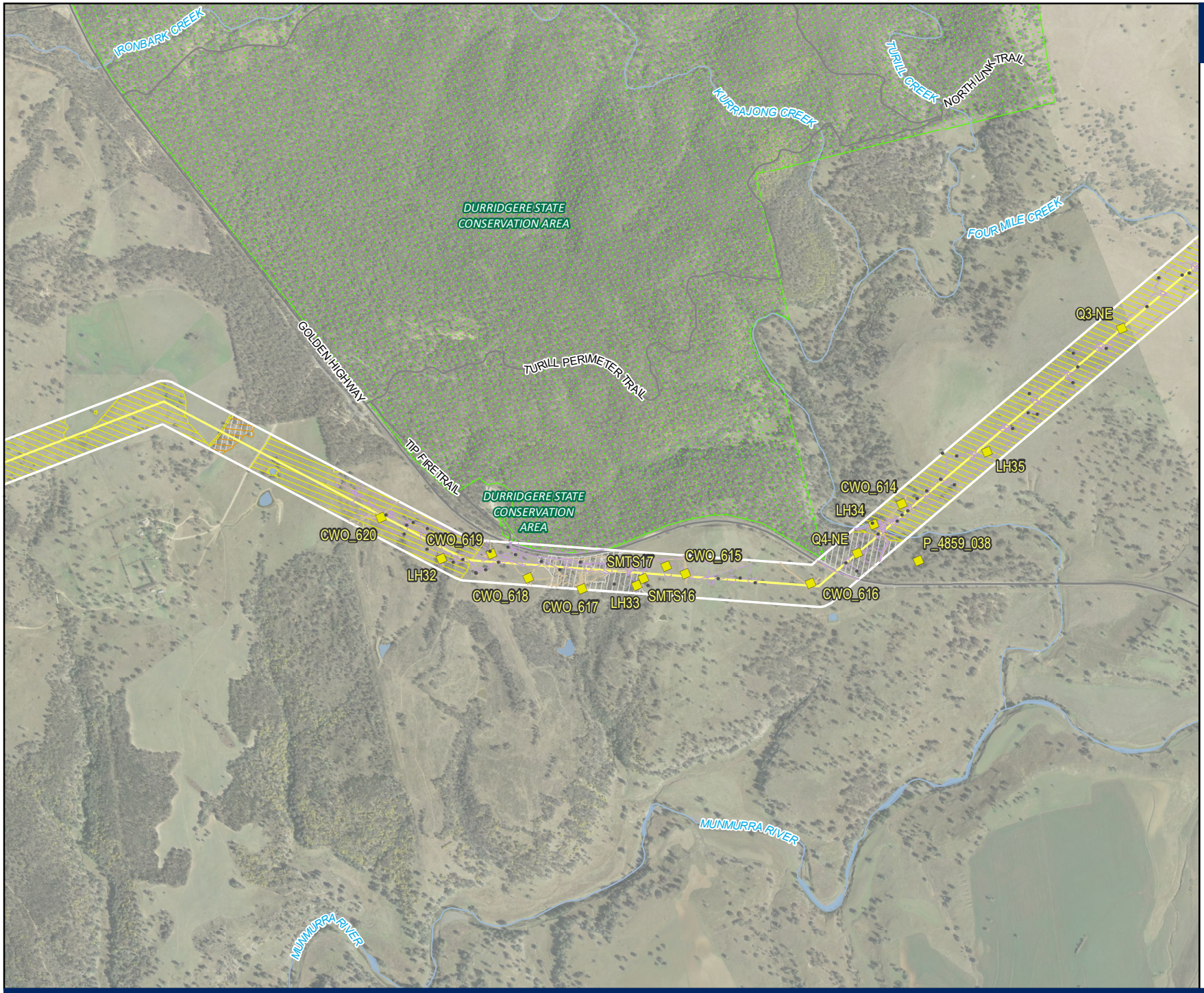

Figure C1
Threatened Flora Species / Polygons
45 of 50

Legend

- Biodiversity Study Area
- 330kv transmission line
- Road
- Watercourse
- Waterbody
- State Forests

Flora Survey Transects (Season)

Survey Season

- Autumn
- Spring

Survey Type

- Cat 1/PCT verification rapid
- BAM Quadrant

Assumed Species Presence Polygon

- *Dicanthium setosum*
- *Monotaxis macrophylla*
- *Pomaderris queenslandica*

0 500 Meters

Coordinate system: GDA 1994 MGA Zone 55
Scale ratio correct when printed at A4

1:25,000

Data sources: WSP 2023, NSWSS

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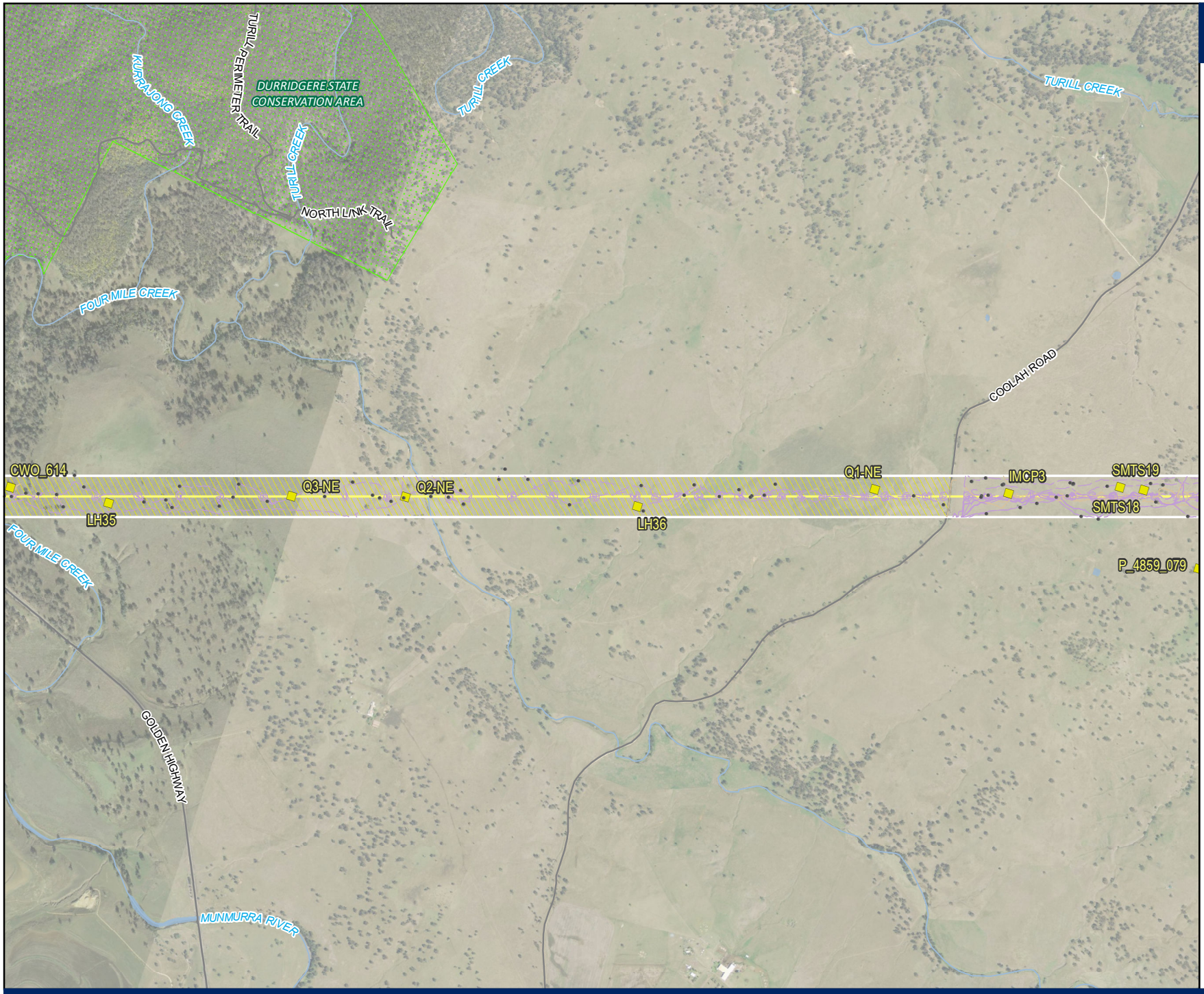


Figure C1
Threatened Flora Species / Polygons
46 of 50

Legend

- Biodiversity Study Area
- 330kv transmission line
- Road
- Watercourse
- Waterbody
- State Forests

Flora Survey Transects (Season)

Survey Season

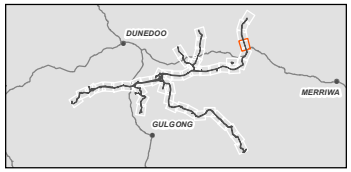
- Autumn
- Spring

Survey Type

- Cat 1/PCT verification rapid
- BAM Quadrant

Assumed Species Presence Polygon

- *Dicanthium setosum*



0 500 Meters

Coordinate system: GDA 1994 MGA Zone 55
Scale ratio correct when printed at A4

1:25,000

Data sources: WSP 2023, NSWSS

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Figure C1
Threatened Flora Species / Polygons
47 of 50

Legend

- Biodiversity Study Area
- 330kv transmission line
- Road
- Watercourse
- Waterbody

Flora Survey Transects (Season)

Survey Season

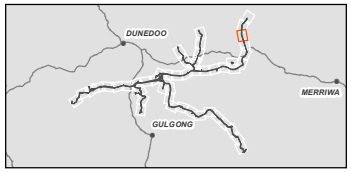
- Autumn
- Spring

Survey Type

- Cat 1/PCT verification rapid
- BAM Quadrant

Assumed Species Presence Polygon

- *Dicanthium setosum*



0 500 Meters

Coordinate system: GDA 1994 MGA Zone 55
Scale ratio correct when printed at A4

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Data sources: WSP 2023, NSWSS

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Figure C1
Threatened Flora Species / Polygons
48 of 50

Legend

- Biodiversity Study Area
- 330kv transmission line
- Road
- Watercourse
- Waterbody

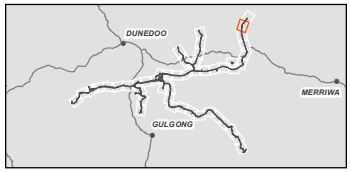
Flora Survey Transects (Season)

Survey Season

- Autumn
- Spring
- Summer

Survey Type

- Cat 1/PCT verification rapid
- BAM Quadrant



0 500 Meters

Coordinate system: GDA 1994 MGA Zone 55
Scale ratio correct when printed at A4

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Data sources: WSP 2023, NSWSS

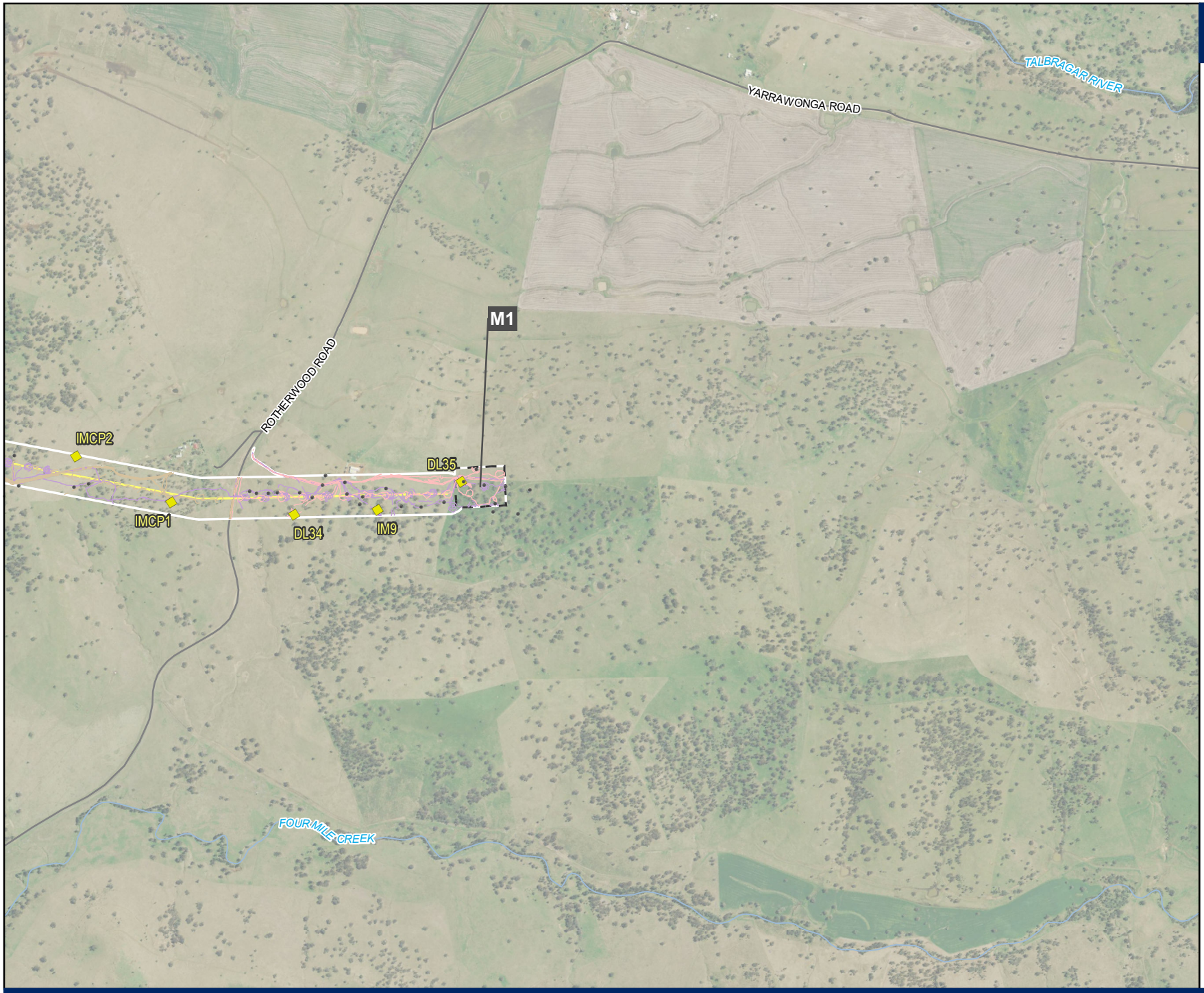

Figure C1
Threatened Flora Species / Polygons
49 of 50

Legend

- Biodiversity Study Area
- 330kv transmission line
- Switching Station
- Road
- Watercourse

Flora Survey Transects (Season)

Survey Season

- Autumn
- Spring
- Summer

Survey Type

- Cat 1/PCT verification rapid
- BAM Quadrant

0 500 Meters

Coordinate system: GDA 1994 MGA Zone 55
Scale ratio correct when printed at A4

1:25,000

Data sources: WSP 2023, NSWSS

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Figure C1
Threatened Flora Species / Polygons
50 of 50

Legend

- Biodiversity Study Area
- Workforce accommodation camp
- Road
- Watercourse

Flora Survey Transects (Season)

Survey Season

- Autumn

Survey Type

- Cat 1/PCT verification rapid
- BAM Quadrant

Assumed Species Presence Polygon

- *Androcalva procumbens*
- *Dicanthium setosum*
- *Monotaxis macrophylla*
- *Swainsona sericea*

0 100 Meters

Coordinate system: GDA 1994 MGA Zone 55
Scale ratio correct when printed at A4

1:5,000

Data sources: WSP 2023, NSWSS

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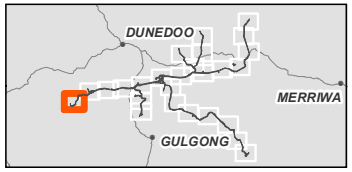
Figure C2
Threatened Fauna Polyons - Mammals
Map 1 of 26

Legend

- Biodiversity Study Area
- 330kv transmission line
- 330 kV switching station
- Road
- Watercourse
- Waterbody
- NPWS estate
- Built structures
- Dam / waterbody
- Hollow bearing trees (5cm)
- Hollow bearing trees (>10cm)
- Hollow bearing trees (>15cm)

Assumed Species Polygon

- Eastern Pygmy-possum - Potential habitat
- Koala - Potential Habitat
- Squirrel Glider - Potential habitat



0 500 1,000 Meters

Coordinate system: GDA 1994 MGA Zone 55
Scale ratio correct when printed at A4

1:35,000

Data sources: WSP 2023, NSWSS, EnergyCo

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Figure C2
Threatened Fauna Polyons - Mammals
Map 2 of 26

Legend

- Biodiversity Study Area
- 330kv transmission line
- 500kv transmission line
- 330 kV switching station
- Energy hub / 500 kV switching station
- Construction compound
- Road
- Watercourse
- Waterbody
- Built structures
- Dam / waterbody

Fauna Threatened Species

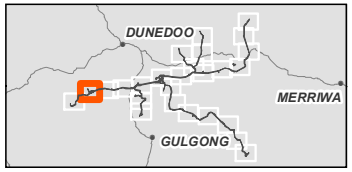
- Squirrel Glider
- Squirrel Glider den tree
- Hollow bearing trees (5cm)
- Hollow bearing trees (>10cm)
- Hollow bearing trees (>15cm)
- Hollow bearing trees (>20cm)

Confirmed Species Polygon

- Squirrel Glider Habitat

Assumed Species Polygon

- Eastern Pygmy-possum - Potential habitat
- Koala - Potential Habitat
- Squirrel Glider - Potential habitat



0 500 1,000 Meters

Coordinate system: GDA 1994 MGA Zone 55
Scale ratio correct when printed at A4

1:35,000

Data sources: WSP 2023, NSWSS, EnergyCo

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Figure C2
Threatened Fauna Polyons - Mammals
Map 3 of 26

Legend

- Biodiversity Study Area
- 500kv transmission line
- Road
- Watercourse
- Waterbody
- NPWS estate
- Dam / waterbody

Fauna Threatened Species

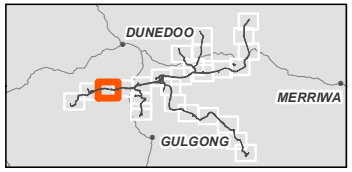
- Large Bent-winged Bat
- Squirrel Glider
- Hollow bearing trees (5cm)
- Hollow bearing trees (>10cm)
- Hollow bearing trees (>15cm)
- Hollow bearing trees (>20cm)

Confirmed Species Polygon

- Squirrel Glider Habitat

Assumed Species Polygon

- Eastern Pygmy-possum - Potential habitat
- Koala - Potential Habitat
- Squirrel Glider - Potential habitat



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Data sources: WSP 2023, NSWSS, EnergyCo

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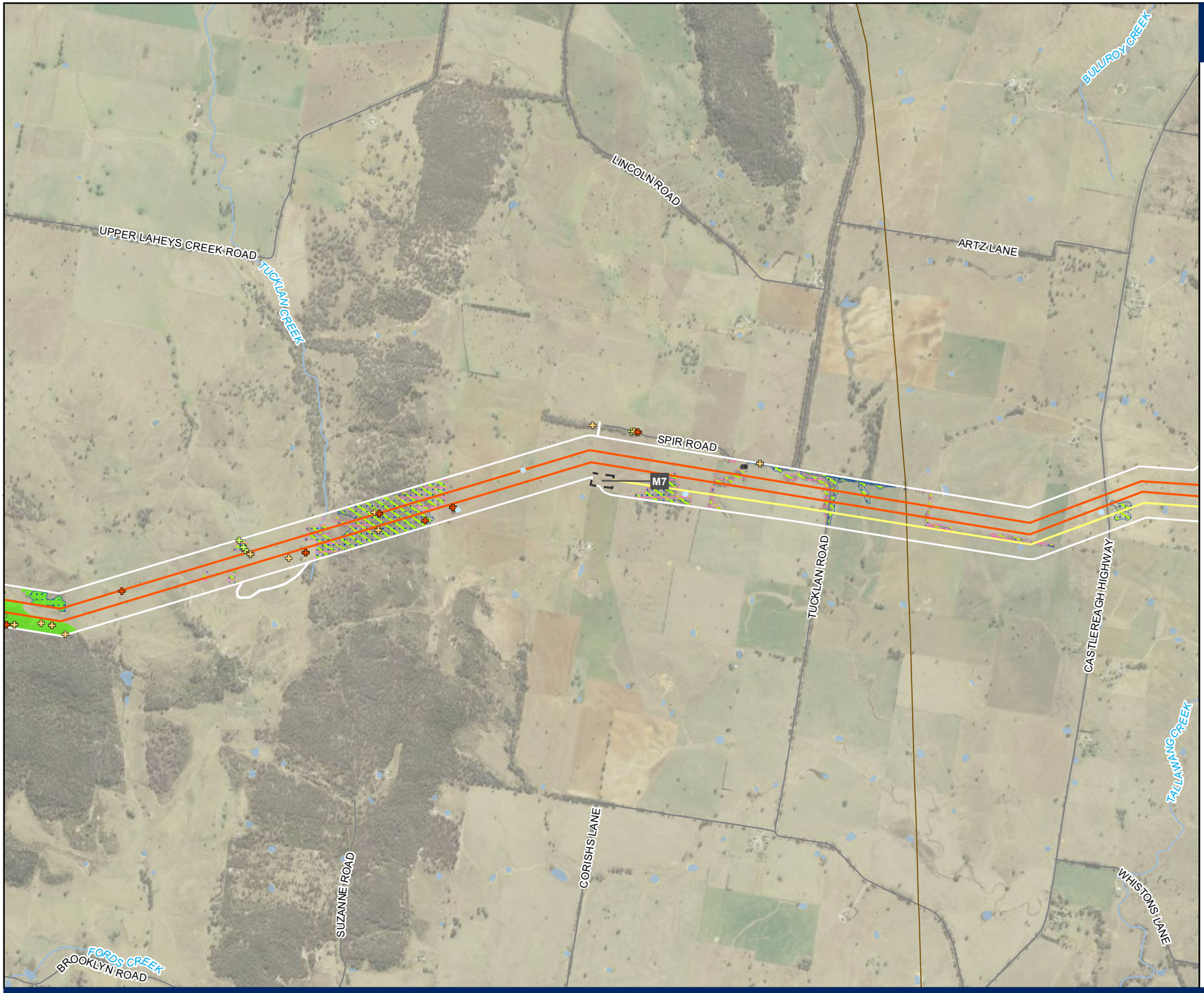


Figure C2
Threatened Fauna Polyons - Mammals
Map 4 of 26

Legend

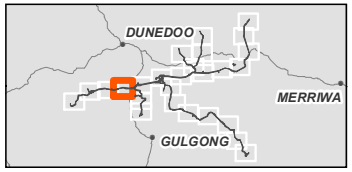
- Biodiversity Study Area
- 330kv transmission line
- 500kv transmission line
- 330 kV switching station
- Existing transmission line
- Road
- Watercourse
- Waterbody
- Built structures
- Dam / waterbody
- Hollow bearing trees (5cm)
- Hollow bearing trees (>10cm)
- Hollow bearing trees (>15cm)
- Hollow bearing trees (>20cm)

Confirmed Species Polygon

- Squirrel Glider Habitat

Assumed Species Polygon

- Eastern Pygmy-possum - Potential habitat
- Koala - Potential Habitat
- Squirrel Glider - Potential habitat



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Data sources: WSP 2023, NSWSS, EnergyCo

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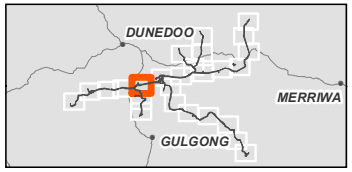
Figure C2
Threatened Fauna Polyons - Mammals
Map 5 of 26

Legend

- Biodiversity Study Area
- 330kv transmission line
- 500kv transmission line
- 330 kV switching station
- Cliff lines
- Road
- Railway
- Watercourse
- Waterbody
- Dam / waterbody
- Hollow bearing trees (5cm)
- Hollow bearing trees (>10cm)
- Hollow bearing trees (>15cm)
- Hollow bearing trees (>20cm)

Assumed Species Polygon

- Brush-tailed Rock-wallaby - Potential habitat
- Koala - Potential Habitat
- Large-eared Pied Bat - Potential foraging habitat
- Squirrel Glider - Potential habitat



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Data sources: WSP 2023, NSWSS, EnergyCo

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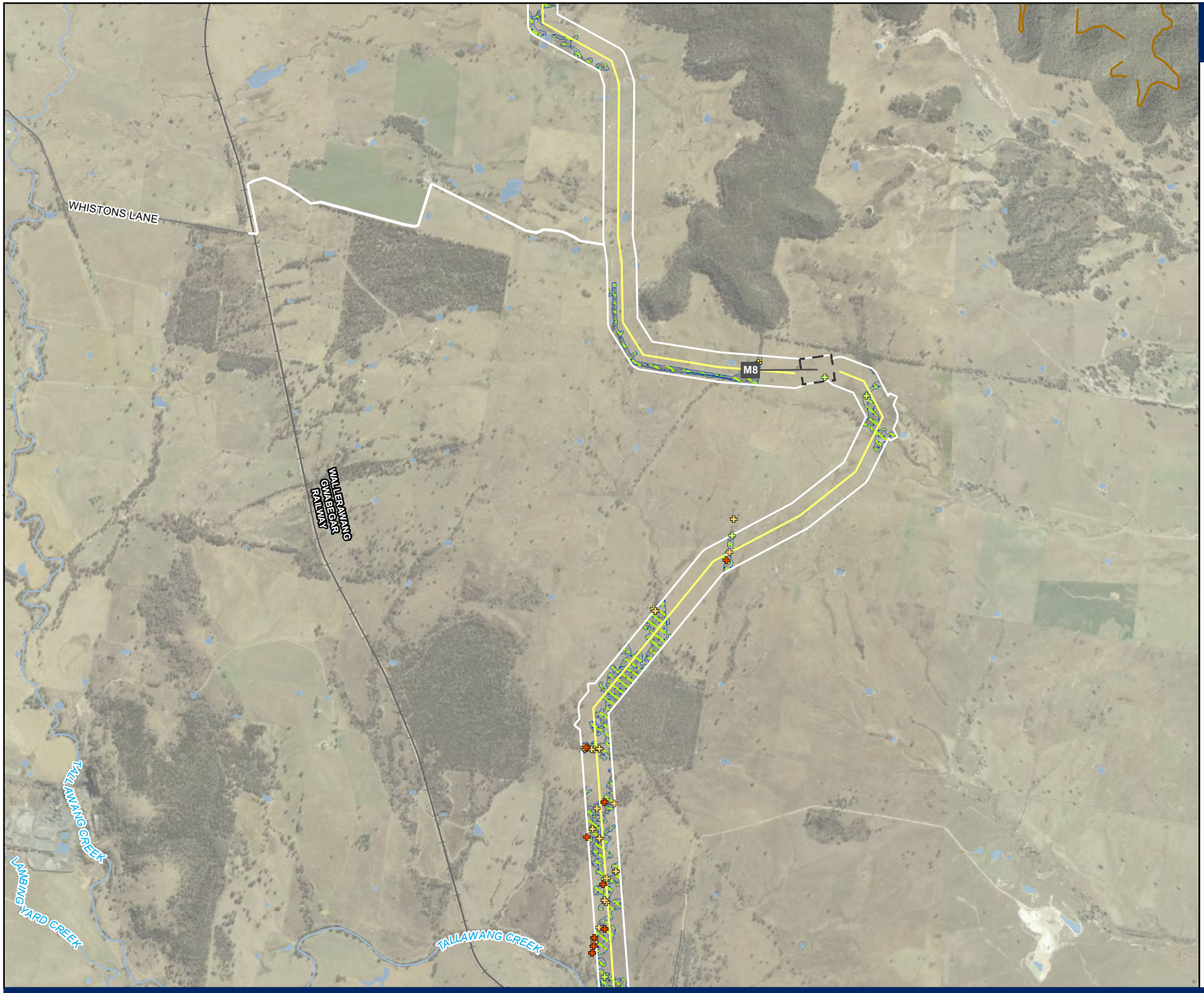


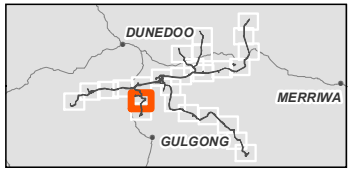
Figure C2
Threatened Fauna Polyons - Mammals
Map 6 of 26

Legend

- Biodiversity Study Area
- 330kv transmission line
- 330 kV switching station
- Cliff lines
- Road
- Railway
- Watercourse
- Waterbody
- Hollow bearing trees (5cm)
- Hollow bearing trees (>10cm)
- Hollow bearing trees (>15cm)
- Hollow bearing trees (>20cm)

Assumed Species Polygon

- Koala - Potential Habitat
- Squirrel Glider - Potential habitat



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Data sources: WSP 2023, NSWSS, EnergyCo

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Figure C2
Threatened Fauna Polyons - Mammals
Map 7 of 26

Legend

- Biodiversity Study Area
- 330kv transmission line
- 330 kV switching station
- Existing transmission line
- Road
- Railway
- Watercourse
- Waterbody
- Built structures
- Hollow bearing trees (5cm)
- Hollow bearing trees (>10cm)
- Hollow bearing trees (>15cm)
- Hollow bearing trees (>20cm)

Assumed Species Polygon

- Eastern Pygmy-possum - Potential habitat
- Koala - Potential Habitat
- Squirrel Glider - Potential habitat

0 500 1,000 Meters

Coordinate system: GDA 1994 MGA Zone 55
Scale ratio correct when printed at A4

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Data sources: WSP 2023, NSWSS, EnergyCo

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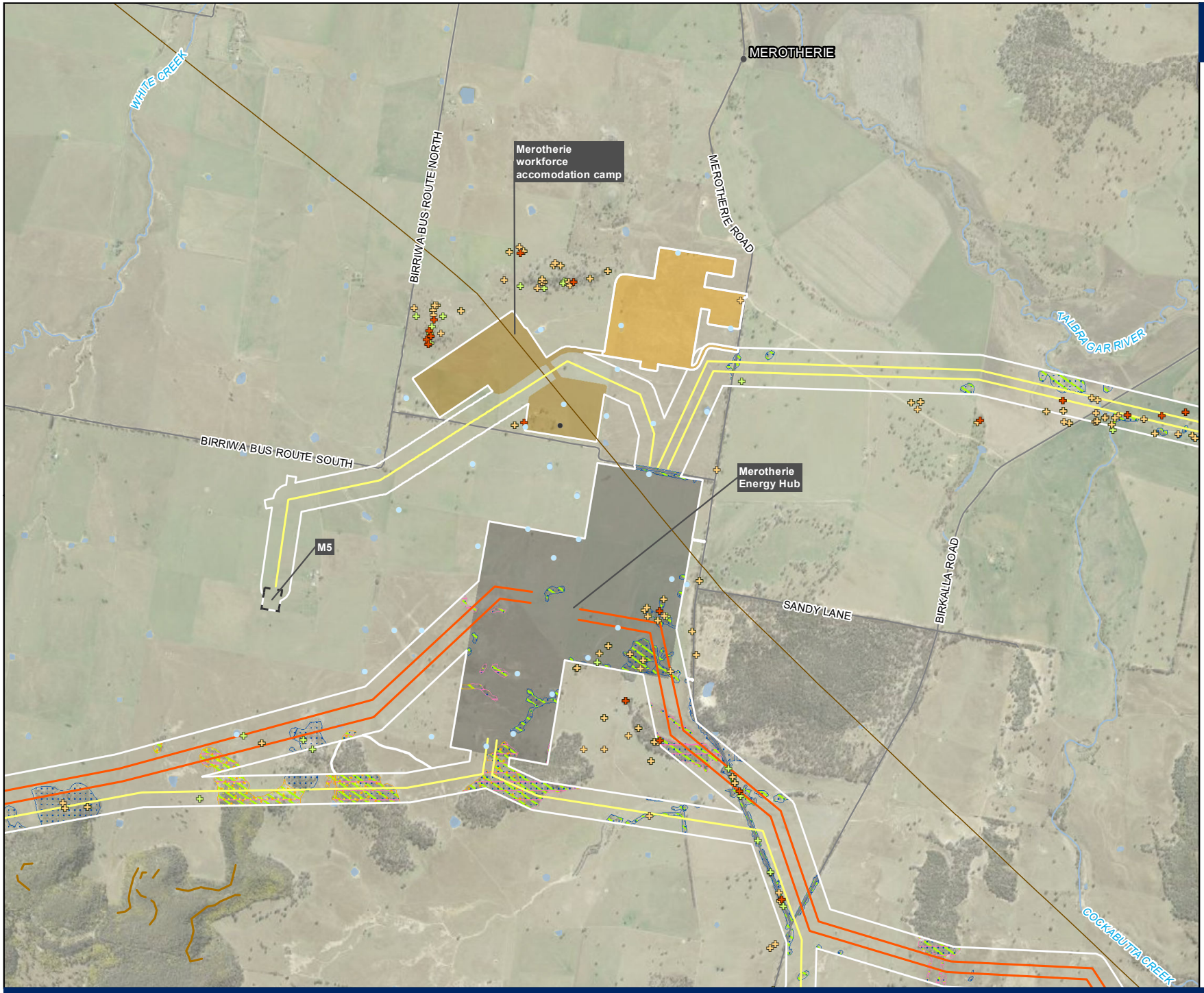


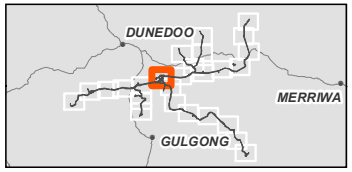
Figure C2
Threatened Fauna Polyons - Mammals
Map 8 of 26

Legend

- Biodiversity Study Area
- 330kv transmission line
- 500kv transmission line
- 330 kV switching station
- Energy hub / 500 kV switching station
- Workforce accommodation camp
- Construction compound
- Existing transmission line
- Cliff lines
- Road
- Watercourse
- Waterbody
- Built structures
- Dam / waterbody
- Hollow bearing trees (5cm)
- Hollow bearing trees (>10cm)
- Hollow bearing trees (>15cm)
- Hollow bearing trees (>20cm)

Assumed Species Polygon

- Brush-tailed Rock-wallaby - Potential habitat
- Eastern Pygmy-possum - Potential habitat
- Koala - Potential Habitat
- Large-eared Pied Bat - Potential foraging habitat
- Squirrel Glider - Potential habitat



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Data sources: WSP 2023, NSWSS, EnergyCo

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Figure C2
Threatened Fauna Polyons - Mammals
Map 9 of 26

Legend

- Biodiversity Study Area
- 330kv transmission line
- 500kv transmission line
- 330 kV switching station
- Energy hub / 500 kV switching station
- Existing transmission line
- Cliff lines
- Road
- Watercourse
- Waterbody
- Dam / waterbody
- Hollow bearing trees (5cm)
- Hollow bearing trees (>10cm)
- Hollow bearing trees (>15cm)
- Hollow bearing trees (>20cm)

Assumed Species Polygon

- Eastern Cave Bat - Potential Foraging Habitat
- Eastern Pygmy-possum - Potential habitat
- Koala - Potential Habitat
- Large-eared Pied Bat - Potential foraging habitat
- Squirrel Glider - Potential habitat

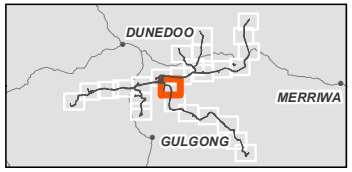

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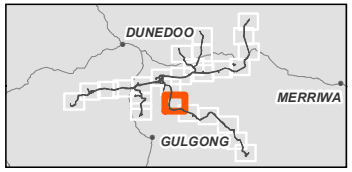
Figure C2
Threatened Fauna Polyons - Mammals
Map 10 of 26

Legend

- Biodiversity Study Area
- 500kv transmission line
- Existing transmission line
- Cliff lines
- Road
- Watercourse
- Waterbody
- Dam / waterbody
- Caves and rocky areas
- Hollow bearing trees (5cm)
- Hollow bearing trees (>10cm)
- Hollow bearing trees (>15cm)
- Hollow bearing trees (>20cm)

Assumed Species Polygon

- Brush-tailed Rock-wallaby - Potential habitat
- Eastern Pygmy-possum - Potential habitat
- Koala - Potential Habitat
- Large-eared Pied Bat - Potential Breeding habitat
- Large-eared Pied Bat - Potential foraging habitat
- Squirrel Glider - Potential habitat



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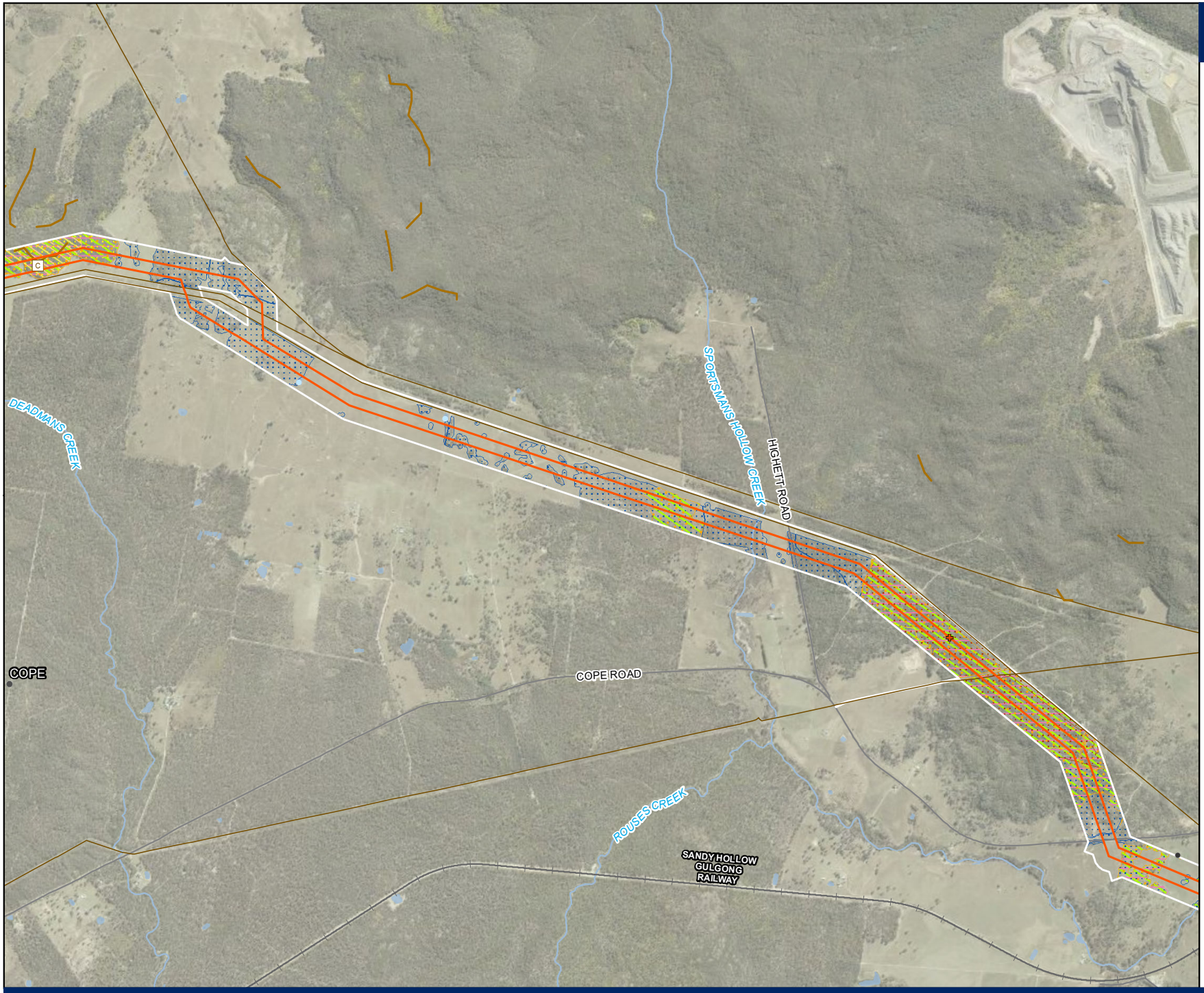


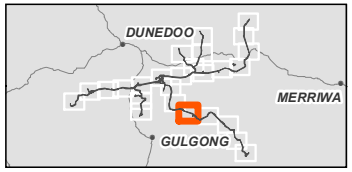
Figure C2
Threatened Fauna Polyons - Mammals
Map 11 of 26

Legend

- Biodiversity Study Area
- 500kv transmission line
- Existing transmission line
- Cliff lines
- Road
- Railway
- Watercourse
- Waterbody
- Built structures
- Dam / waterbody
- Caves and rocky areas
- Hollow bearing trees (5cm)
- Hollow bearing trees (>10cm)
- Hollow bearing trees (>15cm)
- Hollow bearing trees (>20cm)

Assumed Species Polygon

- Brush-tailed Rock-wallaby - Potential habitat
- Eastern Cave Bat - Potential Foraging Habitat
- Eastern Pygmy-possum - Potential habitat
- Koala - Potential Habitat
- Large-eared Pied Bat - Potential Breeding habitat
- Large-eared Pied Bat - Potential foraging habitat
- Squirrel Glider - Potential habitat



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Data sources: WSP 2023, NSWSS, EnergyCo

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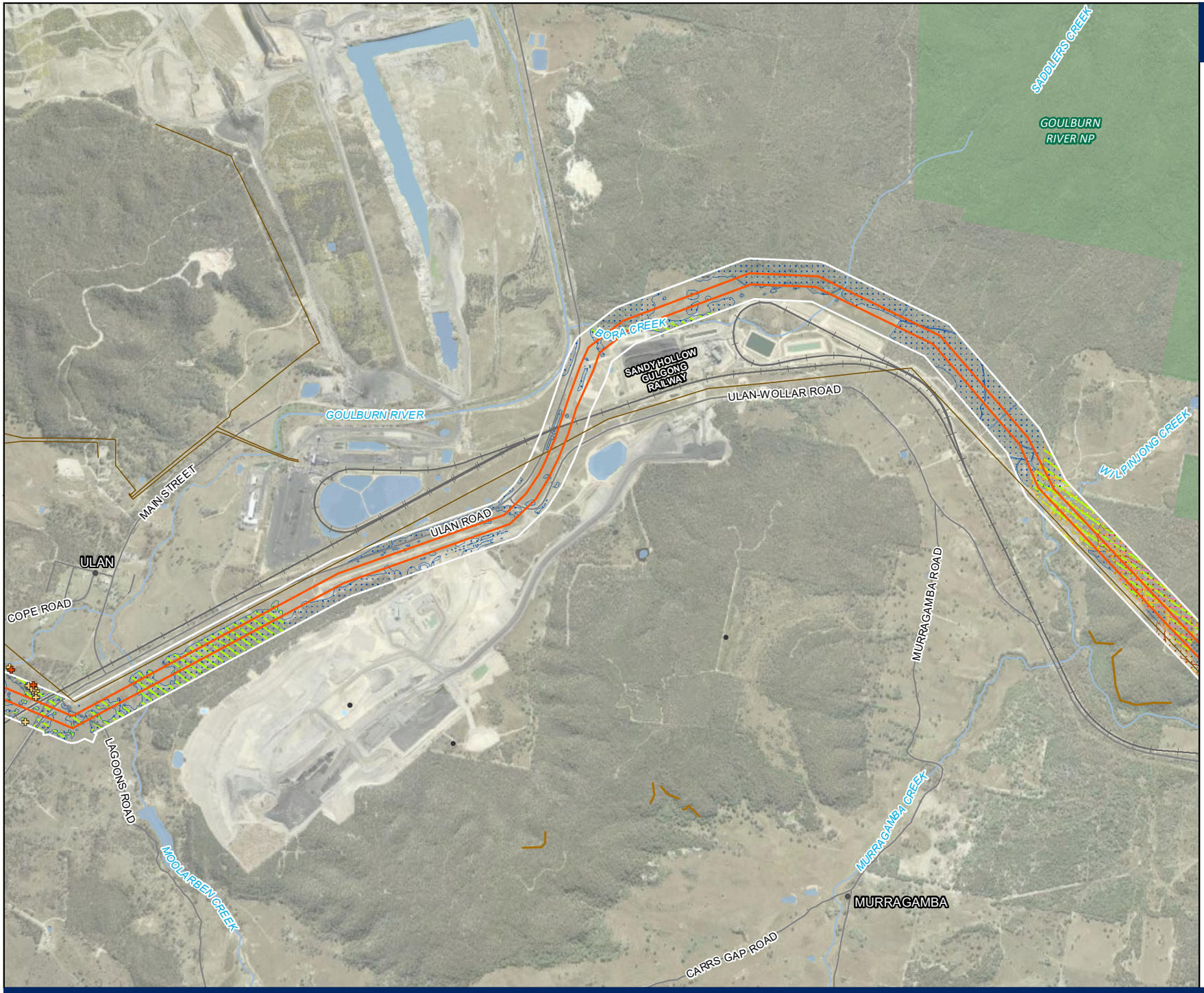


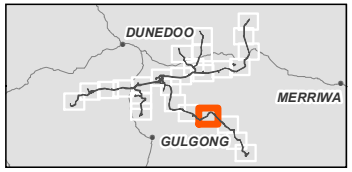
Figure C2
Threatened Fauna Polyons - Mammals
Map 12 of 26

Legend

- Biodiversity Study Area
- 500kv transmission line
- Existing transmission line
- Cliff lines
- Road
- Railway
- Watercourse
- Waterbody
- NPWS estate
- Built structures
- Dam / waterbody
- Hollow bearing trees (5cm)
- Hollow bearing trees (>10cm)
- Hollow bearing trees (>15cm)
- Hollow bearing trees (>20cm)

Assumed Species Polygon

- Brush-tailed Rock-wallaby - Potential habitat
- Eastern Cave Bat - Potential Foraging Habitat
- Eastern Pygmy-possum - Potential habitat
- Koala - Potential Habitat
- Large-eared Pied Bat - Potential foraging habitat
- Squirrel Glider - Potential habitat



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Data sources: WSP 2023, NSWSS, EnergyCo

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Figure C2
Threatened Fauna Polyons - Mammals
Map 13 of 26

Legend

- Biodiversity Study Area
- 500kv transmission line
- Existing transmission line
- Cliff lines
- Road
- Railway
- Watercourse
- Waterbody
- NPWS estate
- Built structures
- Caves and rocky areas

Fauna Threatened Species

- Large-eared Pied Bat
- Eastern Cave Bat
- Large Bent-winged Bat

Assumed Species Polygon

- Brush-tailed Rock-wallaby - Potential habitat
- Eastern Cave Bat - Potential Breeding Habitat
- Eastern Cave Bat - Potential Foraging Habitat
- Eastern Pygmy-possum - Potential habitat
- Koala - Potential Habitat
- Large-eared Pied Bat - Potential Breeding habitat
- Large-eared Pied Bat - Potential foraging habitat
- Squirrel Glider - Potential habitat

0 500 1,000 Meters

Coordinate system: GDA 1994 MGA Zone 55
Scale ratio correct when printed at A4

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Data sources: WSP 2023, NSWSS, EnergyCo

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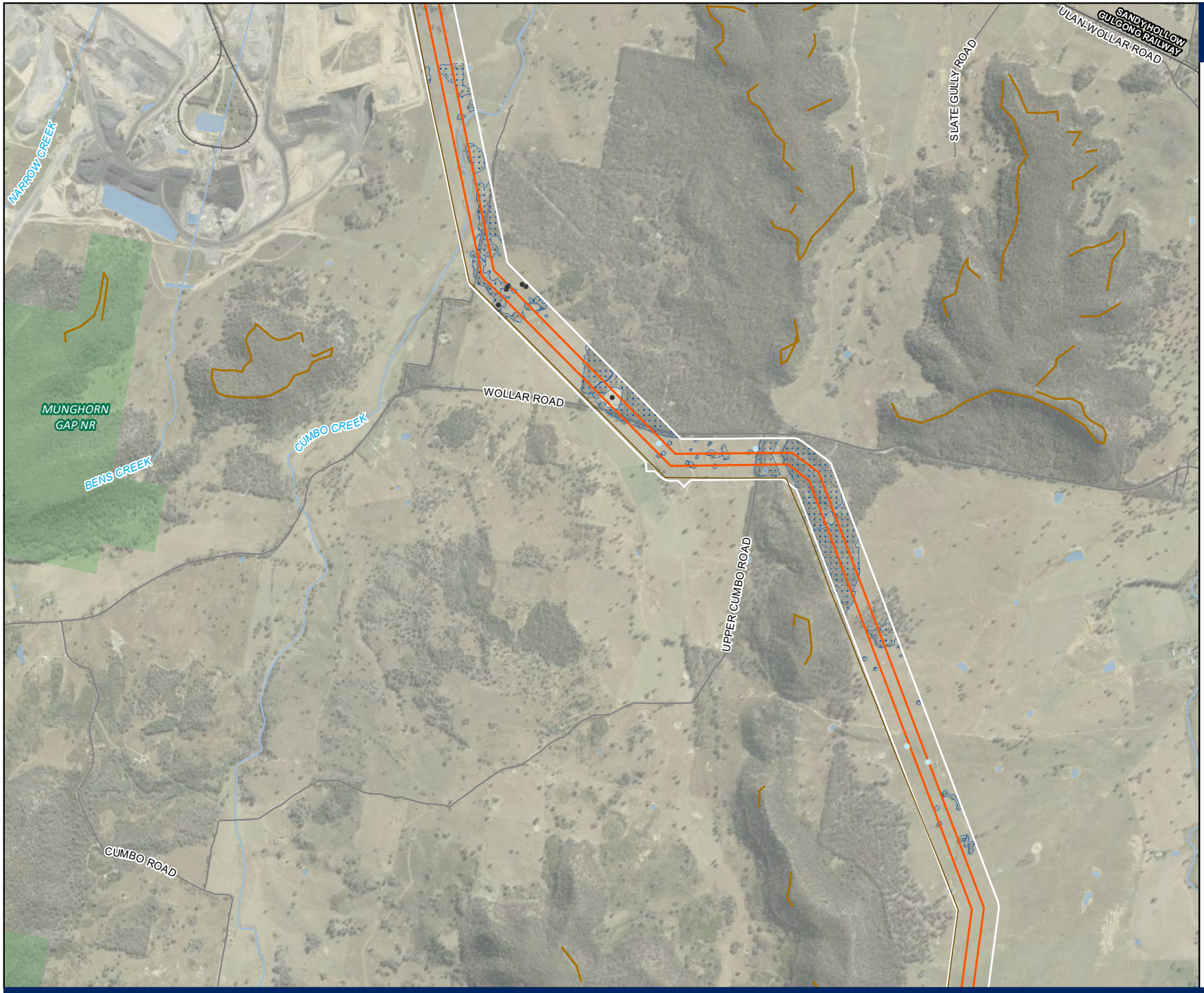


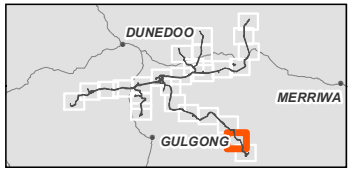
Figure C2
Threatened Fauna Polyons - Mammals
Map 14 of 26

Legend

- Biodiversity Study Area
- 500kv transmission line
- Existing transmission line
- Cliff lines
- Road
- Railway
- Watercourse
- Waterbody
- NPWS estate
- Built structures
- Dam / waterbody

Assumed Species Polygon

- Koala - Potential Habitat



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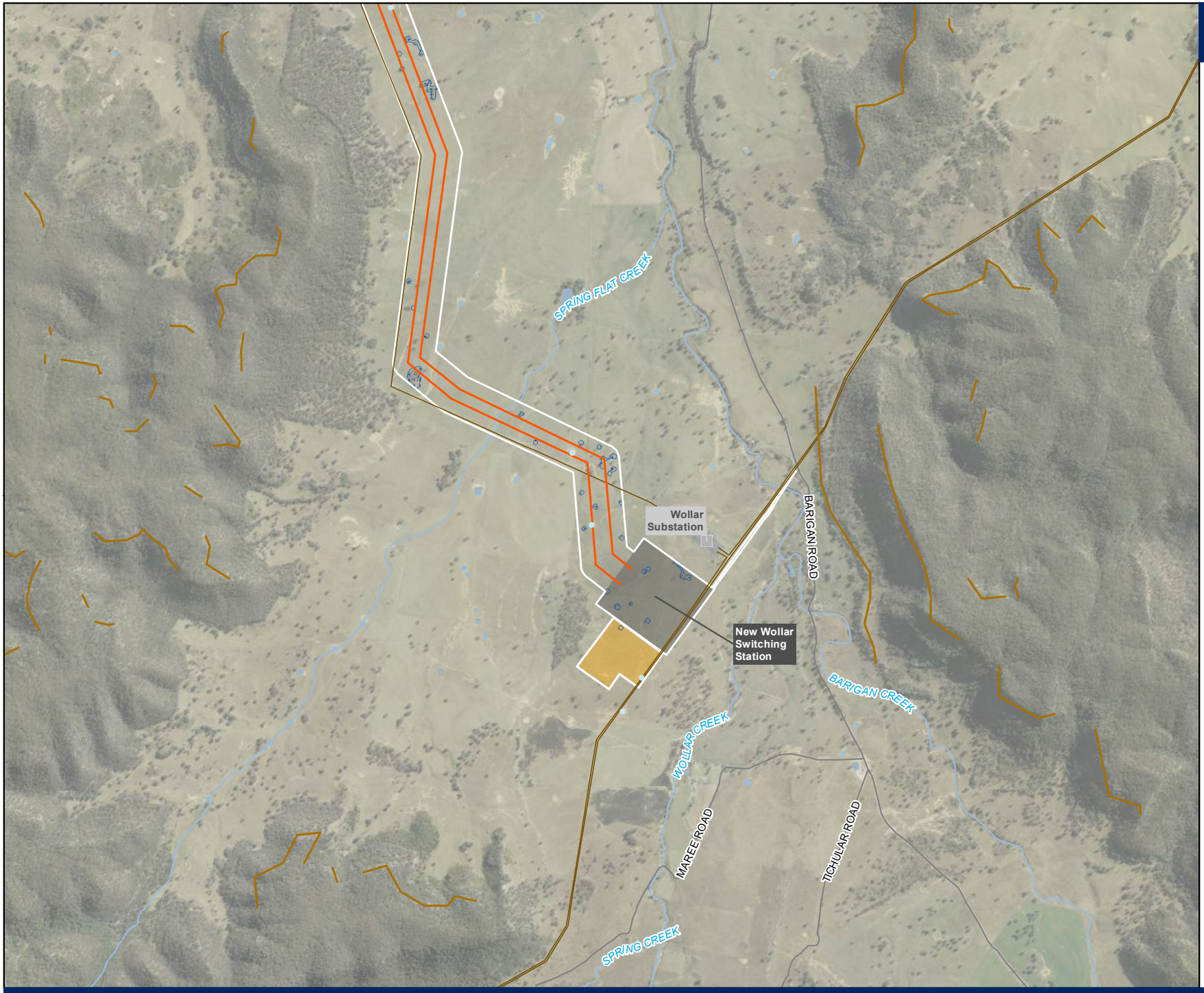

Figure C2
Threatened Fauna Polyons - Mammals
Map 15 of 26

Legend

- Biodiversity Study Area
- 500kv transmission line
- Energy hub / 500 kV switching station
- Construction compound
- Existing transmission line
- Existing substation
- Cliff lines
- Road
- Watercourse
- Waterbody
- Dam / waterbody

Assumed Species Polygon

- Koala - Potential Habitat

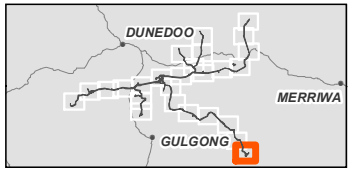

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Figure C2
Threatened Fauna Polyons - Mammals
Map 16 of 26

Legend

- Biodiversity Study Area
- 330kv transmission line
- Road
- Watercourse
- Waterbody
- Hollow bearing trees (5cm)

Assumed Species Polygon

- Eastern Pygmy-possum - Potential habitat
- Koala - Potential Habitat
- Squirrel Glider - Potential habitat

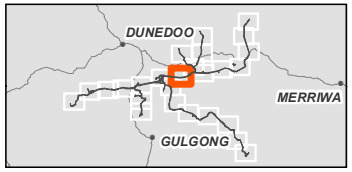

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Figure C2
Threatened Fauna Polyons - Mammals
Map 17 of 26

Legend

- Biodiversity Study Area
- 330kv transmission line
- Road
- Watercourse
- Waterbody
- Dam / waterbody

Fauna Threatened Species

- Squirrel Glider
- Hollow bearing trees (5cm)
- Hollow bearing trees (>10cm)
- Hollow bearing trees (>15cm)

Confirmed Species Polygon

- Squirrel Glider Habitat

Assumed Species Polygon

- Brush-tailed Rock-wallaby - Potential habitat
- Eastern Pygmy-possum - Potential habitat
- Koala - Potential Habitat
- Large-eared Pied Bat - Potential foraging habitat
- Squirrel Glider - Potential habitat

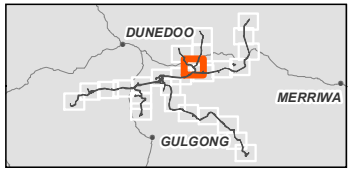

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Figure C2
Threatened Fauna Polyons - Mammals
Map 18 of 26

Legend

- Biodiversity Study Area
- 330kv transmission line
- 330 kV switching station
- Cliff lines
- Road
- Watercourse
- Waterbody
- Caves and rocky areas
- Hollow bearing trees (5cm)
- Hollow bearing trees (>10cm)
- Hollow bearing trees (>15cm)

Assumed Species Polygon

- Brush-tailed Rock-wallaby - Potential habitat
- Eastern Cave Bat - Potential Breeding Habitat
- Eastern Cave Bat - Potential Foraging Habitat
- Eastern Pygmy-possum - Potential habitat
- Koala - Potential Habitat
- Large-eared Pied Bat - Potential Breeding habitat
- Large-eared Pied Bat - Potential foraging habitat
- Squirrel Glider - Potential habitat

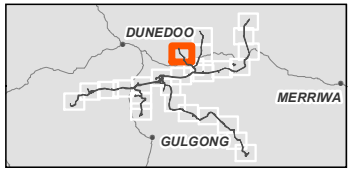

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Figure C2
Threatened Fauna Polyons - Mammals
Map 19 of 26

Legend

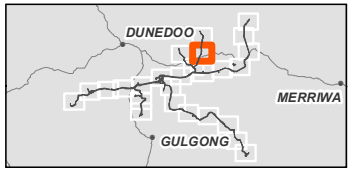
- Biodiversity Study Area
- 330kv transmission line
- Road
- Watercourse
- Waterbody
- Hollow bearing trees (5cm)
- Hollow bearing trees (>10cm)
- Hollow bearing trees (>15cm)
- Hollow bearing trees (>20cm)

Confirmed Species Polygon

- Squirrel Glider Habitat

Assumed Species Polygon

- Eastern Pygmy-possum - Potential habitat
- Koala - Potential Habitat
- Squirrel Glider - Potential habitat



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Data sources: WSP 2023, NSWSS, EnergyCo

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Figure C2
Threatened Fauna Polyons - Mammals
Map 20 of 26

Legend

- Biodiversity Study Area
- 330kv transmission line
- 330 kV switching station
- Road
- Watercourse
- Waterbody
- Built structures
- Hollow bearing trees (5cm)
- Hollow bearing trees (>10cm)
- Hollow bearing trees (>15cm)
- Hollow bearing trees (>20cm)

Confirmed Species Polygon

- Squirrel Glider Habitat

Assumed Species Polygon

- Eastern Pygmy-possum - Potential habitat
- Koala - Potential Habitat
- Squirrel Glider - Potential habitat

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Coordinate system: GDA 1994 MGA Zone 55
Scale ratio correct when printed at A4

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Data sources: WSP 2023, NSWSS, EnergyCo

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Figure C2
Threatened Fauna Polyons - Mammals
Map 21 of 26

Legend

- Biodiversity Study Area
- 330kv transmission line
- Road
- Watercourse
- Waterbody
- NPWS estate
- Dam / waterbody

Confirmed Species Polygon

- Squirrel Glider Habitat

Assumed Species Polygon

- Eastern Pygmy-possum - Potential habitat
- Koala - Potential Habitat
- Squirrel Glider - Potential habitat

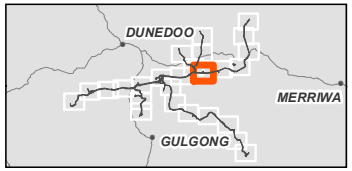

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Figure C2
Threatened Fauna Polyons - Mammals
Map 22 of 26

Legend

- Biodiversity Study Area
- 330kv transmission line
- Road
- Watercourse
- Waterbody
- NPWS estate
- Built structures
- Dam / waterbody
- Hollow bearing trees (5cm)
- Hollow bearing trees (>10cm)
- Hollow bearing trees (>15cm)
- Hollow bearing trees (>20cm)

Confirmed Species Polygon

- Squirrel Glider Habitat

Assumed Species Polygon

- Eastern Pygmy-possum - Potential habitat
- Koala - Potential Habitat
- Squirrel Glider - Potential habitat

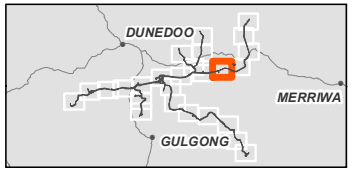

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Figure C2
Threatened Fauna Polyons - Mammals
Map 23 of 26

Legend

- Biodiversity Study Area
- 330kv transmission line
- Workforce accommodation camp
- Road
- Watercourse
- Waterbody
- NPWS estate
- Built structures
- Dam / waterbody
- Hollow bearing trees (5cm)
- Hollow bearing trees (>15cm)
- Hollow bearing trees (>20cm)

Assumed Species Polygon

- Eastern Pygmy-possum - Potential habitat
- Koala - Potential Habitat
- Squirrel Glider - Potential habitat

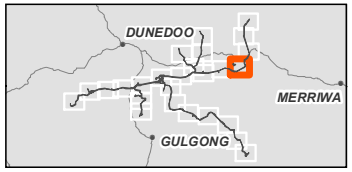

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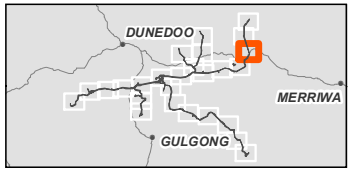
Figure C2
Threatened Fauna Polyons - Mammals
Map 24 of 26

Legend

- Biodiversity Study Area
- 330kv transmission line
- Road
- Watercourse
- Waterbody
- NPWS estate
- Dam / waterbody

Assumed Species Polygon

- Koala - Potential Habitat
- Squirrel Glider - Potential habitat



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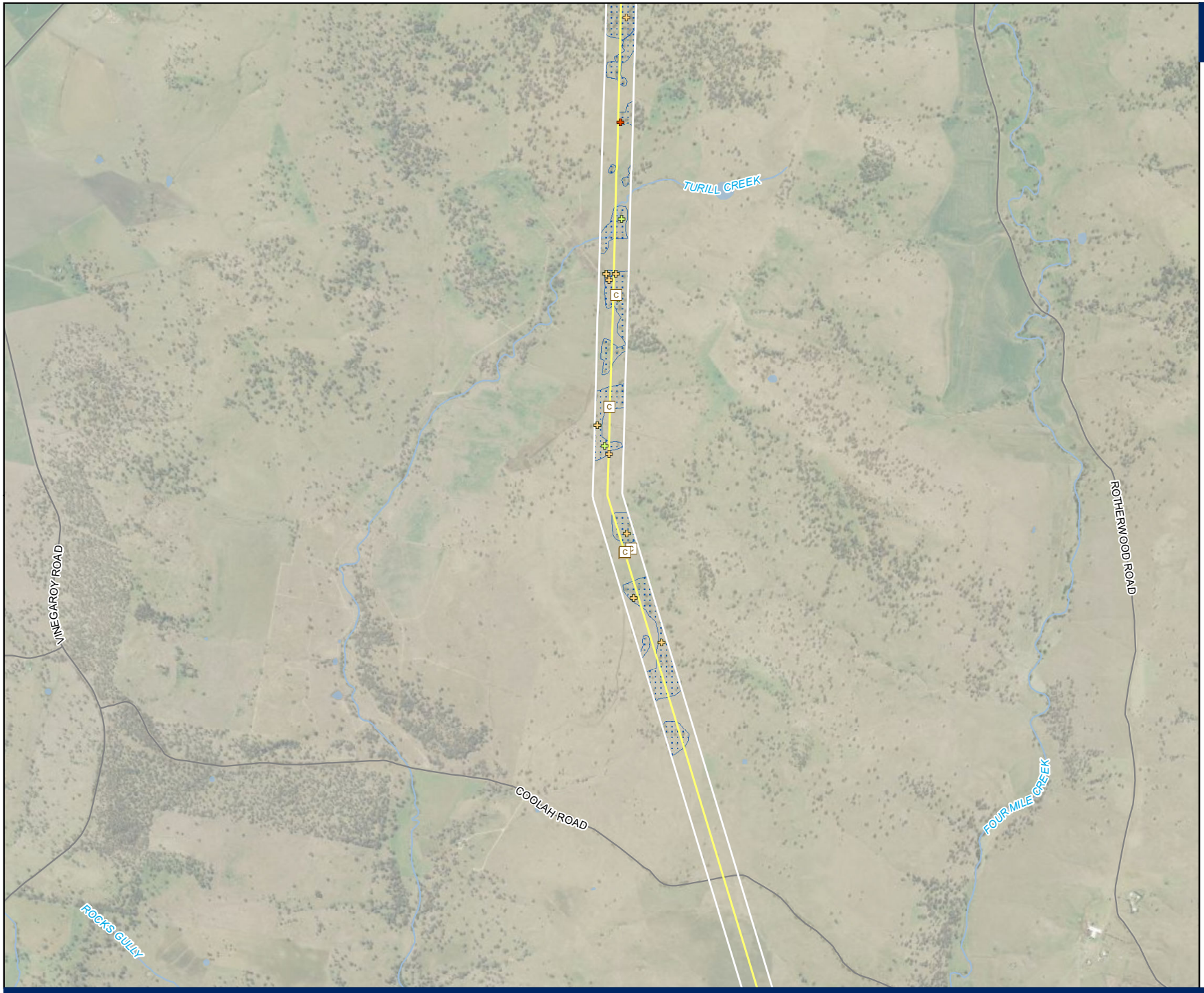


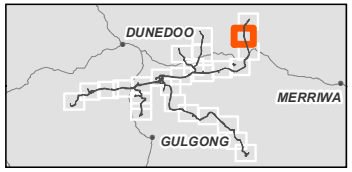
Figure C2
Threatened Fauna Polyons - Mammals
Map 25 of 26

Legend

- Biodiversity Study Area
- 330kv transmission line
- Road
- Watercourse
- Waterbody
- Caves and rocky areas
- Hollow bearing trees (5cm)
- Hollow bearing trees (>10cm)
- Hollow bearing trees (>15cm)
- Hollow bearing trees (>20cm)

Assumed Species Polygon

- Koala - Potential Habitat



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Coordinate system: GDA 1994 MGA Zone 55
Scale ratio correct when printed at A4

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Data sources: WSP 2023, NSWSS, EnergyCo

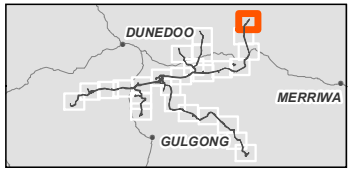
Figure C2
Threatened Fauna Polyons - Mammals
Map 26 of 26

Legend

- Biodiversity Study Area
- 330kv transmission line
- 330 kV switching station
- Road
- Watercourse
- Hollow bearing trees (5cm)
- Hollow bearing trees (>10cm)
- Hollow bearing trees (>15cm)
- Hollow bearing trees (>20cm)

Assumed Species Polygon

- Koala - Potential Habitat



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Data sources: WSP 2023, NSWSS, EnergyCo

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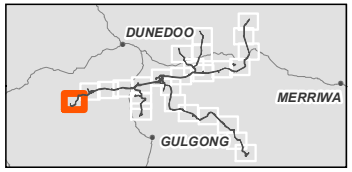
Figure C2
Threatened Fauna Polyons
Birds, reptiles and amphibians
Map 1 of 26

Legend

- Biodiversity Study Area
- 330kv transmission line
- 330 kV switching station
- Road
- Watercourse
- Waterbody
- NPWS estate
- Built structures
- Dam / waterbody
- Potential nest tree (5cm)
- Potential nest tree (>10cm)
- Potential nest tree (>15cm)

Assumed Species Habitat

- Superb Parrot - Potential breeding habitat



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Data sources: WSP 2023, NSWSS, EnergyCo

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Figure C2
Threatened Fauna Polyons
Birds, reptiles and amphibians
Map 2 of 26

Legend

- Biodiversity Study Area
- 330kv transmission line
- 500kv transmission line
- 330 kV switching station
- Energy hub / 500 kV switching station
- Construction compound
- Road
- Watercourse
- Waterbody
- Built structures
- Dam / waterbody
- Potential nest tree (5cm)
- Potential nest tree (>10cm)
- Potential nest tree (>15cm)
- Potential nest tree (>20cm)

Assumed Species Habitat

- Pale-headed Snake - Potential habitat
- Superb Parrot - Potential breeding habitat

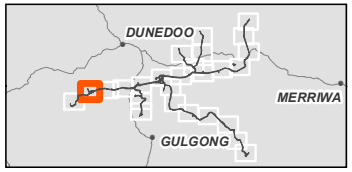

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Figure C2
Threatened Fauna Polyons
Birds, reptiles and amphibians
Map 3 of 26

Legend

- Biodiversity Study Area
- 500kv transmission line
- Road
- Watercourse
- Waterbody
- NPWS estate
- Dam / waterbody
- Potential nest tree (5cm)
- Potential nest tree (>10cm)
- Potential nest tree (>15cm)
- Potential nest tree (>20cm)

Threatened Fauna Species

- Large Bent-winged Bat
- Glossy Black-Cockatoo
- Masked Owl - heard

Assumed Species Habitat

- Barking Owl - Potential breeding habitat
- Glossy Black-Cockatoo - Potential breeding habitat
- Masked Owl - Potential breeding habitat
- Pale-headed Snake - Potential habitat
- Pink-tailed Legless Lizard - Potential habitat

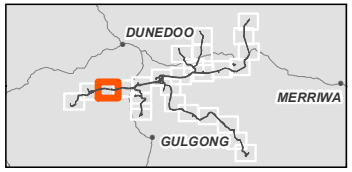

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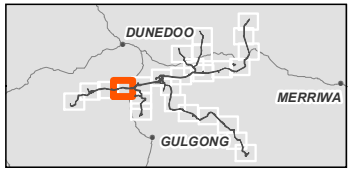
Figure C2
Threatened Fauna Polyons
Birds, reptiles and amphibians
Map 4 of 26

Legend

- Biodiversity Study Area
- 330kv transmission line
- 500kv transmission line
- 330 kV switching station
- Existing transmission line
- Road
- Watercourse
- Waterbody
- Built structures
- Dam / waterbody
- Potential nest tree (5cm)
- Potential nest tree (>10cm)
- Potential nest tree (>15cm)
- Potential nest tree (>20cm)

Assumed Species Habitat

- Barking Owl - Potential breeding habitat
- Glossy Black-Cockatoo - Potential breeding habitat
- Masked Owl - Potential breeding habitat
- Striped Legless Lizard - Potential habitat



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Data sources: WSP 2023, NSWSS, EnergyCo

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Figure C2
Threatened Fauna Polyons
Birds, reptiles and amphibians
Map 5 of 26

Legend

- Biodiversity Study Area
- 330kv transmission line
- 500kv transmission line
- 330 kV switching station
- Road
- Railway
- Watercourse
- Waterbody
- Dam / waterbody
- Cliff lines
- Potential nest tree (5cm)
- Potential nest tree (>10cm)
- Potential nest tree (>15cm)
- Potential nest tree (>20cm)

Assumed Species Habitat

- Barking Owl - Potential breeding habitat
- Masked Owl - Potential breeding habitat
- Striped Legless Lizard - Potential habitat

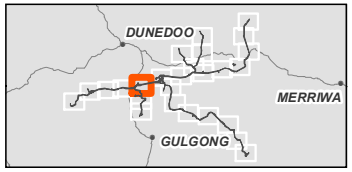

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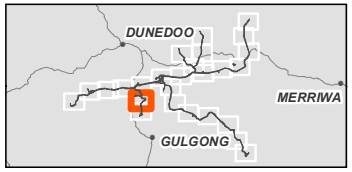
Figure C2
Threatened Fauna Polyons
Birds, reptiles and amphibians
Map 6 of 26

Legend

- Biodiversity Study Area
- 330kv transmission line
- 330 kV switching station
- Road
- Railway
- Watercourse
- Waterbody
- Cliff lines
- Potential nest tree (5cm)
- Potential nest tree (>10cm)
- Potential nest tree (>15cm)
- Potential nest tree (>20cm)

Assumed Species Habitat

- Barking Owl - Potential breeding habitat
- Masked Owl - Potential breeding habitat
- Striped Legless Lizard - Potential habitat



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Data sources: WSP 2023, NSWSS, EnergyCo

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Figure C2
Threatened Fauna Polyons
Birds, reptiles and amphibians
Map 7 of 26

Legend

- Biodiversity Study Area
- 330kv transmission line
- 330 kV switching station
- Existing transmission line
- Road
- Railway
- Watercourse
- Waterbody
- Built structures
- Potential nest tree (5cm)
- Potential nest tree (>10cm)
- Potential nest tree (>15cm)
- Potential nest tree (>20cm)

Assumed Species Habitat

- Barking Owl - Potential breeding habitat
- Masked Owl - Potential breeding habitat

0 500 1,000 Meters

Coordinate system: GDA 1994 MGA Zone 55
Scale ratio correct when printed at A4

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Data sources: WSP 2023, NSWSS, EnergyCo

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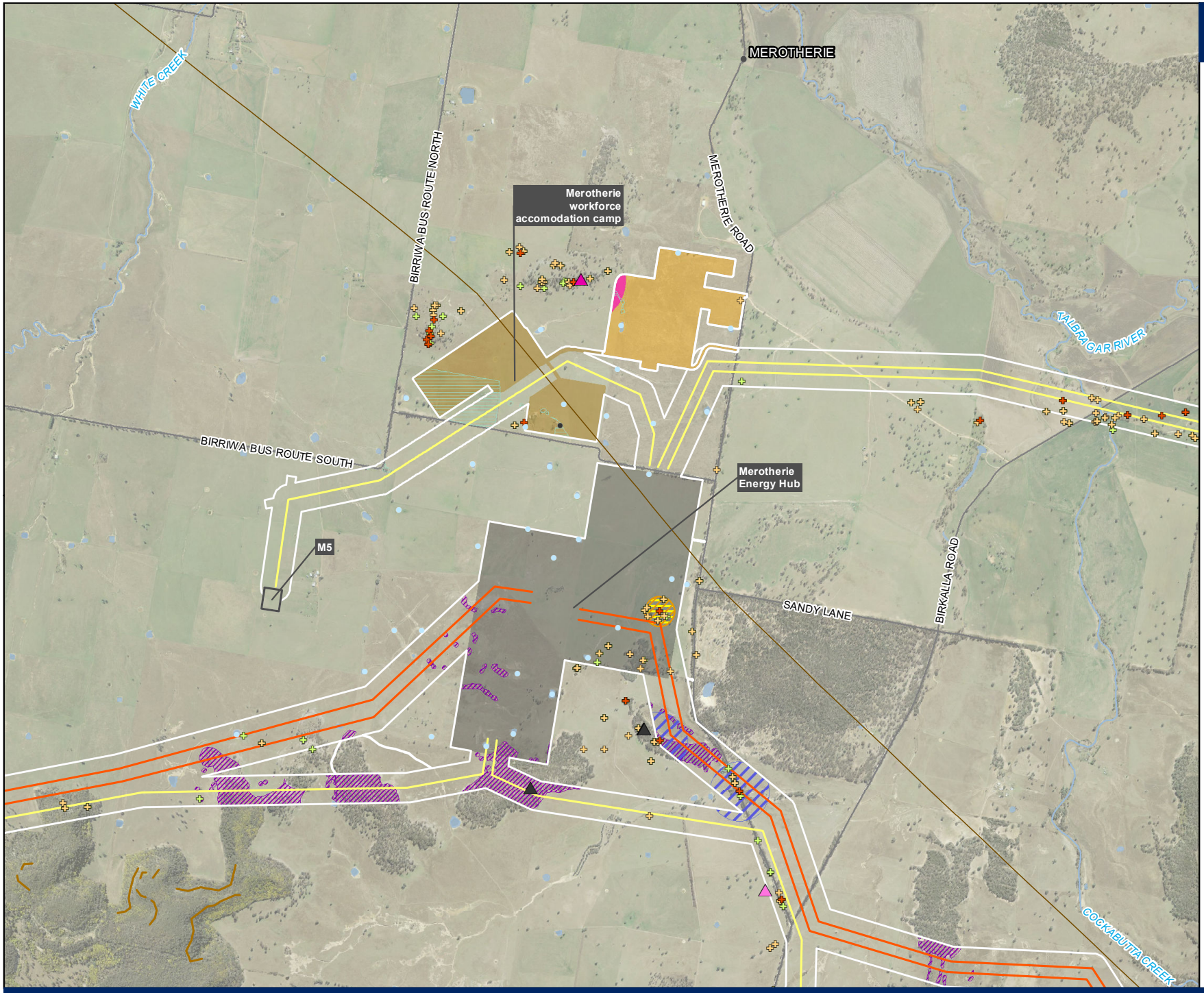


Figure C2
Threatened Fauna Polyons
Birds, reptiles and amphibians
Map 8 of 26

Legend

- Biodiversity Study Area
- 330kv transmission line
- 500kv transmission line
- 330 kV switching station
- Workforce accommodation camp
- Energy hub / 500 kV switching station
- Construction compound
- Existing transmission line
- Road
- Watercourse
- Waterbody
- Built structures
- Dam / waterbody
- Cliff lines
- Potential nest tree (5cm)
- Potential nest tree (>10cm)
- Potential nest tree (>15cm)
- Potential nest tree (>20cm)

Threatened Fauna Species

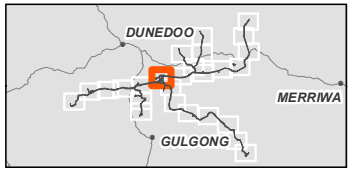
- Glossy Black-Cockatoo
- Little Eagle (nest)
- Little Eagle

Confirmed Species Polygon

- Little Eagle Nest

Assumed Species Habitat

- Barking Owl - Potential breeding habitat
- Glossy Black-Cockatoo - Potential breeding habitat
- Masked Owl - Potential breeding habitat
- Pale-headed Snake - Potential habitat
- Pink-tailed Legless Lizard - Potential habitat
- Striped Legless Lizard - Potential habitat



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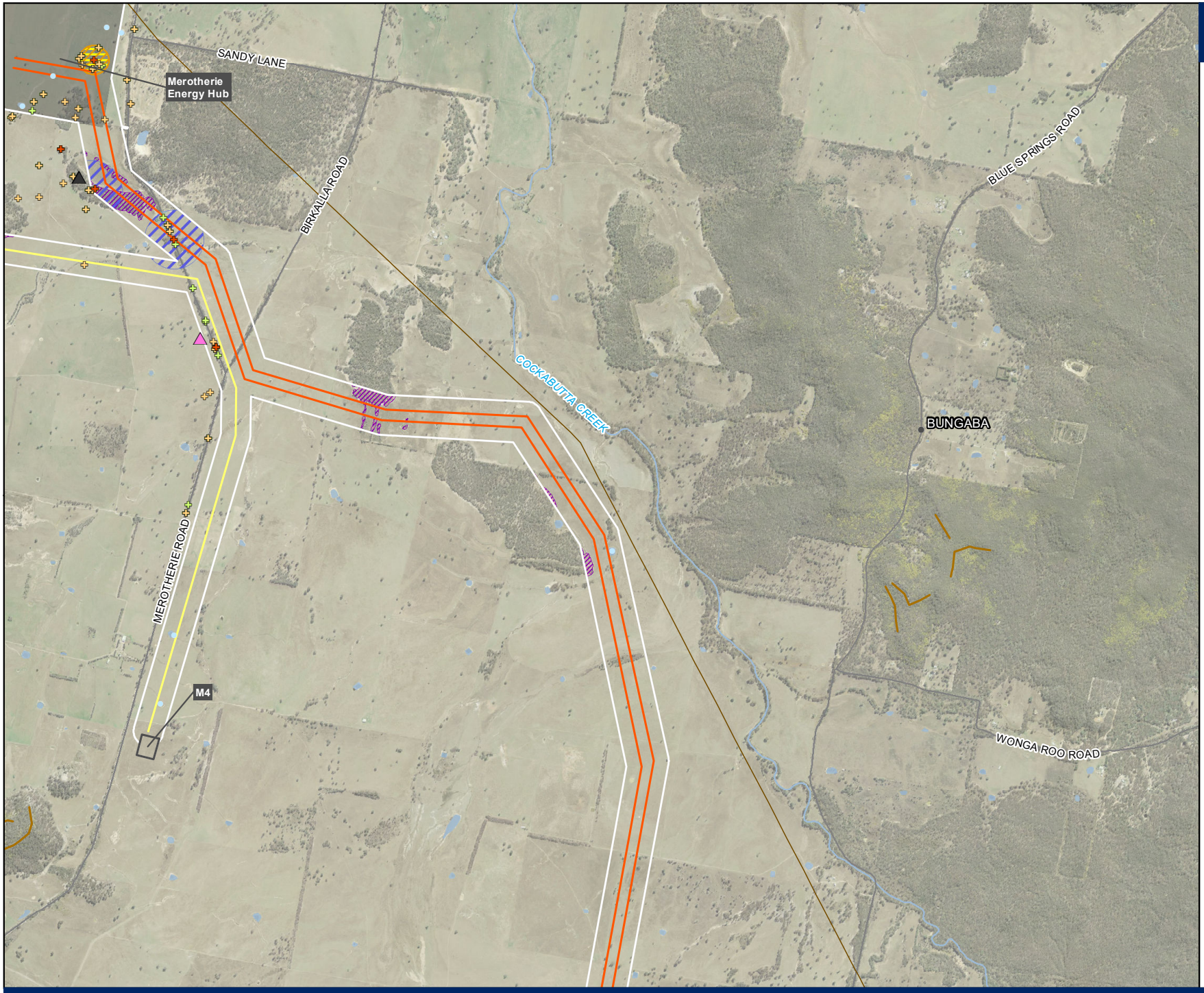


Figure C2
Threatened Fauna Polyons
Birds, reptiles and amphibians
Map 9 of 26

Legend

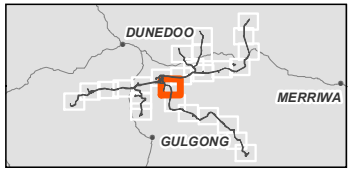
- Biodiversity Study Area
- 330kv transmission line
- 500kv transmission line
- 330 kV switching station
- Energy hub / 500 kV switching station
- Existing transmission line
- Road
- Watercourse
- Waterbody
- Dam / waterbody
- Cliff lines
- Potential nest tree (5cm)
- Potential nest tree (>10cm)
- Potential nest tree (>15cm)
- Potential nest tree (>20cm)

Threatened Fauna Species

- Glossy Black-Cockatoo
- Little Eagle

Assumed Species Habitat

- Barking Owl - Potential breeding habitat
- Glossy Black-Cockatoo - Potential breeding habitat
- Masked Owl - Potential breeding habitat
- Pale-headed Snake - Potential habitat
- Pink-tailed Legless Lizard - Potential habitat
- Striped Legless Lizard - Potential habitat



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Data sources: WSP 2023, NSWSS, EnergyCo

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Figure C2
Threatened Fauna Polyons
Birds, reptiles and amphibians
Map 10 of 26

Legend

- Biodiversity Study Area
- 500kv transmission line
- Existing transmission line
- Road
- Watercourse
- Waterbody
- Dam / waterbody

Habitat

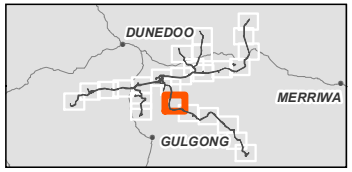
- Cave
- Cliff lines
- Potential nest tree (5cm)
- Potential nest tree (>10cm)
- Potential nest tree (>15cm)
- Potential nest tree (>20cm)

Threatened Fauna Species

- Barking Owl

Assumed Species Habitat

- Barking Owl - Potential breeding habitat
- Pale-headed Snake - Potential habitat
- Pink-tailed Legless Lizard - Potential habitat
- Striped Legless Lizard - Potential habitat



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Data sources: WSP 2023, NSWSS, EnergyCo

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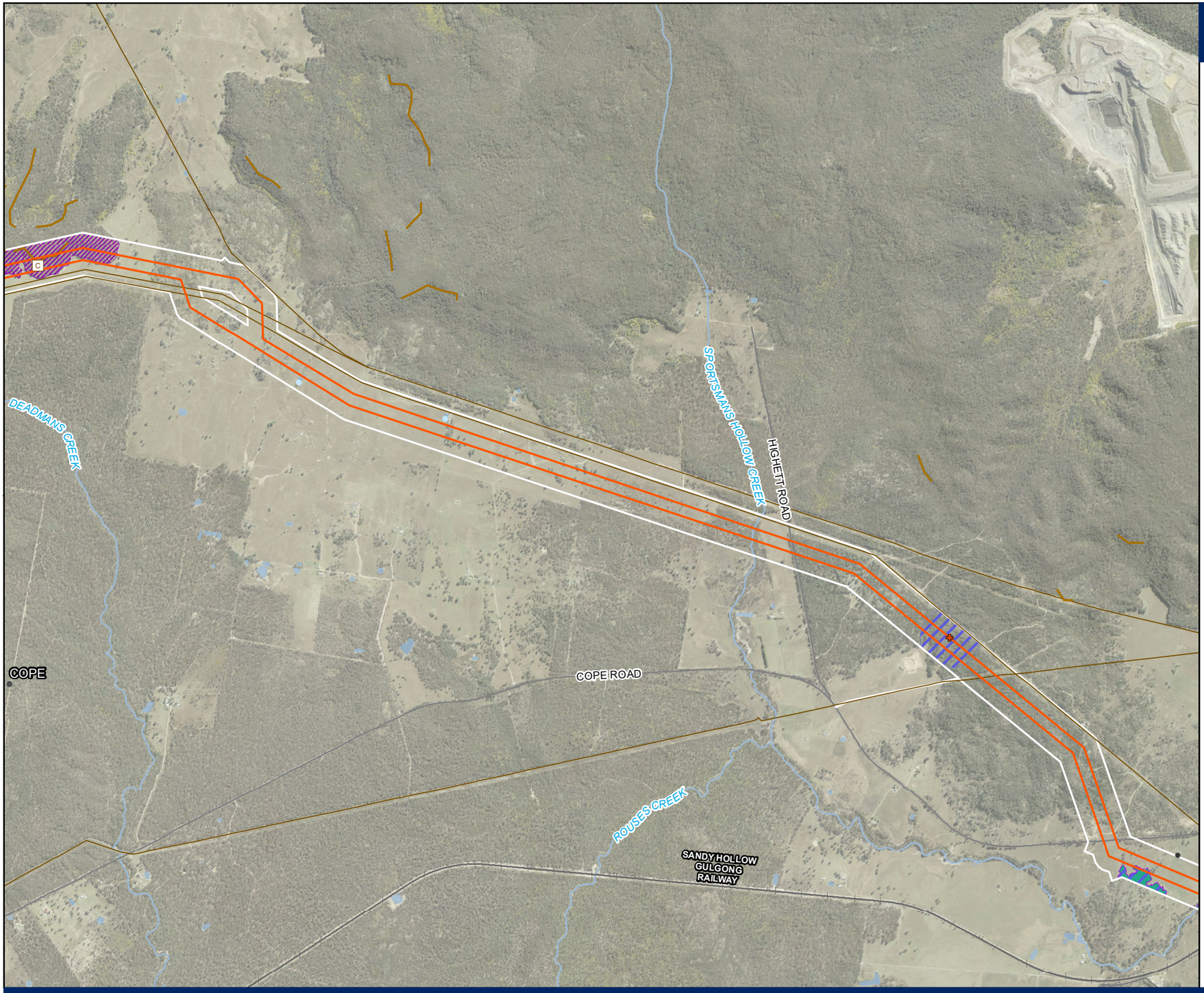


Figure C2
Threatened Fauna Polyons
Birds, reptiles and amphibians
Map 11 of 26

Legend

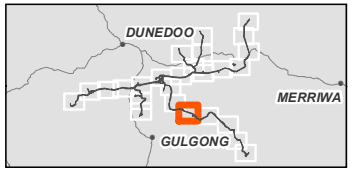
- Biodiversity Study Area
- 500kv transmission line
- Existing transmission line
- Road
- Railway
- Watercourse
- Waterbody
- Built structures
- Dam / waterbody

Habitat

- Cave
- Cliff lines
- Potential nest tree (5cm)
- Potential nest tree (>10cm)
- Potential nest tree (>15cm)
- Potential nest tree (>20cm)

Assumed Species Habitat

- Glossy Black-Cockatoo - Potential breeding habitat
- Pale-headed Snake - Potential habitat
- Pink-tailed Legless Lizard - Potential habitat
- Regent Honey Eater - Important Habitat (SAII)
- Regent Honeyeater Important Habitat (SAII)



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Data sources: WSP 2023, NSWSS, EnergyCo

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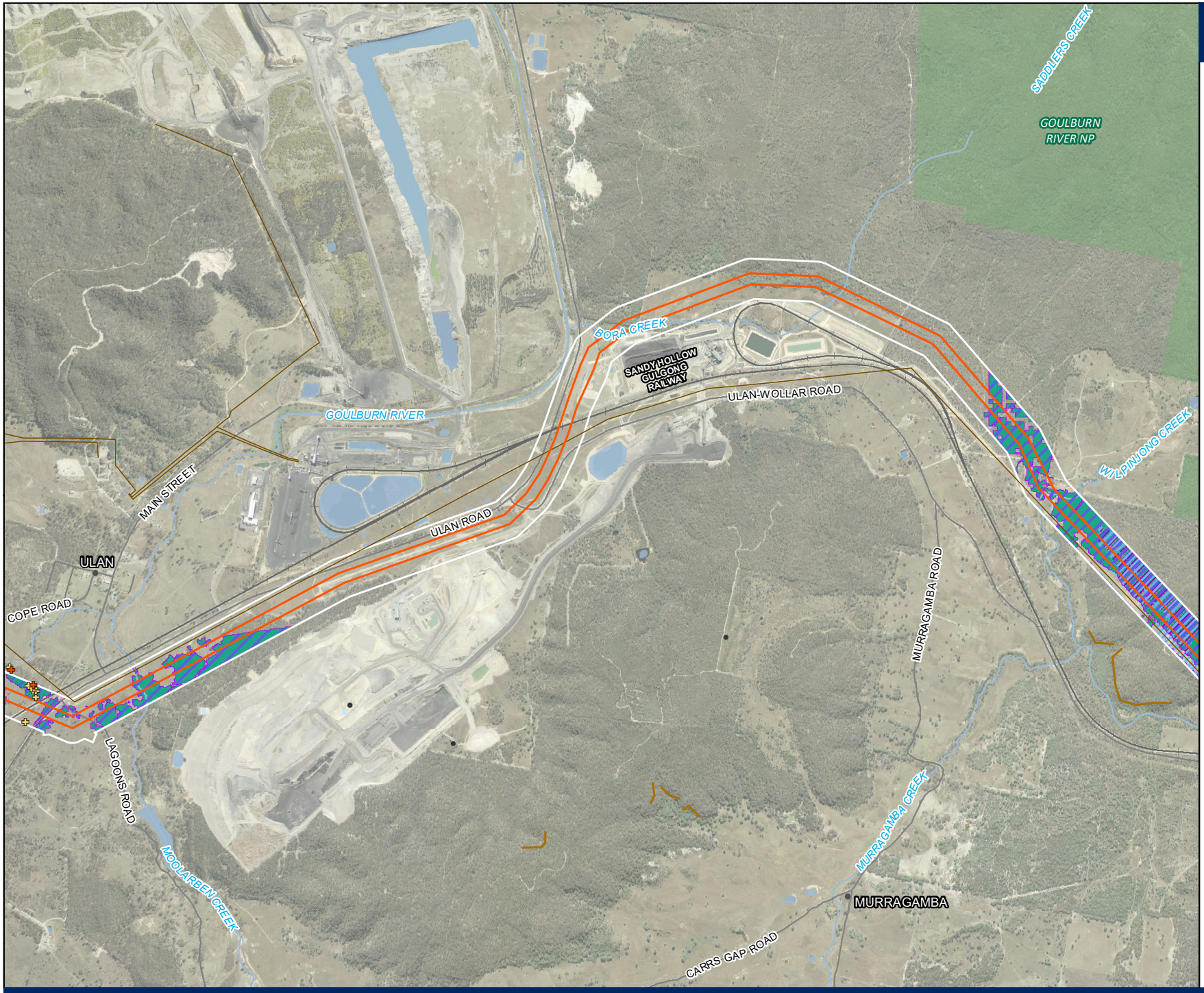


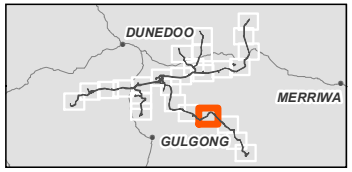
Figure C2
Threatened Fauna Polyons
Birds, reptiles and amphibians
Map 12 of 26

Legend

- Biodiversity Study Area
- 500kv transmission line
- Existing transmission line
- Road
- Railway
- Watercourse
- Waterbody
- NPWS estate
- Built structures
- Dam / waterbody
- Cliff lines
- Potential nest tree (5cm)
- Potential nest tree (>10cm)
- Potential nest tree (>15cm)
- Potential nest tree (>20cm)

Assumed Species Habitat

- Broad-headed Snake - Potential habitat
- Pale-headed Snake - Potential habitat
- Pink-tailed Legless Lizard - Potential habitat
- Regent Honey Eater - Important Habitat (SAII)
- Regent Honeyeater Important Habitat (SAII)



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Data sources: WSP 2023, NSWSS, EnergyCo

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Figure C2
Threatened Fauna Polyons
Birds, reptiles and amphibians
Map 13 of 26

Legend

- Biodiversity Study Area
- 500kv transmission line
- Existing transmission line
- Road
- Railway
- Watercourse
- Waterbody
- NPWS estate
- Built structures

Habitat

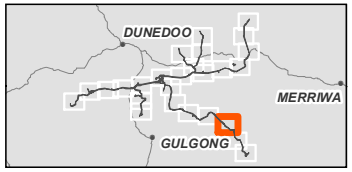
- Cave
- Cliff lines

Threatened Fauna Species

- Eastern Cave Bat
- Large Bent-winged Bat
- Masked Owl - heard

Assumed Species Habitat

- Broad-headed Snake - Potential habitat
- Pale-headed Snake - Potential habitat
- Pink-tailed Legless Lizard - Potential habitat
- Regent Honey Eater - Important Habitat (SAII)
- Striped Legless Lizard - Potential habitat
- Regent Honeyeater Important Habitat (SAII)



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Data sources: WSP 2023, NSWSS, EnergyCo

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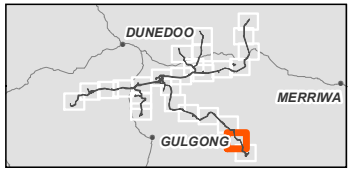
Figure C2
Threatened Fauna Polyons
Birds, reptiles and amphibians
Map 14 of 26

Legend

- Biodiversity Study Area
- 500kv transmission line
- Existing transmission line
- Road
- Railway
- Watercourse
- Waterbody
- NPWS estate
- Built structures
- Dam / waterbody
- Cliff lines

Assumed Species Habitat

- Regent Honey Eater - Important Habitat (SAII)
- Striped Legless Lizard - Potential habitat
- Regent Honeyeater Important Habitat (SAII)



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Data sources: WSP 2023, NSWSS, EnergyCo

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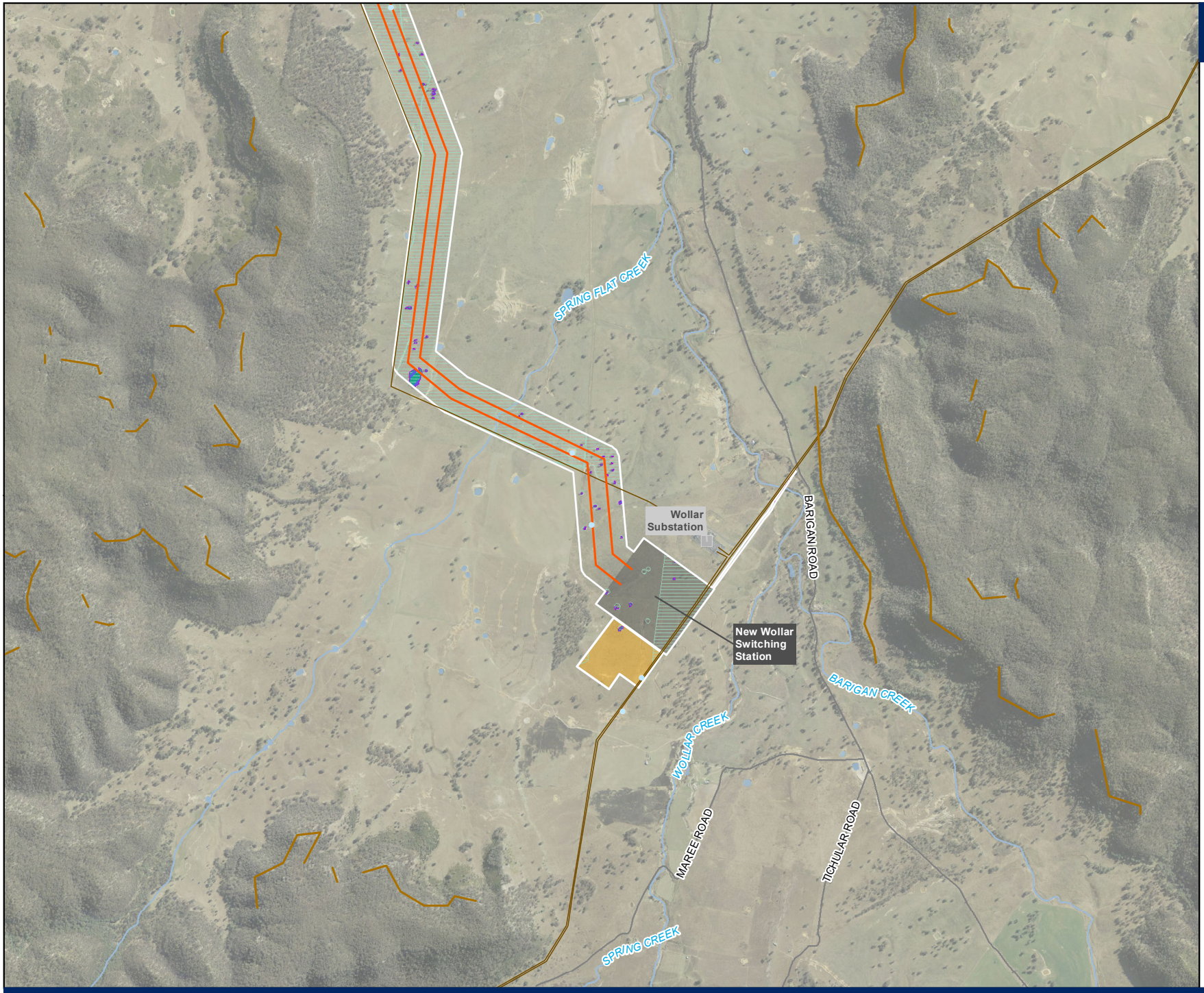


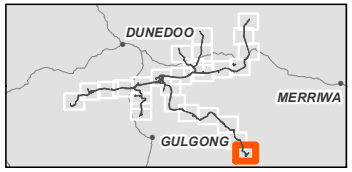
Figure C2
Threatened Fauna Polyons
Birds, reptiles and amphibians
Map 15 of 26

Legend

- Biodiversity Study Area
- 500kv transmission line
- Energy hub / 500 kV switching station
- Construction compound
- Existing transmission line
- Existing substation
- Road
- Watercourse
- Waterbody
- Dam / waterbody
- Cliff lines

Assumed Species Habitat

- Regent Honey Eater - Important Habitat (SAII)
- Striped Legless Lizard - Potential habitat
- Regent Honeyeater Important Habitat (SAII)



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Data sources: WSP 2023, NSWSS, EnergyCo

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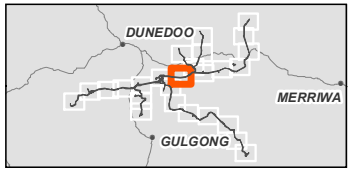
Figure C2
Threatened Fauna Polyons
Birds, reptiles and amphibians
Map 16 of 26

Legend

- Biodiversity Study Area
- 330kv transmission line
- Road
- Watercourse
- Waterbody
- Potential nest tree (5cm)

Assumed Species Habitat

- Pale-headed Snake - Potential habitat
- Pink-tailed Legless Lizard - Potential habitat
- Striped Legless Lizard - Potential habitat



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Data sources: WSP 2023, NSWSS, EnergyCo

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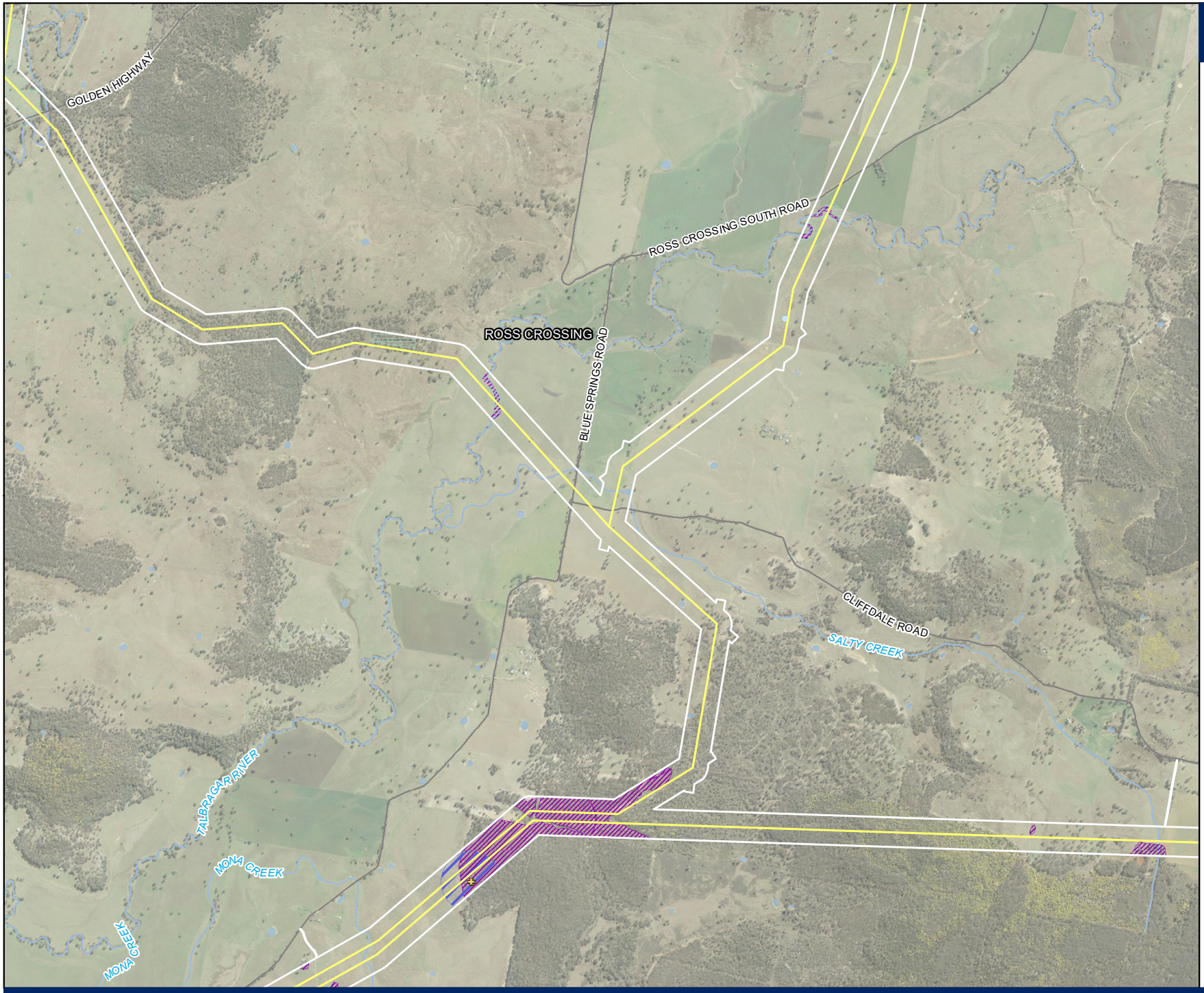


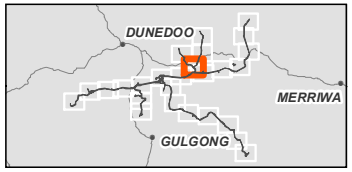
Figure C2
Threatened Fauna Polyons
Birds, reptiles and amphibians
Map 17 of 26

Legend

- Biodiversity Study Area
- 330kv transmission line
- Road
- Watercourse
- Waterbody
- Dam / waterbody
- Potential nest tree (5cm)
- Potential nest tree (>10cm)
- Potential nest tree (>15cm)

Assumed Species Habitat

- Glossy Black-Cockatoo - Potential breeding habitat
- Pale-headed Snake - Potential habitat
- Pink-tailed Legless Lizard - Potential habitat
- Striped Legless Lizard - Potential habitat



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Data sources: WSP 2023, NSWSS, EnergyCo

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Figure C2
Threatened Fauna Polyons
Birds, reptiles and amphibians
Map 18 of 26

Legend

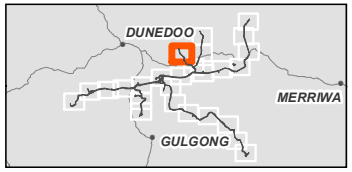
- Biodiversity Study Area
- 330kv transmission line
- 330 kV switching station
- Road
- Watercourse
- Waterbody

Habitat

- Cave
- Rocky outcrop
- Cliff lines
- Potential nest tree (5cm)
- Potential nest tree (>10cm)
- Potential nest tree (>15cm)

Assumed Species Habitat

- Pale-headed Snake - Potential habitat
- Pink-tailed Legless Lizard - Potential habitat
- Striped Legless Lizard - Potential habitat



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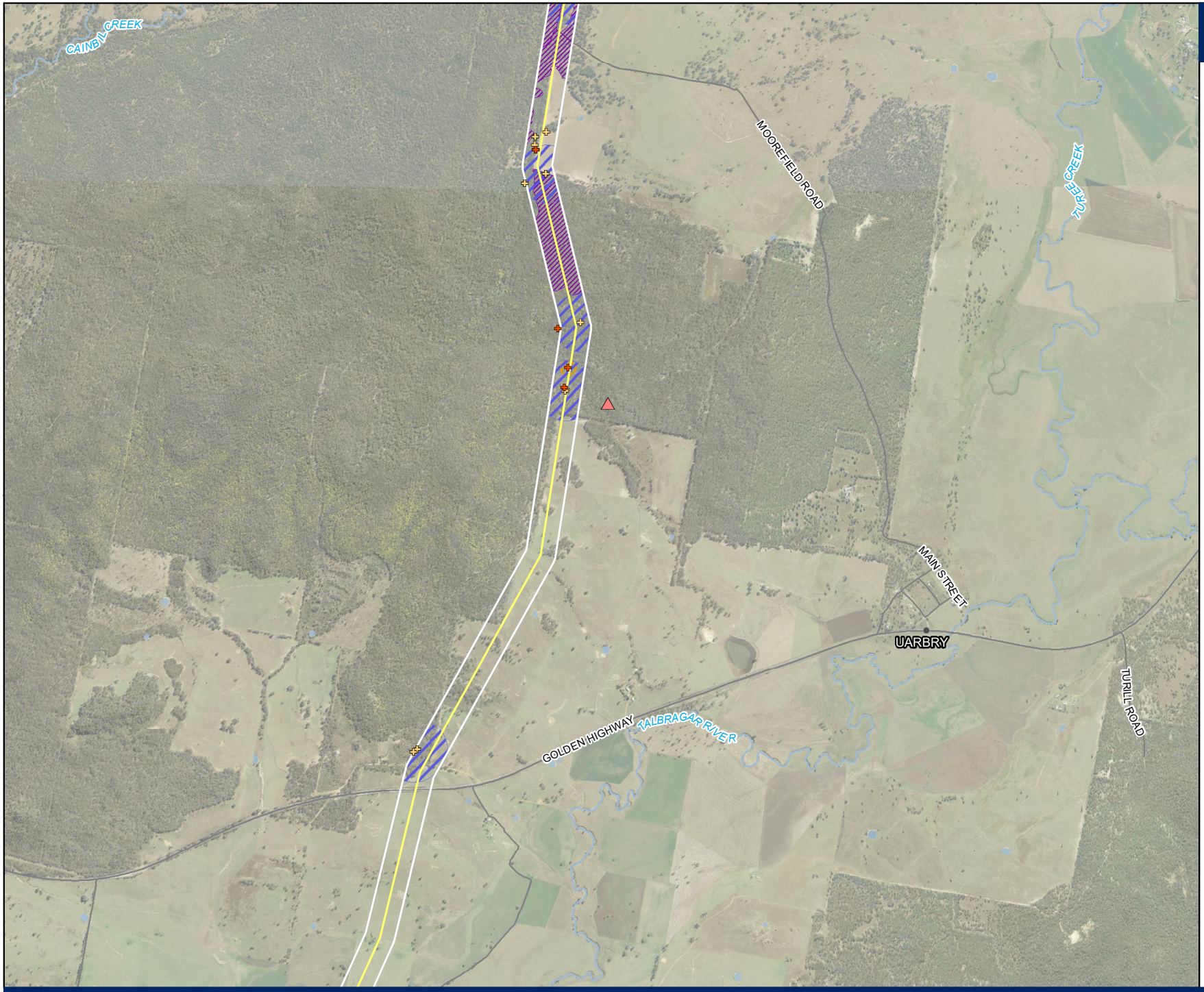

Figure C2
Threatened Fauna Polyons
Birds, reptiles and amphibians
Map 19 of 26

Legend

- Biodiversity Study Area
- 330kv transmission line
- Road
- Watercourse
- Waterbody
- Potential nest tree (5cm)
- Potential nest tree (>10cm)
- Potential nest tree (>15cm)
- Potential nest tree (>20cm)

Threatened Fauna Species

- Masked Owl

Assumed Species Habitat

- Glossy Black-Cockatoo - Potential breeding habitat
- Masked Owl - Potential breeding habitat
- Pale-headed Snake - Potential habitat

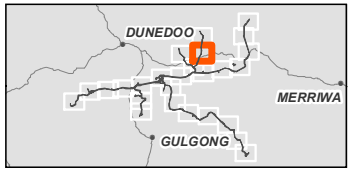

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Figure C2
Threatened Fauna Polyons
Birds, reptiles and amphibians
Map 20 of 26

Legend

- Biodiversity Study Area
- 330kv transmission line
- 330 kV switching station
- Road
- Watercourse
- Waterbody
- Built structures
- Potential nest tree (5cm)
- Potential nest tree (>10cm)
- Potential nest tree (>15cm)
- Potential nest tree (>20cm)

Assumed Species Habitat

- Pale-headed Snake - Potential habitat
- Pink-tailed Legless Lizard - Potential habitat

0 500 1,000 Meters

Coordinate system: GDA 1994 MGA Zone 55
Scale ratio correct when printed at A4

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Data sources: WSP 2023, NSWSS, EnergyCo

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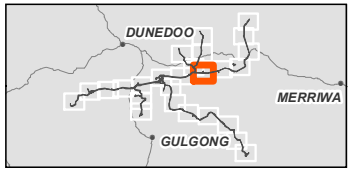
Figure C2
Threatened Fauna Polyons
Birds, reptiles and amphibians
Map 21 of 26

Legend

- Biodiversity Study Area
- 330kv transmission line
- Road
- Watercourse
- Waterbody
- NPWS estate
- Dam / waterbody

Assumed Species Habitat

- Pale-headed Snake - Potential habitat
- Pink-tailed Legless Lizard - Potential habitat



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Data sources: WSP 2023, NSWSS, EnergyCo

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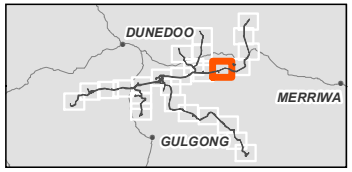
Figure C2
Threatened Fauna Polyons
Birds, reptiles and amphibians
Map 22 of 26

Legend

- Biodiversity Study Area
- 330kv transmission line
- Road
- Watercourse
- Waterbody
- NPWS estate
- Built structures
- Dam / waterbody
- Potential nest tree (5cm)
- Potential nest tree (>10cm)
- Potential nest tree (>15cm)
- Potential nest tree (>20cm)

Assumed Species Habitat

- Glossy Black-Cockatoo - Potential breeding habitat
- Pale-headed Snake - Potential habitat
- Pink-tailed Legless Lizard - Potential habitat



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Data sources: WSP 2023, NSWSS, EnergyCo

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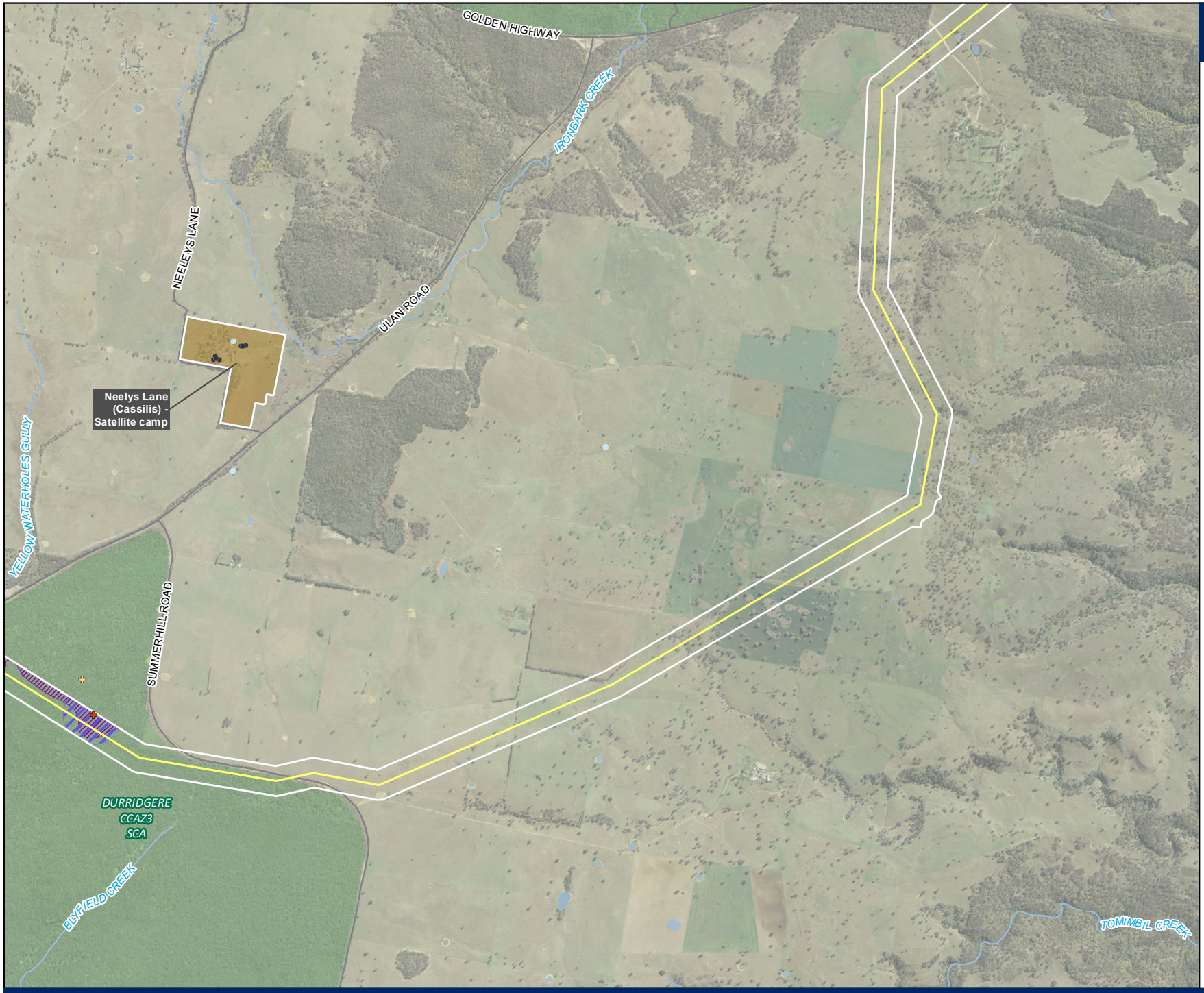

Figure C2
Threatened Fauna Polyons
Birds, reptiles and amphibians
Map 23 of 26

Legend

- Biodiversity Study Area
- 330kv transmission line
- Workforce accommodation camp
- Road
- Watercourse
- Waterbody
- NPWS estate
- Built structures
- Dam / waterbody
- Potential nest tree (5cm)
- Potential nest tree (>15cm)
- Potential nest tree (>20cm)

Assumed Species Habitat

- Glossy Black-Cockatoo - Potential breeding habitat
- Pale-headed Snake - Potential habitat

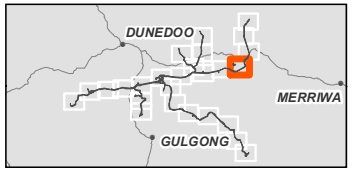

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Figure C2
Threatened Fauna Polyons
Birds, reptiles and amphibians
Map 24 of 26

Legend

- Biodiversity Study Area
- 330kv transmission line
- Road
- Watercourse
- Waterbody
- NPWS estate
- Dam / waterbody

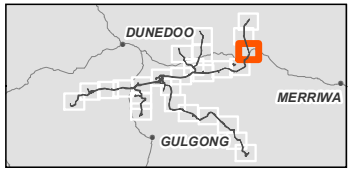

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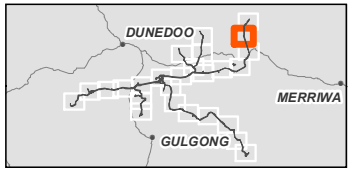
Figure C2
Threatened Fauna Polyons
Birds, reptiles and amphibians
Map 25 of 26

Legend

- Biodiversity Study Area
- 330kv transmission line
- Road
- Watercourse
- Waterbody

Habitat

- Rocky outcrop
- Potential nest tree (5cm)
- Potential nest tree (>10cm)
- Potential nest tree (>15cm)
- Potential nest tree (>20cm)



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Data sources: WSP 2023, NSWSS, EnergyCo

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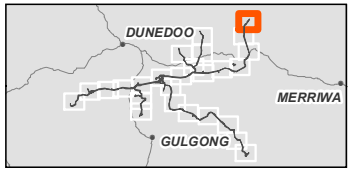
Figure C2
Threatened Fauna Polyons
Birds, reptiles and amphibians
Map 26 of 26

Legend

- Biodiversity Study Area
- 330kv transmission line
- 330 kV switching station
- Road
- Watercourse
- Potential nest tree (5cm)
- Potential nest tree (>10cm)
- Potential nest tree (>15cm)
- Potential nest tree (>20cm)



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Data sources: WSP 2023, NSWSS, EnergyCo

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Appendix D

Vegetation survey data

Table D-1 provides the vegetation survey data and locations as used in the BAM calculator. All plots were used for plot-based vegetation survey and vegetation integrity survey as identified in the BAM. This table represents all data from all IBRA subregions, so Area is not provided. The area of each vegetation zone is different for each BAM calculator. Vegetation zone areas are outlined in Section 4.4. Patch size is over 100 ha for all vegetation zones.

Table D-1 Vegetation survey data and locations

Plot	PCT	Condition class	Zone	Easting	Northing	bearing	compTree	compShrub	compGrass	compForbs	compFerns	compOther	strucTree	strucShrub	strucGrass	strucForbs	strucFerns	strucOther	funLargeTrees	funHollowtrees	funLitterCover	funLenFallenLogs	funTreeStem5to9	funTreeStem10to19	funTreeStem20to29	funTreeStem30to49	funTreeStem50to79	funTreeRegen	funHighThreatExotic
LH20	81	DNG	55	718508	6437164	130	0	0	5	3	0	0	0	0	74	0.4	0	0	0	0	31	0	0	0	0	0	0	0	0.0
LH21	81	DNG	55	717211	6437002	120	0	0	4	4	0	0	0	0	62	5.4	0	0	0	0	2.8	0	0	0	0	0	0	0	0.0
DL33	81	DNG	55	718321	6437106	234	0	0	3	1	0	0	0	0	21	1	0	0	0	0	17	0	0	0	0	0	0	0	60.0
Q18_NE	81	DNG	55	733826	6427385	1	0	3	7	1	0	0	0	1.5	23.5	0.1	0	0	0	0	12	0	0	0	0	0	0	0	1.0
MSCW_35	81	Mod_Good	55	719129	6436992	259	5	4	15	19	1	2	53.2	13.3	21.7	6.1	0.2	0.2	0	1	72	0	1	1	1	1	1	1	1
CWREZ_502	81	Mod_Good	55	714422	6435910	358	3	6	10	16	1	2	17.0	8.3	70.7	29.4	0.5	0.7	0	4	35.0	38.0	1	1	1	1	0	1	0.4
LC3	81	Thinned	55	713669	6435943	297	1	0	1	3	0	0	60.0	0.0	70.0	1.1	0.0	0.0	1	2	12.0	58.0	0	1	1	1	1	0	0.0
CWREZ_504	81	Thinned	55	714641	6436090	185	1	8	12	14	1	2	2.0	11.8	25.1	11.0	0.5	0.3	0	0	18.0	15.0	1	1	1	0	0	1	0.0
IM16	202	Mod_Good	55	713102	6437525	326	3	7	10	16	0	1	42.0	11.2	15.1	19.7	0.0	0.3	4	0	17.0	0.0	1	1	1	1	1	0	0.5
LC36	202	Mod_Good	55	712247	6438572	302	1	9	8	22	1	0	25.0	5.1	36.7	32.1	0.5	0.0	4	4	73.0	85.0	1	1	1	1	1	1	0.0
CWREZ_501	202	Mod_Good	55	714344	6436042	171	4	5	6	12	0	3	22.0	4.5	12.3	5.4	0.0	1.1	2	2	20.2	22.0	1	1	1	1	1	1	3.1
LH44	202	Thinned	55	712346	6438134	330	1	0	1	0	0	0	30.0	0.0	10.0	0.0	0.0	0.0	1	1	5.0	128.0	0	0	1	1	0	1	0.0
IM15	202	Thinned	55	706713	6430757	65	2	0	5	8	0	1	6.0	0.0	3.8	2.7	0.0	0.2	8	6	8.6	24.0	0	0	0	0	1	0	0.0
MSCW_41	266	DNG	55	723034	6436714	71	1	0	11	5	0	0	2	0	55.3	1.2	0	0	0	0	6.2	0	0	0	0	0	1	0	3
TSCW-03	266	DNG	55	726528	6437595	249	0	0	8	7	0	0	0.0	0.0	21.2	1.4	0.0	0.0	0	0	10.0	0.0	0	0	0	0	0	0	10.5
TSCW-04	266	DNG	55	726829	6437628	137	0	0	4	9	0	0	0.0	0.0	38.5	2.7	0.0	0.0	0	0	6.0	0.0	0	0	0	0	0	0	10.0
TSCW-05	266	DNG	55	726797	6437500	1	0	0	11	10	1	2	0.0	0.0	32.7	2.7	0.1	0.2	0	0	2.8	13.0	0	0	0	0	0	0	1.1
TSCW-06	266	DNG	55	726322	6437609	182	0	1	10	5	0	0	0.0	0.1	32.9	2.2	0.0	0.0	0	0	16.0	0.0	0	0	0	0	0	0	6.2
SMTS5	266	DNG	55	724178	6437048	265	0	0	12	4	1	1	0	0	69.3	0.8	0.1	0.2	0	0	8.8	0	0	0	0	0	0	0	4
TSCW-05	266	DNG	55	726797	6437500	1	0	0	11	10	1	2	0	0	32.7	2.7	0.1	0.2	0	0	2.8	13	0	0	0	0	0	0	2
SMTS3	266	DNG	55	726651	6437496	243	1	0	8	11	1	1	0.25	0	28.85	1.5	0.1	0.1	0	0	7.2	15	0	0	0	0	0	1	1
SMTS4	266	DNG	55	724222	6437055	184	0	0	14	7	1	0	0	0	47.6	1.5	0.2	0	0	0	8.2	9	0	0	0	0	0	0	2
MSCW_37	266	DNS	55	724438	6437091	250	1	1	20	5	1	2	1	20	60.4	1.1	1	0.4	0	0	2.6	0	0	0	0	0	0	1	1
MSCW_39	266	DNS	55	723365	6436663	327	0	6	15	11	1	2	0.0	44.2	34.6	2.4	1.0	0.3	0	0	11.0	0.0	0	0	0	0	0	0	2.0
DL6	266	Mod_Good	55	724304	6437079	22	3	3	14	13	0	0	31.1	6	49.8	12.7	0	0	1	0	4	54	1	1	0	0	1	1	0.9
MSCW_38	266	Mod_Good	55	724523	6437144	259	3	9	16	10	1	3	16.1	51.3	22.8	8.4	0.5	0.6	0	1	54.4	65	1	1	1	1	1	1	0

Plot	PCT	Condition class	Zone	Easting	Northing	bearing	compTree	compShrub	compGrass	compForbs	compFerns	compOther	strucTree	strucShrub	strucGrass	strucForbs	strucFerns	strucOther	funLargeTrees	funHollowtrees	funLitterCover	funLenFallenLogs	funTreeStem5to9	funTreeStem10to19	funTreeStem20to29	funTreeStem30to49	funTreeStem50to79	funTreeRegen	funHighThreatExotic
DL9	266	Thinned	55	726698	6437427	185	2	1	11	13	1	1	35	1	31.9	8.8	0.4	0.1	0	2	5.4	31	0	0	1	1	0	1	0.6
MSCW_40	266	Thinned	55	722979	6436535	3	1	1	11	11	0	1	5.0	0.1	59.7	1.7	0.0	0.2	1	1	4.8	2.0	0	0	0	0	0	0	3.0
LH26	277	DNG	55	731160	6437916	210	0	0	4	1	0	0	0	0	87.5	0.1	0	0	0	0	37	0	0	0	0	0	0	0	3
LH25	277	DNG	55	732758	6436929	180	0	0	2	2	0	0	0.0	0.0	92.0	1.1	0.0	0.0	0	0	31.0	0.0	0	0	0	0	0	0	0.0
LH29	277	DNG	55	732563	6438831	1	0	0	1	3	0	0	0.0	0.0	30.0	0.3	0.0	0.0	0	0	8.4	0.0	0	0	0	0	0	0	0.0
SMTS21	277	DNG	55	745776	6428630	180	0	1	8	3	1	0	0	3	90.85	0.4	3	0	0	0	1.2	0	0	0	0	0	0	0	1
SMTS31	277	DNG	55	743660	6438708	254	0	0	8	5	0	0	0	0	77.7	0.6	0	0	0	0	7.6	0	0	0	0	0	0	0	2
SMTS33	277	DNG	55	734890	6438765	69	0	0	9	4	1	0	0	0	90.1	0.5	0.1	0	0	0	10	0	0	0	0	0	0	0	0
SMTS20	277	DNG	55	745736	6428712	194	0	1	10	1	1	0	0	0.1	96.6	0.1	2	0	0	0	3	0	0	0	0	0	0	0	1
SMTS30	277	DNG	55	734559	6438782	203	0	0	9	6	1	0	0	0	42.1	5.6	0.2	0	0	0	3.6	0	0	0	0	0	0	0	2
SMTS32	277	DNG	55	734807	6438742	202	1	1	7	6	1	0	1	0.5	72.3	1.2	10	0	0	0	5.8	0	0	0	0	0	0	1	0
LH06	277	Mod_Good	55	743088	6440877	80	2	3	14	7	0	1	50.0	5.0	83.2	3.8	0.0	0.1	1	2	13.0	34.0	1	1	1	1	1	1	0.0
LC6	277	Mod_Good	55	734740	6438907	126	3	3	14	9	1	1	46	11.1	122.3	7.6	2	0.3	1	2	40	76	1	1	1	1	1	1	0.0
LC10	277	Mod_Good	55	727797	6437356	357	4	2	10	16	1	2	40.5	10.2	48	15.5	0.1	0.2	2	1	42	19	1	1	1	1	1	1	17.0
IM11	277	Mod_Good	55	746006	6428440	10	2	12	9	13	1	2	30	82.9	10	9.9	1	0.3	0	0	16.8	0	1	1	1	1	0	1	0.1
MSCW-30	277	Mod_Good	55	754063	6447026	95	3	1	19	13	1	1	26.2	1	43	3.9	1	0.2	0	2	37	35	1	1	1	0	1	1	0.0
DL5	277	Mod_Good	55	746237	6428548	51	2	7	18	11	1	0	25	41	71.3	2.4	0.5	0	1	3	17	76	1	1	1	1	1	0	0.0
Q38_NE	277	Thinned	55	746058	6428628	166	2	6	6	1	1	1	20.1	22.3	17.5	1	1	0.2	0	0	30	2	1	1	1	1	0	1	0
DL4	277	Thinned	55	745675	6428790	163	1	1	11	7	1	0	5	1	93.7	1	0.1	0	1	0	7	1.5	0	0	0	1	1	1	0.1
CWORez_513	281	DNG	55	745426	6429767	85	1	0	14	9	1	1	3	0	59.2	16.8	3	0.1	1	0	9	0	0	0	0	0	1	1	0.5
CWO_637	281	DNG	55	767733	6422767	140	1	3	15	5	1	0	1.0	6.0	57.7	0.5	0.2	0.0	0	0	9.0	0.0	0	0	0	0	0	1	1.0
MSCW_36a	281	DNG	55	767909	6422515	143	1	2	15	2	1	0	0.2	0.2	47.6	0.2	0.5	0	0	0	2.2	0	0	0	0	0	0	1	3
DL28	281	DNG	55	767778	6422681	140	1	1	8	5	1	2	0.1	0.3	68.1	6.3	0.5	0.4	0	0	64	80	0	0	0	0	0	0	0.6
DL29	281	DNG	55	767853	6422598	324	0	0	13	4	0	0	0	0	60	0.4	0	0	0	0	10	0	0	0	0	0	0	0	1
LH07	281	DNG	55	746111	6434578	270	0	0	0	5	1	0	0.0	0.0	0.0	82.0	0.5	0.0	0	0	5.4	0.0	0	0	0	0	0	0	0.0
LH23	281	DNG	55	714183	6435849	260	0	0	4	5	1	0	0.0	0.0	97.0	2.7	0.3	0.0	0	0	24.0	0.0	0	0	0	0	0	0	0.0
MSCW-05	281	DNG	55	754021	6442929	30	0	0	11	2	0	0	0	0	59	0.9	0	0	0	0	1.6	0	0	0	0	0	0	0	4
Q12-NE	281	DNG	55	769797	6420884	247	0	1	3	1	0	0	0	0.1	12.5	2	0	0	0	0	98	0	1	0	0	0	0	0	1.0

Plot	PCT	Condition class	Zone	Easting	Northing	bearing	compTree	compShrub	compGrass	compForbs	compFerns	compOther	strucTree	strucShrub	strucGrass	strucForbs	strucFerns	strucOther	funLargeTrees	funHollowtrees	funLitterCover	funLenFallenLogs	funTreeStem5to9	funTreeStem10to19	funTreeStem20to29	funTreeStem30to49	funTreeStem50to79	funTreeRegen	funHighThreatExotic
BSF_13	281	DNG	55	739938	6439825	130	0	0	12	6	0	2	0	0	102.9	1	0	0.2	0	0	4.8	0	0	0	0	0	0	0	5.1
BSF_24	281	DNG	55	740537	6440500	214	0	0	7	3	0	0	0	0	71	0.3	0	0	0	0	2.2	0	0	0	0	0	0	0	0
BSF_25	281	DNG	55	740283	6440286	179	0	0	4	1	0	0	0	0	80	0.1	0	0	0	0	3.4	0	0	0	0	0	0	0	0.3
BSF_26	281	DNG	55	739954	6440002	209	0	0	5	1	0	0	0	0	65.5	0.1	0	0	0	0	3.6	0	0	0	0	0	0	0	0.1
BSF_27	281	DNG	55	739668	6440271	242	0	0	7	1	0	1	0	0	26.2	0.1	0	0.2	0	0	7.2	0	0	0	0	0	0	0	25.2
CWORez_512	281	DNG	55	745514	6429476	236	0	0	12	7	1	1	0	0	70.2	2.2	0.8	0.1	0	0	0	0	0	0	0	0	0	0	0
CWOREZ_514	281	DNG	55	745396	6435063	38	0	0	12	7	1	2	0	0	53	10.6	10	0.2	0	0	0	0	0	0	0	0	0	0	0
LH10	281	DNG	55	744066	6437220	343	0	0	4	4	0	0	0.0	0.0	92.0	5.4	0.0	0.0	0	0	7.6	0.0	0	0	0	0	0	0	0.6
LH11	281	DNG	55	744488	6437065	340	0	0	4	5	0	0	0.0	0.0	82.5	5.5	0.0	0.0	0	0	3.0	0.0	0	0	0	0	0	0	0.0
Q22_NE	281	DNG	55	742756	6440268	157	0	3	7	0	0	0	0	26.1	44	0	0	0	0	0	21	0	0	0	0	0	0	0	1
Q21_NE	281	DNG	55	742595	6440226	1	0	2	7	1	1	0	0	2.5	52.7	0.1	4	0	0	0	0	0	0	0	0	0	0	0	0.1
SMTS7	281	DNG	55	733840	6429042	56	0	1	6	0	1	0	0	0.5	79.1	0	2	0	0	0	3.8	0	0	0	0	0	0	0	1
SMTS23	281	DNG	55	757704	6424144	247	0	1	14	1	1	0	0	2	53.9	0.1	2	0	0	0	9	0	0	0	0	0	0	0	1
SMTS29	281	DNG	55	770833	6419830	96	0	0	6	2	0	0	0	0	56.8	0.3	0	0	0	0	26.4	0	0	0	0	0	0	0	0
IM10	281	DNG	55	743444	6437739	21	0	0	5	13	1	0	0	0	92.5	13.9	0.3	0	0	0	2.4	0	0	0	0	0	0	0	0
SMTS6	281	DNG	55	733779	6429005	117	1	1	8	1	1	0	3	0.1	60.85	0.1	0.1	0	0	0	6.8	0	1	0	0	0	0	1	1
SMTS22	281	DNG	55	757780	6424218	8	1	1	9	2	1	0	1	16	52.8	0.2	2.5	0	0	0	7.6	0	0	0	0	0	0	1	0
SMTS28	281	DNG	55	770900	6419910	294	1	4	11	6	1	1	0.5	0.4	81.8	1.1	0.1	0.1	0	0	8.6	0	1	1	0	0	0	1	2
LC44	281	Mod_Good	55	734794	6433142	171	4	2	5	10	1	1	60	26	5.8	2.7	0.3	1	3	3	4.2	70	1	1	1	1	1	1	0.1
LH01	281	Mod_Good	55	757786	6424447	1	6	3	14	3	0	0	55.1	21.5	82.4	2.2	0.0	0.0	0	1	10.0	44.0	1	1	1	1	1	1	0.2
DL26	281	Mod_Good	55	762243	6443721	290	2	2	15	7	0	2	42	0.2	42.4	26.1	0	0.6	8	9	46	112	1	1	1	1	1	1	30.0
LC55	281	Mod_Good	55	753354	6447045	330	3	5	15	9	1	2	41.1	2.0	20.7	1.9	0.1	0.2	0	1	34.0	25.0	1	1	1	1	0	1	0.0
LH34	281	Mod_Good	55	778460	6451873	10	1	0	4	8	0	0	40.0	0.0	103.0	6.6	0.0	0.0	1	0	8.0	24.0	1	0	0	1	1	0	3.5
MSCW-14	281	Mod_Good	55	750859	6441604	78	5	9	11	8	1	2	34.5	39.1	8.7	16.1	0.8	1	0	2	58	8	1	1	1	1	1	1	0.0
MSCW-13	281	Mod_Good	55	750050	6441654	105	3	9	12	14	1	2	33	8.3	29.7	43.1	100	0.6	0	0	45	16	0	0	0	1	1	1	0.0
LH16	281	Mod_Good	55	743919	6437266	350	3	1	8	9	1	1	32.0	2.0	70.1	25.5	0.1	0.1	0	1	8.4	31.0	0	1	1	1	0	0	0.0
LC57	281	Mod_Good	55	752591	6447180	300	3	0	15	13	0	2	30.1	0.0	48.0	2.2	0.0	0.2	2	4	49.0	52.0	1	1	0	0	0	1	0.3
MSCW-15	281	Mod_Good	55	749955	6441544	225	5	7	20	11	1	2	29.5	9.6	26.7	2.9	0.5	0.5	0	1	21	25	1	1	1	1	1	1	1.0

Plot	PCT	Condition class	Zone	Easting	Northing	bearing	compTree	compShrub	compGrass	compForbs	compFerns	compOther	strucTree	strucShrub	strucGrass	strucForbs	strucFerns	strucOther	funLargeTrees	funHollowtrees	funLitterCover	funLenFallenLogs	funTreeStem5to9	funTreeStem10to19	funTreeStem20to29	funTreeStem30to49	funTreeStem50to79	funTreeRegen	funHighThreatExotic
CWO_600	281	Mod_Good	55	750275	6441519	150	3	7	7	7	1	0	25.2	27.3	7	5.1	0.2	0	5	1	32	45	1	1	1	1	1	0	0.0
LC35	281	Mod_Good	55	712247	6438572	302	2	0	4	6	0	0	25	0	55.4	0.8	0	0	4	4	73	85	1	1	1	1	1	1	5.1
P_4859_038	281	Mod_Good	55	778705	6452001	285	2	0	5	16	1	3	23.0	0.0	39.0	34.0	2.0	0.9	3	1	2.6	28.0	0	0	0	0	0	0	0.7
MSCW-12	281	Mod_Good	55	751853	6448453	135	2	0	16	9	0	0	20	0	52.6	1.1	0	0	0	1	44	0	1	1	1	1	1	1	3.0
LH05	281	Mod_Good	55	743168	6439518	131	3	3	12	9	0	0	18	7	45.1	5.7	0	0	2	3	16	28	1	1	1	1	0	0	2
LC43	281	Thinned	55	734081	6431387	176	3	2	15	19	1	1	52	1.1	151.7	6.6	0.1	0.1	1	0	25	2	1	1	1	1	0	1	1.1
DL3	281	Thinned	55	759518	6459094	185	2	0	1	5	0	0	50.0	0.0	0.1	1.7	0.0	0.0	0	1	38.0	54.0	0	1	1	1	1	0	60.0
LC42	281	Thinned	55	733649	6430534	103	1	1	8	12	1	1	50	0.1	89.2	12.2	0.2	0.1	2	1	43	35	1	1	1	1	1	1	0.3
LH12	281	Thinned	55	745284	6436632	340	1	1	10	8	1	0	45.0	0.5	62.8	5.1	0.1	0.0	2	2	9.0	36.0	1	1	1	1	0	0	0.0
DL19	281	Thinned	55	768567	6445779	161	3	2	14	6	1	2	41	16	24.2	1.5	3	0.9	3	1	69	17	1	1	1	1	1	1	0.0
IM7	281	Thinned	55	751543	6449323	290	2	1	5	11	0	0	40.0	0.5	6.1	3.0	0.0	0.0	3	1	18.0	22.0	0	0	0	1	1	0	1.5
LH27	281	Thinned	55	730428	6437426	1	3	0	6	10	0	0	40	0	22	6	0	0	0	1	18	11	0	1	1	1	1	0	0
CW_201	281	Thinned	55	767967	6422561	20	2	4	15	9	1	0	32.0	13.2	27.3	9.0	0.8	0.0	2	1	32.0	43.0	1	1	1	0	0	1	8.1
LC5	281	Thinned	55	734455	6438817	169	2	1	6	6	1	1	30	0.5	95.8	2.2	0.1	0.1	3	1	9	63	1	0	1	1	1	1	0.7
LC40	281	Thinned	55	733666	6429925	201	2	3	9	15	1	1	25.2	1.6	26	4.4	0.2	0.1	5	2	74	68	1	1	1	1	1	1	0.1
CWO_626	281	Thinned	55	772440	6446805	60	1	1	15	7	1	1	20	2	52.5	1	0.1	0.1	0	0	59	9	1	1	1	1	0	1	36.3
LH28	281	Thinned	55	732454	6438917	1	1	0	7	5	0	0	20.0	0.0	20.1	1.9	0.0	0.0	0	1	18.0	11.0	0	1	1	1	1	0	0.0
MSCW_36b	281	Thinned	55	767931	6422612	33	2	6	21	11	1	2	17	15.9	46.9	2.7	1	0.3	1	1	44	0	1	1	0	1	1	1	0
CWO_647	281	Thinned	55	753826	6427007	75	2	6	13	4	1	0	15	6.9	9.9	0.4	0.5	0	0	0	23	0	0	1	1	1	0	1	0
DL18	281	Thinned	55	768499	6445759	52	2	2	17	7	2	2	15	0.6	57.3	9.3	15.5	1	4	0	52	0	1	1	0	1	1	1	0.5
TSCW-01	281	Thinned	55	757450	6448926	102	1	0	5	3	0	0	15	0	55.1	1.2	0	0	0	0	15.4	0	0	0	0	0	1	0	3
CWO_636	281	Thinned	55	767801	6422810	300	4	1	14	5	1	0	10.3	4	77.2	0.5	0.1	0	1	0	32	8	0	1	1	1	1	1	2
LC58	281	Thinned	55	752456	6447332	306	2	0	16	10	0	3	10.1	0.0	27.6	1.6	0.0	0.3	1	1	35.0	165.0	0	0	0	0	0	1	2.4
LC41	281	Thinned	55	733769	6430906	92	1	0	7	9	1	0	10	0	95.6	21.9	0.1	0	0	0	60	103	1	1	1	0	0	1	0.6
MSCW-19	281	Thinned	55	757517	6449332	82	1	2	19	7	1	1	10	0.3	59.6	0.8	2	0.4	0	0	9	5	0	0	0	1	1	1	4
CWO_624	281	Thinned	55	772107	6447225	280	3	1	12	5	1	0	9.2	0.4	35.8	1.2	0.2	0	0	0	26.6	5	0	0	0	1	0	1	45.8
CWO_623	281	Thinned	55	772131	6447342	200	2	0	11	4	1	1	8.5	0	44.5	0.7	0.2	0.1	3	1	21	13	0	0	0	0	1	1	25.2
CWO_625	281	Thinned	55	772002	6447151	280	1	5	10	0	0	0	8	10	36.9	0	0	0	2	0	32	2	1	1	1	1	1	1	30

Plot	PCT	Condition class	Zone	Easting	Northing	bearing	compTree	compShrub	compGrass	compForbs	compFerns	compOther	strucTree	strucShrub	strucGrass	strucForbs	strucFerns	strucOther	funLargeTrees	funHollowtrees	funLitterCover	funLenFallenLogs	funTreeStem5to9	funTreeStem10to19	funTreeStem20to29	funTreeStem30to49	funTreeStem50to79	funTreeRegen	funHighThreatExotic
DL16	281	Thinned	55	757481	6449312	55	1	2	12	7	1	2	5.0	0.2	125.3	0.8	0.1	0.2	1	0	11.0	2.0	1	1	1	0	1	1	0.1
CWO_603	281	Thinned	55	765864	6444472	300	1	0	9	7	0	0	4	0	71.7	3.4	0	0	1	0	16	0	0	0	0	1	1	0	20
LH38	281	Thinned	55	757653	6424389	60	1	1	9	7	1	1	3	0.2	23.7	16.5	0.1	0.1	0	0	1.6	0	0	1	0	0	0	1	15
Q27_NE	440	DNG	55	741237	6439616	339	0	0	8	0	1	0	0	0	99.5	0	0.5	0	0	0	6	0	0	0	0	0	0	0	1.0
Q28_NE	440	DNG	55	741025	6439581	351	0	1	8	7	1	1	0	1	17.3	2.5	1	0.5	0	0	4	0	0	0	0	0	0	0	1.0
Q39_NE	440	DNG	55	745987	6437973	84	0	2	5	2	1	0	0	0.7	31.8	1.5	1	0	0	0	22	0	0	0	0	0	0	0	0.0
Q40_NE	440	DNG	55	745954	6437769	256	0	0	10	2	0	0	0	0	63.3	0.6	0	0	0	0	22	0	0	0	0	0	0	0	1
Q41_NE	440	DNG	55	745955	6437765	142	0	1	6	1	0	0	0	0.5	23.5	5	0	0	0	0	0	0	0	0	0	0	0	0	2
IM2	440	DNS	55	742688	6439930	290	1	8	7	12	1	0	3	145.7	17.2	11.5	0.3	0	0	0	47	4	1	0	0	0	0	0	0
Q24_NE	440	DNS	55	742832	6439991	157	0	1	7	0	1	0	0	50	32	0	2	0	0	0	21	0	0	0	0	0	0	0	0
Q26_NE	440	DNS	55	741946	6439493	131	0	1	7	0	0	0	0	40	29.5	0	0	0	0	0	24	0	0	0	0	0	0	0	1
IM8	440	Mod_Good	55	751561	6449847	1	3	4	5	6	1	1	84.0	3.0	0.9	40.6	0.2	0.2	0	0	66.0	56.0	0	0	1	1	0	0	0.0
LC19	440	Mod_Good	55	758881	6453514	73	3	17	9	10	1	1	55.1	45.0	81.5	17.5	0.4	0.3	3	10	59.0	77.0	1	1	1	1	1	1	0.0
IM1	440	Mod_Good	55	742893	6439795	218	3	10	10	8	1	0	55	76.6	10.2	5.2	0.3	0	0	0	41	32	1	1	1	0	0	0	0.0
LC27	440	Mod_Good	55	758674	6453317	292	5	11	6	13	1	2	51.1	20.4	9.2	5.0	1.0	0.5	0	0	70.0	102.0	1	1	1	1	0	1	0.0
IM3	440	Mod_Good	55	741782	6439602	261	5	12	4	7	1	1	45	43.3	7	74.1	0.2	0.2	0	0	32	28	1	1	0	0	0	0	0.0
LC32	440	Mod_Good	55	741064	6442617	110	2	3	9	13	1	1	45	0.4	81.9	14.5	1	0.1	3	2	53	161	0	1	1	1	1	1	0.0
LC33	440	Mod_Good	55	741980	6442982	246	3	1	5	10	1	0	45	0.1	51.3	9.1	2	0	4	1	65	163	0	0	0	1	1	0	0.0
Q13-NE	440	Mod_Good	55	720405	6436982	254	3	6	1	8	0	1	45	7	35	20.1	0	1.5	0	0	79	21	0	1	1	1	1	0	0.0
LC2	440	Mod_Good	55	713181	6435911	238	3	3	11	10	1	0	42.0	0.3	53.0	6.3	0.2	0.0	1	1	26.0	55.0	1	1	1	1	1	0	0.1
LH03	440	Mod_Good	55	749600	6428764	45	4	9	2	6	0	0	40.5	19.7	0.2	20.9	0	0	0	1	17	62	0	1	1	1	1	0	0.0
LC38	440	Mod_Good	55	741988	6439812	225	2	3	11	12	1	0	30	25.3	119.2	6.2	1	0	2	2	55	35	1	1	1	1	1	0	0.0
LH24	440	Mod_Good	55	745010	6438089	70	4	5	6	11	1	0	21	25.3	72	5	0.1	0	1	1	12	54	0	1	1	1	1	0	0.0
CWO_601	440	Mod_Good	55	765482	6444414	345	4	14	8	10	1	2	20	27.6	13.5	10.2	0.1	0.2	2	1	53	29	1	1	1	1	1	1	0
DL2	440	Mod_Good	55	758746	6454888	108	1	3	15	11	1	0	5.0	10.1	84.3	3.6	0.1	0.0	0	0	5.4	18.5	1	1	0	1	0	1	0.0
IM4	440	Poor	55	740621	6439526	325	1	1	1	8	0	0	30	3	3	11.6	0	0	0	0	13	26	0	0	0	1	1	0	0.0
LC9	440	Thinned	55	739571	6439742	326	3	6	6	11	1	2	40.1	1.5	72.4	3.7	0.5	0.2	1	0	40	48	0	1	1	1	1	1	0.0
LC1	440	Thinned	55	712839	6436239	124	2	2	15	18	1	3	35.0	0.2	88.7	9.6	0.2	0.4	1	0	10.0	37.0	0	1	1	1	1	1	0.1

Plot	PCT	Condition class	Zone	Easting	Northing	bearing	compTree	compShrub	compGrass	compForbs	compFerns	compOther	strucTree	strucShrub	strucGrass	strucForbs	strucFerns	strucOther	funLargeTrees	funHollowtrees	funLitterCover	funLenFallenLogs	funTreeStem5to9	funTreeStem10to19	funTreeStem20to29	funTreeStem30to49	funTreeStem50to79	funTreeRegen	funHighThreatExotic
DL11	440	Thinned	55	715361	6436502	139	1	5	10	10	1	1	20.0	51.6	32.9	1.8	0.1	0.1	0	0	22.0	2.5	1	1	0	1	0	1	0.0
DL12	440	Thinned	55	758832	6455544	20	2	2	15	8	1	0	20.0	30.2	127.6	18.4	0.1	0.0	3	4	21.0	65.0	1	0	1	1	1	1	0.0
Q34_NE	440	Thinned	55	739803	6439611	120	1	3	4	4	0	1	20	1.6	3.1	1.3	0	0.1	2	0	8	81	0	0	1	0	3	0	0.0
Q29_NE	440	Thinned	55	741534	6439735	77	2	6	7	3	1	1	12	75.1	6	9	2	0.5	0	0	18	16	1	1	1	1	0	0	1.0
Q33_NE	440	Thinned	55	740012	6439504	240	1	1	3	4	0	1	2	70	1.2	3.5	0	5	4	0	11	54	0	1	1	1	1	0	0.0
CWREZ_510	461	DNG	55	716842	6436955	88	0	0	13	6	1	0	0.0	0.0	58.2	1.9	0.1	0.0	0	0	6.0	30.0	0	0	0	0	0	0	3.0
LH19	461	DNG	55	712354	6435273	90	0	0	4	4	0	0	0.0	0.0	17.1	3.5	0.0	0.0	0	0	4.0	0.0	0	0	0	0	0	0	0.0
MSCW-16	461	Mod_Good	55	748826	6441718	345	6	6	12	19	1	2	81.5	2.8	30.3	10.7	1	1.3	0	4	14	38	1	1	1	1	0	1	0.0
LC26	461	Mod_Good	55	756914	6464508	294	4	3	9	11	1	2	51.0	0.3	86.4	8.4	0.2	0.6	1	0	35.0	105.0	0	1	1	1	1	1	0.1
DL10	461	Mod_Good	55	716554	6437009	180	1	5	14	11	1	1	20.0	1.4	68.8	7.7	0.1	0.1	0	0	19.0	84.0	0	1	1	1	0	1	0.0
LC50	461	Mod_Good	55	756688	6425188	185	3	10	19	15	1	2	20	5.3	18.1	23.4	1	0.2	0	2	18	75	1	1	1	1	0	1	0.1
CWO_609	461	Mod_Good	55	756381	6425677	315	5	9	9	13	1	1	18	15.9	15.6	17.8	0.5	0.2	1	0	39	23	0	1	1	1	0	1	0.0
LC49	461	Mod_Good	55	755229	6426566	130	5	7	14	11	1	4	16.2	18.6	34.1	14.2	0.2	0.4	0	2	34.0	55.0	1	1	1	1	0	1	0.1
CWO_607	461	Mod_Good	55	756577	6425440	255	4	10	12	16	1	2	10.1	10.7	28.4	12.3	0.2	0.3	0	1	26	28	1	1	1	1	0	1	0.0
CWO_610	461	Mod_Good	55	756167	6425811	260	4	7	9	7	1	2	4.5	9.7	39.7	6.4	0.2	0.2	0	0	16	22	1	1	0	1	0	1	0.2
CWO_611	461	Mod_Good	55	755979	6425969	200	3	6	9	9	1	3	4.5	6.6	38.2	19.9	1	0.5	0	0	34	24	0	1	1	1	0	1	0.5
CWO_612	461	Thinned	55	756861	6425065	50	3	13	9	7	1	2	11	13.3	49.1	5.6	0.3	0.3	1	0	42	0	1	0	0	1	1	1	0.4
CWO_608	461	Thinned	55	756443	6425712	305	4	11	12	11	1	2	2.6	27.4	24	11.8	0.1	0.4	0	0	25	125	0	0	0	0	0	1	0.5
CWREZ_507	468	Thinned	55	713653	6435290	68	3	8	14	12	1	1	27.0	11.0	28.6	11.2	0.1	0.1	3	1	60.0	25.0	1	1	1	1	1	1	0.0
CWO_639	477	DNG	55	751213	6424910	255	2	11	9	3	1	2	2.5	42.3	5.9	2.1	0.1	0.2	0	0	9	4	1	0	0	0	0	1	0
IM18	477	Mod_Good	55	771167	6444658	345	4	17	10	7	0	5	45.2	40.9	24.1	4.7	0	0.9	2	2	69	175	1	1	1	1	1	0	0.0
LH43	477	Mod_Good	55	754807	6443492	185	2	10	6	9	1	1	28	23.2	5.7	7.3	0.1	0.1	0	1	27	110	1	1	1	1	0	1	0.0
CWORez_516	477	Mod_Good	55	771019	6444921	349	4	11	13	8	0	1	16	14	7.5	2.8	0	0.1	0	0	0	0	0	0	0	0	0	0	0
CWO_638	477	Mod_Good	55	751185	6424963	225	3	10	15	4	1	1	14	27.8	23	1.1	0.1	0.1	0	3	61	36	1	1	1	1	1	1	0
MSCW-17	478	DNG	55	749947	6441718	40	0	0	10	7	1	1	0	0	71.1	1.6	0.5	0.5	0	0	2.4	0	0	0	0	0	0	0	2
CWO_645	478	DNS	55	746025	6428067	100	1	7	17	10	1	1	0.1	15.2	29.7	6.5	0.3	0.1	0	0	13	61	0	0	0	0	0	1	1
Q25_NE	478	Mod_Good	55	742981	6439878	1	4	2	5	9	0	1	62.7	7	4.2	5.9	0	1	0	0	10	0	0	0	0	0	0	0	0
Q23_NE	478	Mod_Good	55	742831	6440071	340	3	3	8	4	0	2	55	6.2	15.3	12.6	0	1.1	0	0	38	44	1	1	1	1	1	1	0

Plot	PCT	Condition class	Zone	Easting	Northing	bearing	compTree	compShrub	compGrass	compForbs	compFerns	compOther	strucTree	strucShrub	strucGrass	strucForbs	strucFerns	strucOther	funLargeTrees	funHollowtrees	funLitterCover	funLenFallenLogs	funTreeStem5to9	funTreeStem10to19	funTreeStem20to29	funTreeStem30to49	funTreeStem50to79	funTreeRegen	funHighThreatExotic
DL31	478	Mod_Good	55	768991	6421612	109	3	11	4	5	2	2	35	48.3	4.2	40.8	0.2	0.2	1	0	66	5	1	1	1	1	0	1	0.0
CWO_644	478	Mod_Good	55	746039	6428102	90	3	10	12	6	0	1	25.0	16.9	14.0	0.6	0.0	0.1	0	2	47.0	48.0	0	1	1	1	1	1	0.0
LC18	478	Mod_Good	55	758866	6453874	185	3	14	10	11	1	1	21.0	56.6	42.1	20.4	2.0	0.2	3	5	47.0	112.0	1	1	1	1	1	1	0.0
Q11-NE	478	Mod_Good	55	771119	6419929	235	4	3	2	2	2	0	20	6	0.6	50.1	0.3	0	0	0	50	7	0	1	1	1	1	0	0.0
MSCW_43	478	Mod_Good	55	718830	6435134	134	2	18	8	6	1	0	15	10.4	4.7	6.8	0.1	0	0	0	34	160	1	1	1	1	0	1	0
Q10-NE	478	Mod_Good	55	771573	6420185	289	2	5	7	6	1	0	6	18.6	4.9	35.3	1	0	0	0	52	2	1	1	1	1	1	1	0.0
CWO_622	479	DNG	55	772041	6447396	200	1	1	11	6	0	1	2	0.1	63.3	1.5	0	0.1	0	0	0	0	0	0	0	0	0	1	6.2
CWO_621	479	DNG	55	771916	6447329	190	0	1	6	4	1	1	0	0.2	34.4	1.5	0.1	0.3	0	0	0	0	0	0	0	0	0	0	55.0
Cworez_519	479	DNG	55	751914	6427715	224	0	2	9	2	1	0	0	0.6	33.3	30.1	0.3	0	0	0	4	49	0	0	0	0	0	0	2
Q30_NE	479	DNG	55	740349	6439939	1	0	0	5	1	0	1	0	0	24	0.1	0	0.5	0	0	10	0	0	0	0	0	0	0	1.0
Q31_NE	479	DNG	55	740265	6440063	39	0	1	4	5	1	1	0	0.1	12.2	2.3	0.5	1	0	0	6	0	0	0	0	0	0	0	2.0
Q32_NE	479	DNG	55	740094	6439490	194	0	1	4	5	1	1	0	0.1	12.2	2.3	0.5	1	1	0	6	0	0	0	0	0	0	0	4.0
Q37_NE	479	DNG	55	749882	6428688	225	0	1	4	2	0	0	0	0.1	62.5	1.5	0	0	0	0	5	0	0	0	0	0	0	0	1.0
Q7-NE	479	DNG	55	752219	6427635	1	0	3	8	1	1	0	0	1.6	35.3	1	1	0	0	0	0	0	0	0	0	0	0	0	1
Q9-NE	479	DNG	55	751554	6427941	172	0	0	5	0	1	0	0	0	16	0	1	0	0	0	0	0	0	0	0	0	0	0	1
LC45	479	DNS	55	754702	6426912	98	2	11	19	9	1	1	2.0	9.5	98.3	22.1	5.0	0.1	0	0	20.0	0.0	1	0	0	0	0	1	0.0
Q6-NE	479	DNS	55	752660	6427427	124	1	9	9	3	0	0	1	34.2	6.4	3.1	0	0	0	0	0	0	0	0	0	0	0	0	1.0
Cworez_518	479	DNS	55	752763	6427515	290	1	4	12	5	0	1	0.1	26.5	46.9	10.5	0	0.2	0	0	0	0	0	0	0	0	0	0	0
LC46	479	Mod_Good	55	754723	6426846	182	5	14	16	9	1	2	80.0	23.4	26.5	2.0	0.1	0.3	3	1	70.0	86.0	1	1	1	1	1	1	0.0
LH04	479	Mod_Good	55	747529	6428254	320	2	6	5	6	1	2	70	8.2	60.2	16.6	0.1	0.2	0	1	14	41	0	1	1	1	1	0	0.0
LC37	479	Mod_Good	55	738590	6439378	91	5	5	6	6	1	0	56	30.6	11.8	25.8	0.1	0	5	2	90	75	1	1	1	0	1	1	0.0
DL20	479	Mod_Good	55	767642	6445300	6	4	10	2	9	0	0	50.1	25.3	0.5	17.5	0	0	1	4	36	151	1	1	1	1	1	1	0.0
LC54	479	Mod_Good	55	753510	6446993	298	5	12	17	13	0	5	40.1	4.0	12.2	2.7	0.0	0.6	0	5	32.0	75.0	1	1	1	1	0	1	0.0
LC56	479	Mod_Good	55	753081	6447055	298	10	15	12	10	0	1	37.2	8.1	25.9	3.8	0.0	0.2	1	2	31.0	40.0	1	1	1	0	1	1	0.0
P_4859_063	479	Mod_Good	55	763474	6441499	246	2	11	5	7	1	1	35.0	25.0	0.5	71.0	0.1	0.1	2	2	28.0	39.0	1	1	1	1	1	1	0.0
LC48	479	Mod_Good	55	754814	6426784	149	3	12	13	16	1	3	31.0	19.4	45.9	12.5	0.2	0.3	0	1	42.0	65.0	1	1	1	1	0	1	0.2
P_4859_036	479	Mod_Good	55	763750	6441343	210	3	5	4	7	1	1	30.0	0.5	0.4	36.0	0.2	0.1	1	3	35.0	30.0	1	1	1	0	1	1	0.0
Q36_NE	479	Mod_Good	55	747845	6428043	289	1	4	1	4	2	0	30	10.5	1	5	2	0	1	1	40.2	92	1	1	1	1	1	1	0.0

Plot	PCT	Condition class	Zone	Easting	Northing	bearing	compTree	compShrub	compGrass	compForbs	compFerns	compOther	strucTree	strucShrub	strucGrass	strucForbs	strucFerns	strucOther	funLargeTrees	funHollowtrees	funLitterCover	funLenFallenLogs	funTreeStem5to9	funTreeStem10to19	funTreeStem20to29	funTreeStem30to49	funTreeStem50to79	funTreeRegen	funHighThreatExotic
P_4859_075	479	Mod_Good	55	763399	6440888	175	2	5	9	9	0	0	24.0	46.0	28.0	27.0	0.0	0.0	1	6	70.0	75.0	1	1	1	1	1	1	0.0
LH30	479	Mod_Good	55	750572	6428577	1	3	15	9	10	1	0	18.0	50.7	62.0	5.4	0.1	0.0	0	0	17.0	23.0	1	1	1	1	1	1	0.0
IM5	479	Mod_Good	55	768852	6445817	95	2	15	4	10	1	2	15.0	61.6	1.1	24.2	0.3	0.3	0	0	57.0	15.0	1	0	0	0	0	0	0.0
Q8-NE	479	Mod_Good	55	750971	6428606	67	2	0	3	4	1	0	9	0	11.1	18	4	0	0	0	0	0	0	0	0	0	0	0	0
CWOrez_520	479	Mod_Good	55	750582	6428789	185	2	7	5	3	0	2	8	36.7	31.9	21.1	0	0.2	1	0	54	60	1	1	1	1	1	1	0
CwoRez_521	479	Mod_Good	55	750952	6428842	285	3	9	9	5	1	0	4.6	37.9	24	25.7	0.5	0	0	0	59.8	80	1	1	1	0	0	1	0
LH40	479	Thinned	55	753092	6427261	125	2	11	11	14	1	1	37.0	57.5	36.5	1.6	0.1	0.1	0	0	46.0	16.5	1	1	1	1	1	1	0.0
LH39	479	Thinned	55	752367	6427555	1	2	6	6	11	1	2	35.0	7.5	52.0	3.4	0.1	0.2	1	3	4.0	17.0	1	1	1	1	1	1	0.1
IM12	479	Thinned	55	753631	6427182	280	5	12	9	14	1	1	33.2	34.8	26.9	5.1	3.0	0.3	0	0	39.0	18.0	1	1	1	1	0	0	0.0
LC8	479	Thinned	55	740307	6439993	190	4	5	5	11	1	2	30.1	7.3	75.1	5.3	1	0.2	1	0	40	46	0	1	1	1	1	1	0.0
LC7	479	Thinned	55	737389	6439241	275	3	7	11	10	1	3	30	5.7	89.7	6.4	0.1	0.5	1	1	39	43	1	1	0	1	1	1	0.4
LH31	479	Thinned	55	751114	6428214	1	2	5	12	12	2	1	27.0	10.9	93.5	4.8	0.3	0.1	1	0	24.4	14.0	1	1	1	1	1	1	1.5
LC25	479	Thinned	55	756430	6464989	115	2	0	12	6	0	0	6.0	0.0	73.3	3.9	0.0	0.0	2	1	41.0	3.5	0	0	0	0	1	1	6.1
LC28	481	Mod_Good	55	758768	6452722	56	3	8	8	11	1	3	45.1	10.5	74.4	1.7	0.5	1.2	2	2	80.0	33.0	1	1	1	1	1	0	2.0
LC21	481	Mod_Good	55	759082	6454217	334	2	2	10	11	1	2	40.1	60.5	40.9	2.3	0.2	0.2	1	4	11.0	79.0	1	1	0	1	1	1	0.6
DL1	481	Mod_Good	55	758490	6454115	30	3	7	10	11	1	2	40	7.8	24.8	3.4	0.5	0.2	0	0	21.4	61	1	1	1	1	0	1	0.0
IM13	481	Mod_Good	55	754120	6426879	226	1	8	10	8	1	1	40	15.2	71.2	2.4	0.1	0.3	0	0	43	9.2	1	1	1	0	0	0	0
LC20	481	Mod_Good	55	758811	6453086	93	1	9	5	7	0	1	40.0	23.6	12.2	2.1	0.0	0.1	0	3	58.0	76.0	1	1	1	1	0	1	0.0
P_4859_064	481	Mod_Good	55	763650	6441710	304	3	7	12	8	1	2	30.0	32.4	17.9	52.5	0.1	0.2	0	0	53.0	26.0	1	1	1	1	0	1	0.0
P_4859_065	481	Mod_Good	55	763960	6442279	158	2	10	7	6	1	0	26.0	28.7	28.3	2.5	0.1	0.0	0	0	72.0	5.0	1	1	1	0	0	1	0.0
CWO_613	481	Mod_Good	55	756838	6424976	230	5	8	9	7	1	2	19.8	10.3	23.5	1.4	0.1	0.6	0	1	40	20	1	1	1	1	0	1	0.3
LC47	481	Thinned	55	755047	6426650	2	5	11	11	13	1	2	55.2	18.2	29.4	2.9	0.2	0.2	2	2	60.0	55.0	1	1	1	1	1	1	0.3
CWO_648	481	Thinned	55	755041	6426483	290	4	7	11	12	1	2	27.1	13.6	44.3	16.1	0.1	0.2	3	2	25	44	1	1	1	1	0	1	2
CWO_646	481	Thinned	55	753631	6427043	275	3	9	14	4	1	2	20.1	32.5	6	0.5	0.1	1.1	0	0	53	4	1	1	1	1	0	1	0
CWO_604	483	DNG	55	765850	6444561	80	0	0	11	6	0	1	0	0	43.2	0.8	0	0.1	0	0	36	0	0	0	0	0	0	0	5.1
CWO_615	483	DNG	55	778315	6450946	135	0	1	8	5	1	0	0	0.1	68.4	2.8	0.1	0	0	0	43	0	0	0	0	0	0	0	5.9
IMCP3	483	DNG	55	777051	6456650	119	0	0	8	5	0	0	0.0	0.0	91.2	1.3	0.0	0.0	0	0	3.6	4.0	0	0	0	0	0	0	0.3
LH35	483	DNG	55	778356	6452512	225	0	0	3	3	0	0	0.0	0.0	91.5	0.7	0.0	0.0	0	0	18.2	0.0	0	0	0	0	0	0	0.0

Plot	PCT	Condition class	Zone	Easting	Northing	bearing	compTree	compShrub	compGrass	compForbs	compFerns	compOther	strucTree	strucShrub	strucGrass	strucForbs	strucFerns	strucOther	funLargeTrees	funHollowtrees	funLitterCover	funLenFallenLogs	funTreeStem5to9	funTreeStem10to19	funTreeStem20to29	funTreeStem30to49	funTreeStem50to79	funTreeRegen	funHighThreatExotic
LH36	483	DNG	55	777631	6454957	110	0	0	5	10	0	0	0.0	0.0	100.6	1.1	0.0	0.0	0	0	12.0	0.0	0	0	0	0	0	0	0.0
Q1-NE	483	DNG	55	777218	6456028	1	0	1	5	3	0	0	0	1	14	2.5	0	0	0	0	0	0	0	0	0	0	0	0	0
Q3-NE	483	DNG	55	778068	6453346	288	0	0	5	6	0	1	0	0	72	3.1	0	0.1	0	0	0	0	0	0	0	0	0	0	0.0
IMCP5	483	DNG	55	776416	6461024	25	0	0	8	5	0	0	0.0	0.0	91.2	1.3	0.0	0.0	0	0	62.0	0.0	0	0	0	0	0	0	0.2
SMTS17	483	DNG	55	778244	6450876	92	0	1	11	0	1	0	0	0.1	83.4	0	0.2	0	0	0	2.4	0	0	0	0	0	0	0	0
SMTS19	483	DNG	55	776867	6457157	100	0	0	5	9	0	0	0	0	71.2	8.7	0	0	0	0	17	0	0	0	0	0	0	0	1
SMTS16	483	DNG	55	778256	6450749	94	0	1	14	6	1	0	0	1	28.4	4.55	3	0	0	0	0	0	0	0	0	0	0	0	0
SMTS18	483	DNG	55	776846	6457269	209	0	0	4	7	0	1	0	0	61	9.6	0	0.1	0	0	4.2	0	0	0	0	0	0	0	1
SMTS13	483	DNG	55	758222	6460588	82	1	0	5	6	0	0	6	0	74.2	2	0	0	0	1	7.6	0	0	0	0	1	0	0	2
Q5-NE	483	DNS	55	779998	6439259	77	1	2	8	2	1	0	0.5	40	43.1	0.7	3	0	0	0	0	0	0	0	0	0	0	0	0.0
LC31	483	Mod_Good	55	757432	6462870	311	3	1	5	11	0	2	45.0	0.1	62.9	16.5	0.0	0.2	4	1	48.0	94.0	1	0	1	1	1	1	0.0
LC24	483	Mod_Good	55	760386	6457326	27	1	2	9	18	0	1	40.0	0.2	91.2	4.7	0.0	0.1	4	3	9.0	45.0	0	1	1	0	1	0	0.0
LC23	483	Mod_Good	55	760153	6455832	76	2	2	11	16	1	3	35.0	0.2	106.7	11.5	0.2	0.3	2	2	21.0	49.0	1	1	1	1	1	1	0.3
LC22	483	Mod_Good	55	759585	6454746	21	1	0	9	11	0	1	30.0	0.0	72.1	2.0	0.0	0.1	4	4	5.0	34.0	0	0	0	0	1	0	0.0
P_4859_062	483	Mod_Good	55	776464	6462698	78	2	1	3	8	0	1	30.0	0.1	81.0	2.6	0.0	0.1	2	6	8.0	21.0	1	1	1	1	1	0	0.2
LC30	483	Mod_Good	55	757565	6462421	1	2	0	6	15	1	1	25.1	0.0	87.2	18.2	0.1	0.2	2	1	36.0	38.0	0	0	0	1	0	0	1.1
LC29	483	Mod_Good	55	757701	6461713	306	1	0	1	3	0	0	25.0	0.0	3.0	2.2	0.0	0.0	2	1	14.0	15.0	0	0	0	0	0	0	0.0
LH37	483	Mod_Good	55	775611	6463075	150	1	0	5	9	0	0	25.0	0.0	83.6	2.7	0.0	0.0	0	1	3.4	29.0	0	0	1	1	0	0	0.1
LH32	483	Mod_Good	55	777779	6449895	90	4	7	10	13	2	1	23.1	46.2	52.8	1.7	0.2	0.1	1	0	12.0	120.0	0	0	1	1	1	1	0.0
IMCP1	483	Mod_Good	55	777868	6464609	45	1	0	7	10	0	3	20.0	0.0	11.4	3.0	0.0	1.0	1	0	24.0	32.0	0	0	0	1	1	0	0.0
P_4859_022	483	Poor	55	777547	6461013	200	1	0	2	4	0	0	25.0	0.0	27.0	0.5	0.0	0.0	0	8	0.8	25.0	0	1	1	1	0	0	0.0
P_4859_061	483	Poor	55	776560	6463284	280	1	1	2	4	0	0	20.0	0.1	25.0	0.4	0.0	0.0	1	2	2.0	6.0	0	0	1	0	0	0	70.0
P_4859_079	483	Poor	55	777132	6457633	220	1	0	3	9	0	0	15.0	0.0	24.0	6.2	0.0	0.0	2	2	47.0	20.0	0	0	0	0	1	0	3.0
P_4859_077	483	Poor	55	775480	6445375	27	1	0	1	2	0	0	10.0	0.0	2.0	0.5	0.0	0.0	0	0	42.0	0.0	0	0	0	1	0	0	3.1
DL34	483	Poor	55	778232	6465080	160	2	0	3	5	0	0	5	0	21	1	0	0	2	1	35.4	12	0	0	1	0	1	0	0.1
P_4859_025	483	Poor	55	781010	6463135	180	1	0	2	2	0	1	5.0	0.0	10.0	0.2	0.0	0.1	1	0	11.0	0.0	0	0	0	0	1	0	0.2
DL23	483	Thinned	55	762437	6443940	47	5	5	12	8	1	1	46.6	81.9	8.5	2.8	0.5	0.1	2	1	50	55	0	1	1	1	1	1	0.0
DL35	483	Thinned	55	778525	6465847	49	1	0	2	3	0	0	40	0	81	0.7	0	0	4	3	90	3	0	0	0	1	1	0	0.4

Plot	PCT	Condition class	Zone	Easting	Northing	bearing	compTree	compShrub	compGrass	compForbs	compFerns	compOther	strucTree	strucShrub	strucGrass	strucForbs	strucFerns	strucOther	funLargeTrees	funHollowtrees	funLitterCover	funLenFallenLogs	funTreeStem5to9	funTreeStem10to19	funTreeStem20to29	funTreeStem30to49	funTreeStem50to79	funTreeRegen	funHighThreatExotic
IMCP2	483	Thinned	55	777439	6464336	259	2	1	13	12	0	3	25.2	0.1	75.2	2.9	0.0	1.1	1	0	28.0	12.0	0	0	0	0	1	0	0.5
IM9	483	Thinned	55	778425	6465432	85	2	0	1	3	0	0	20.2	0.0	60.0	1.0	0.0	0.0	2	2	32.0	15.0	0	0	0	1	1	0	0.2
CWO_614	483	Thinned	55	778421	6452036	325	2	1	14	12	1	2	19	0.5	67.3	4.4	0.1	2.1	3	1	24	21	0	1	0	0	1	1	0.5
IMCP4	483	Thinned	55	776426	6460728	37	1	0	8	5	0	1	15.0	0.0	88.8	0.8	0.0	0.2	2	0	41.0	18.0	0	0	0	1	1	0	0.0
CWO_619	483	Thinned	55	777854	6450127	185	1	3	11	7	1	1	10	5.3	39.2	0.8	0.1	0.1	2	0	45	0	0	0	1	1	1	1	40.1
Q2-NE	483	Thinned	55	777912	6453873	245	1	0	7	5	0	1	10	0	67.5	6.7	0	0.5	0	0	0	0	0	0	0	0	0	0	1
CWO_616	483	Thinned	55	778600	6451480	335	3	0	13	8	1	1	7	0	92.2	2	0.1	0.1	2	2	29	3	0	1	1	0	1	1	0.1
CWO_620	483	Thinned	55	777482	6449707	200	1	6	12	5	0	1	6	3.3	49.1	0.9	0	0.1	0	0	26	1	0	1	1	1	0	1	35.3
CWO_618	483	Thinned	55	778032	6450244	310	2	6	14	8	1	0	3.1	6.4	37.2	5	0.1	0	0	0	53	0	0	0	0	0	0	1	15
MSCW-22	599	DNG	55	758235	6450656	350	2	1	12	5	0	0	0.2	10	30.7	0.9	0	0	0	0	1.4	0	0	0	0	0	0	1	3.0
DL14	599	DNG	55	758620	6451716	176	0	0	10	1	1	0	0.0	0.0	79.2	0.1	0.3	0.0	0	0	19.0	0.0	0	0	0	0	0	0	5.5
DL15	599	DNG	55	758620	6451716	288	0	2	10	2	0	0	0.0	0.2	87.6	0.6	0.0	0.0	0	0	10.0	0.0	0	0	0	0	0	0	15.0
MSCW-23	599	DNG	55	758508	6451275	30	0	0	18	1	1	0	0	0	70.3	0.4	2	0	0	0	0.8	0	0	0	0	0	0	0	2.0
MSCW-26	599	DNG	55	758692	6451695	60	0	0	7	0	1	0	0	0	28.7	0	3	0	0	0	0.6	0	0	0	0	0	0	0	2
TSCW-02	599	DNG	55	758736	6452335	89	0	0	14	2	1	0	0	0	41.7	0.2	5	0	0	0	1.2	0	0	0	0	0	0	0	1
LC59	599	Mod_Good	55	707369	6432372	355	3	1	8	10	0	3	50.0	30.0	68.3	1.4	0.0	0.7	2	3	49.0	15.0	1	1	1	1	1	1	10.3
MSCW-25	599	Mod_Good	55	758538	6451660	250	2	5	18	11	1	0	45	4.1	39.4	6.7	1	0	0	1	62	25	1	1	0	0	1	1	1.0
MSCW-27	599	Mod_Good	55	758770	6452522	35	4	7	16	18	1	1	39.1	11.5	25.9	6.2	0.1	0.1	0	4	29	9	1	1	1	0	1	1	0.0
MSCW-24	599	Mod_Good	55	758318	6451132	310	4	6	19	9	1	1	33	2.6	25.8	2.9	0.4	0.4	0	3	45	20	1	1	1	3	1	1	0.0
LH13	599	Mod_Good	55	757752	6450111	5	4	9	12	13	2	0	30.2	65.0	42.3	4.1	0.3	0.0	0	1	6.0	33.0	1	1	1	1	0	1	0.0
MSCW-28	599	Mod_Good	55	758657	6452332	250	3	1	21	9	1	1	22	0.1	70.5	1.1	0.4	0.2	0	3	45	48	1	1	1	1	1	1	1.0
LH17	599	Mod_Good	55	711594	6437840	120	2	2	13	10	0	0	10.0	16.0	54.7	14.2	0.0	0.0	1	1	9.6	27.0	1	1	1	4	2	1	0.0
LH15	599	Thinned	55	758240	6450000	105	2	1	5	7	0	0	35.0	1.0	46.0	5.0	0.0	0.0	0	1	16.0	4.0	0	0	0	1	1	0	25.0
DL13	599	Thinned	55	758800	6452024	347	2	0	13	4	1	1	29.0	0.0	75.5	0.4	0.6	0.1	0	2	5.0	40.0	1	1	1	1	0	0	4.5
IM14	599	Thinned	55	713102	6437525	82	2	2	11	14	1	0	25.0	5.3	31.0	7.8	0.2	0.0	1	0	10.8	2.0	0	1	1	0	1	0	0.0
MSCW-29	599	Thinned	55	758781	6452087	295	1	2	13	9	1	1	25	0.6	32.7	2.3	0.5	0.1	1	2	39	3	1	1	1	1	1	1	1
LH18	599	Thinned	55	710718	6434497	1	1	1	9	6	0	1	20.0	0.1	18.6	1.6	0.0	0.1	0	0	4.0	28.0	0	1	1	1	1	0	5.0
LH14	599	Thinned	55	758156	6450870	135	1	1	8	3	0	0	8.0	3.0	50.5	0.3	0.0	0.0	0	0	17.4	0.0	1	0	0	0	1	0	26.0

Plot	PCT	Condition class	Zone	Easting	Northing	bearing	compTree	compShrub	compGrass	compForbs	compFerns	compOther	strucTree	strucShrub	strucGrass	strucForbs	strucFerns	strucOther	funLargeTrees	funHollowtrees	funLitterCover	funLenFallenLogs	funTreeStem5to9	funTreeStem10to19	funTreeStem20to29	funTreeStem30to49	funTreeStem50to79	funTreeRegen	funHighThreatExotic
CWO_629	618	DNG	55	775103	6414515	165	1	0	9	9	0	0	0.1	0	38.3	5.4	0	0	0	0	10	0	0	0	0	0	0	1	1
LC53	618	DNG	55	751610	6449723	182	0	0	11	9	0	1	0.0	0.0	20.4	1.3	0.0	0.1	0	0	0.0	0.0	0	0	0	0	0	0	45.0
MSCW-06	618	DNG	55	775400	6414017	145	0	0	14	9	0	2	0	0	44.8	2.1	0	0.2	0	0	2	0	0	0	0	0	0	0	3.0
MSCW-07	618	DNG	55	775896	6412716	100	0	0	13	6	0	1	0	0	43.7	19.4	0	1	0	0	3	0	0	0	0	0	0	0	4.0
MSCW-08	618	DNG	55	776016	6411081	125	0	0	10	7	0	1	0	0	23	2.7	0	1	0	0	3.2	0	0	0	0	0	0	0	2.0
MSCW-11	618	DNG	55	751659	6448640	115	0	0	6	5	0	0	0	0	3	0.9	0	0	0	0	4	0	0	0	0	0	0	0	3
Q42_NE	618	DNG	55	759117	6443730	305	0	2	6	1	1	1	0	2.1	71.3	1	0.5	0.1	0	0	8	0	0	0	0	0	0	0	1.0
Q44_NE	618	DNG	55	758564	6443754	276	0	1	6	1	1	1	0	5	80.8	0.2	0.2	0.1	0	0	5	0	0	0	0	0	0	0	0.0
SMTS15	618	DNG	55	751537	6449131	255	1	0	11	7	0	0	0.25	0	47.35	1.2	0	0	0	0	1.8	0	0	0	0	0	0	1	1
SMTS25	618	DNG	55	774443	6400788	220	0	0	6	3	0	1	0	0	71.2	0.3	0	0.1	0	0	39	0	0	0	0	0	0	0	2
SMTS27	618	DNG	55	774271	6415641	184	0	0	11	1	0	0	0	0	83.7	0.1	0	0	0	0	26	0	0	0	0	0	0	0	0
SMTS14	618	DNG	55	751586	6449181	262	0	0	11	7	1	0	0	0	67.5	1	0.2	0	0	0	2	0	0	0	0	0	0	0	2
SMTS24	618	DNG	55	757568	6409857	231	0	0	5	0	0	0	0	0	87.6	0	0	0	0	0	35	0	0	0	0	0	0	0	2
SMTS26	618	DNG	55	774205	6415763	261	0	2	12	7	1	0	0	0.2	92.7	1	0.1	0	0	0	5.2	0	0	0	0	0	0	0	1
DL37	618	Mod_Good	55	758988	6443681	136	1	4	10	5	0	1	60	7.1	84.2	10.2	0	0.1	1	0	32	49	1	1	1	1	1	1	0.1
LH41	618	Mod_Good	55	749668	6452318	265	2	1	7	16	0	2	40.1	0.1	63.7	7.7	0.0	0.2	0	1	37.0	44.0	1	1	1	1	0	1	2.0
MSCW-09	618	Mod_Good	55	776878	6409702	220	3	2	16	12	1	2	30.1	0.2	63.3	15.6	0.1	0.6	0	0	38	46	1	1	1	1	1	1	1.0
LH42	618	Mod_Good	55	749436	6453371	255	1	1	5	8	1	0	25.0	2.0	25.9	0.8	0.1	0.0	0	0	10.4	5.0	0	1	1	1	0	1	0.0
Q43_NE	618	Mod_Good	55	758659	6443636	201	1	3	8	5	0	0	20	1	5.4	6.1	0	0	0	1	14	61	0	1	1	1	1	0	0.0
IM6	618	Thinned	55	751477	6448976	262	1	0	6	6	0	0	15.0	0.0	8.4	1.3	0.0	0.0	0	0	2.8	6.0	0	0	0	1	0	0	0.4
LC51	618	Thinned	55	750492	6451147	219	2	1	15	12	0	2	15.0	20.0	38.9	6.6	0.0	1.1	3	1	42.0	25.0	0	1	0	0	0	0	0.2
CWO_628	618	Thinned	55	775265	6414614	180	1	2	9	8	0	1	10	1.1	55.2	3.7	0	0.1	0	1	46	28	0	0	0	0	1	1	1
MSCW-10	618	Thinned	55	777141	6409673	225	1	0	8	8	0	1	10	0	36.5	7.9	0	0.1	1	1	6.6	14	0	0	0	0	0	0	1.0
LC52	618	Thinned	55	750988	6450754	196	1	1	13	8	0	3	2.0	0.1	73.7	1.1	0.0	0.4	1	0	15.0	45.0	0	0	0	0	0	0	1.2
CWO_630	1176	Thinned	55	775063	6414680	325	1	7	9	8	1	3	10	19.6	28.4	1.2	0.1	0.3	0	1	46	51	1	1	1	1	1	1	1
CWO_627	1176	Thinned	55	775244	6414743	125	1	2	10	2	0	1	2	1.1	29.6	0.3	0	0.1	2	3	25	88	0	0	0	0	1	1	1
MSCW_34	1177	DNG	55	719257	6437093	238	1	1	10	7	0	2	0.1	25	12.3	2.5	0	0.9	0	0	2.4	0	0	0	0	0	0	1	2
MSCW_32	1177	DNG	55	719070	6437139	106	0	0	12	7	0	2	0.0	0.0	69.8	2.8	0.0	0.5	0	0	2.2	0.0	0	0	0	0	0	0	2.0

Plot	PCT	Condition class	Zone	Easting	Northing	bearing	compTree	compShrub	compGrass	compForbs	compFerns	compOther	strucTree	strucShrub	strucGrass	strucForbs	strucFerns	strucOther	funLargeTrees	funHollowtrees	funLitterCover	funLenFallenLogs	funTreeStem5to9	funTreeStem10to19	funTreeStem20to29	funTreeStem30to49	funTreeStem50to79	funTreeRegen	funHighThreatExotic
MSCW_31	1177	DNS	55	718275	6437033	95	1	6	19	11	1	3	5	40.6	63	3.5	2	5.7	0	0	8	0	1	0	0	0	0	1	2
Q14-NE	1177	Mod_Good	55	721770	6436617	200	2	5	2	7	0	0	72	7.6	0.4	2.1	0	0	0	1	85.2	40	1	1	1	1	1	1	0.0
DL7	1177	Mod_Good	55	724563	6437227	193	1	7	5	5	0	2	50	15.9	2.3	0.5	0	0.4	0	0	85.8	11.5	1	1	1	1	1	0	0.0
LC34	1177	Mod_Good	55	721888	6436682	120	2	5	11	16	1	1	35	71.6	11.4	5.9	0.1	0.3	5	1	88	268	1	1	1	1	1	1	0.2
DL8	1177	Mod_Good	55	724868	6437229	235	3	4	3	5	0	0	30	61.7	2	1.7	0	0	0	0	76	88	1	1	1	1	1	1	0.0
MSCW_33	1177	Thinned	55	718804	6437072	274	2	8	16	11	1	0	15	40.3	37.5	19.4	0.5	0	0	0	26	0	1	1	1	1	1	1	0
MSCW_42	1177	Thinned	55	724840	6437113	203	3	12	9	6	1	1	13	52.4	7.4	13.3	0.2	0.5	0	0	38	2	1	1	1	0	0	1	2
CWO_632	1610	DNG	55	774902	6414986	155	0	5	13	4	1	0	0	13	55.5	0.4	0.2	0	0	0	11	0	0	0	0	0	0	1	1
CWO_631	1610	Mod_Good	55	774968	6414997	350	3	9	6	5	1	0	15.1	46.3	2.6	1	0.1	0	1	0	36	14	1	1	1	0	1	1	0
CWO_649	1610	Mod_Good	55	775646	6415787	115	5	10	17	16	1	4	16.6	41.6	33.8	3	0.2	1.3	0	1	37	40	1	1	1	1	1	1	1
CWO_602	1661	DNG	55	765324	6444409	270	0	1	7	3	0	0	0	0.1	62.8	0.3	0	0	0	0	32	0	0	0	0	0	0	0	0
CWO_606	1661	DNG	55	766194	6444552	315	0	1	6	4	0	2	0	0.2	37.1	3.2	0	0.2	0	0	47	0	0	0	0	0	0	0	10
DL21	1661	DNG	55	767449	6445185	268	0	0	9	1	0	0	0	0	23.5	0.1	0	0	0	0	13	0	0	0	0	0	0	0	51.0
DL22	1661	DNG	55	766366	6444797	188	0	0	5	3	0	0	0	0	75	0.3	0	0	0	0	13	0	0	0	0	0	0	0	30
DL24	1661	DNG	55	762937	6443940	204	0	1	11	2	0	0	0	3	82.5	0.3	0	0	0	0	10	0	0	0	0	0	0	0	0.0
IM17	1661	Mod_Good	55	771441	6444568	265	2	15	13	12	1	5	45	74.7	17.7	8.8	0.3	0.9	0	1	26.6	65	1	1	1	1	0	0	0.0
LH33	1661	Mod_Good	55	778273	6450709	90	3	11	11	10	1	2	37.5	42.1	59.0	1.5	0.1	0.2	0	0	16.0	29.0	1	1	1	1	1	1	0.5
MSCW-03	1661	Mod_Good	55	772520	6444245	1	5	7	13	10	1	3	29.1	22.7	10.3	3.9	0.5	0.8	0	0	68	27	1	1	1	1	1	1	0.0
CWO_635	1661	Mod_Good	55	772184	6444368	215	4	9	12	12	1	3	20.2	15.1	37.1	7.3	0.1	5.6	0	0	31.0	60.0	0	1	1	1	1	1	0.0
Q4-NE	1661	Mod_Good	55	778555	6451746	194	2	1	6	3	1	1	17	2	12.1	3.5	1	0.5	0	0	0	0	0	0	0	0	0	0	0.0
P_4859_047	1661	Mod_Good	55	772160	6444349	180	3	6	11	15	1	1	15.4	11.7	59.5	29.6	1	0.5	3	0	20.4	39	0	1	1	1	1	1	0.0
CWORez_515	1661	Mod_Good	55	770632	6445013	170	2	15	9	9	1	1	9	59.1	7.5	14.2	0.1	0.5	0	0	37.6	135	0	1	1	1	0	1	0.1
DL25	1661	Mod_Good	55	762611	6443930	223	1	2	12	5	1	1	5	3.2	66.4	0.9	0.5	0.3	3	0	30	17	0	0	0	1	1	0	0.0
DL27	1661	Thinned	55	761235	6443486	37	3	1	5	6	0	0	14	0.5	59	6.7	0	0	6	8	34	78	0	0	0	1	1	0	0.0
CWO_605	1661	Thinned	55	766274	6444733	355	3	6	8	11	0	1	13.5	29.7	20.7	2.8	0	0.1	2	1	52	27	0	1	1	1	1	1	0
CWO_617	1661	Thinned	55	778183	6450459	290	2	12	12	10	1	2	7	12.9	21.9	7.7	0.1	0.3	0	0	49	0	0	0	1	1	1	0	1	20.0
CWO_641	1674	DNG	55	751764	6425017	250	1	9	6	2	1	1	2	30.2	12.3	0.4	0.1	0.1	0	0	9.6	3	1	0	0	0	0	1	0
CWO_640	1674	Mod_Good	55	751756	6424990	250	1	6	9	2	0	1	25	21	8.1	0.3	0	3	0	0	56	6	1	1	1	1	1	1	0

Plot	PCT	Condition class	Zone	Easting	Northing	bearing	compTree	compShrub	compGrass	compForbs	compFerns	compOther	strucTree	strucShrub	strucGrass	strucForbs	strucFerns	strucOther	funLargeTrees	funHollowtrees	funLitterCover	funLenFallenLogs	funTreeStem5to9	funTreeStem10to19	funTreeStem20to29	funTreeStem30to49	funTreeStem50to79	funTreeRegen	funHighThreatExotic
CWO_650	1696	DNG	55	769588	6445348	215	0	1	10	1	1	0	0.0	20.0	60.8	0.1	0.1	0.0	0	0	4.0	4.0	0	0	0	0	0	0	1.0
CWO_652	1696	DNG	55	770005	6445398	35	0	2	5	0	0	0	0.0	0.3	82.4	0.0	0.0	0.0	0	0	5.0	0.0	0	0	0	0	0	0	1.0
CWO_651	1696	DNG	55	770012	6445340	180	1	4	14	0	1	0	2	20.9	23.5	0	0.1	0	0	0	8	10	1	0	0	0	0	0	1
CWO_653	1696	DNS	55	770162	6445201	30	2	10	15	1	0	1	1.1	77	36.9	0.4	0	0.1	0	0	11	5	1	1	0	0	0	1	0
CWO_633	1696	Mod_Good	55	770309	6445102	230	4	6	14	7	1	1	35.0	23.6	17.4	2.4	0.1	0.1	0	0	43.0	46.0	1	1	1	1	0	0	0.0
CWO_634	1696	Mod_Good	55	772403	6444213	90	3	13	11	12	1	2	9.1	41.4	34.8	2.6	0.1	0.2	0	0	23	25	1	1	1	1	1	1	0

Appendix E

Credit reports

BAM Biodiversity Credit Report (Like for like)

Proposal Details

Assessment Id
00038202/BAAS17060/23/00038203

Proposal Name
CWOREZ Inland Slopes subregion CFG connection to Tallawang

BAM data last updated *
14/04/2023

Assessor Name
Lukas Leslie Clews

Assessor Number
BAAS17060

BAM Data version *
58

Proponent Names

Report Created
13/06/2023

BAM Case Status
Open

Assessment Revision
2

Assessment Type
Major Projects

Date Finalised
To be finalised

* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.

Potential Serious and Irreversible Impacts

Name of threatened ecological community	Listing status	Name of Plant Community Type/ID
Fuzzy Box Woodland on alluvial Soils of the South Western Slopes, Darling Riverine Plains and Brigalow Belt South Bioregions	Endangered Ecological Community	202-Fuzzy Box woodland on colluvium and alluvial flats in the Brigalow Belt South Bioregion (including Pilliga) and Nandewar Bioregion

White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri	Critically Endangered Ecological Community	277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri	Critically Endangered Ecological Community	281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion

Species
Euphrasia arguta / Euphrasia arguta

Additional Information for Approval

PCT Outside Ibra Added

PCT
81-Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion
202-Fuzzy Box woodland on colluvium and alluvial flats in the Brigalow Belt South Bioregion (including Pilliga) and Nandewar Bioregion
277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion

PCTs With Customized Benchmarks

PCT
No Changes

Predicted Threatened Species Not On Site

Name
Varanus rosenbergi / Rosenberg's Goanna

Ecosystem Credit Summary (Number and class of biodiversity credits to be retired)

BAM Biodiversity Credit Report (Like for like)

Name of Plant Community Type/ID	Name of threatened ecological community	Area of impact	HBT Cr	No HBT Cr	Total credits to be retired
81-Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion	Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions	0.2	6	0	6
202-Fuzzy Box woodland on colluvium and alluvial flats in the Brigalow Belt South Bioregion (including Pilliga) and Nandewar Bioregion	Fuzzy Box Woodland on alluvial Soils of the South Western Slopes, Darling Riverine Plains and Brigalow Belt South Bioregions	0.2	4	0	4
277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri	7.3	0	89	89
281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri	39.4	461	375	836

81-Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion

Like-for-like credit retirement options

Name of offset trading group	Trading group	Zone	HBT	Credits	IBRA region
Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions This includes PCT's: 76, 80, 81, 82, 101, 110, 237, 248, 3405	-	81_Thinned	Yes	6	Inland Slopes, Bogan-Macquarie, Bondo, Capertee Uplands, Capertee Valley, Crookwell, Hill End, Kerrabee, Lower Slopes, Murray Fans, Murrumbateman, Orange, Pilliga, Talbragar Valley and Wollemi. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

202-Fuzzy Box woodland on colluvium and alluvial flats in the Brigalow Belt South Bioregion (including Pilliga) and Nandewar Bioregion

Like-for-like credit retirement options

Name of offset trading group	Trading group	Zone	HBT	Credits	IBRA region

	Fuzzy Box Woodland on alluvial Soils of the South Western Slopes, Darling Riverine Plains and Brigalow Belt South Bioregions This includes PCT's: 201, 202, 1384, 3404	-	202_Thinned	Yes	4	Inland Slopes, Bogan-Macquarie, Bondo, Capertee Uplands, Capertee Valley, Crookwell, Hill End, Kerrabee, Lower Slopes, Murray Fans, Murrumbateman, Orange, Pilliga, Talbragar Valley and Wollemi. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion	**Like-for-like credit retirement options**					
	Name of offset trading group	Trading group	Zone	HBT	Credits	IBRA region
	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern	-	277_DNG	No	69	Inland Slopes, Bogan-Macquarie, Bondo, Capertee Uplands, Capertee Valley, Crookwell, Hill End, Kerrabee, Lower Slopes, Murray Fans, Murrumbateman, Orange, Pilliga, Talbragar Valley and Wollemi. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	Highlands, NSW South Western Slopes, South East Corner and Ri This includes PCT's: 74, 75, 83, 250, 266, 267, 268, 270, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 298, 302, 312, 341, 342, 347, 350, 352, 356, 367, 381, 382, 395, 401, 403, 421, 433, 434, 435, 436, 437, 451, 483, 484, 488, 492, 496, 508, 509, 510, 511, 528, 538, 544, 563, 567, 571, 589, 590, 597, 599, 618, 619, 622, 633, 654, 702, 703, 704, 705, 710, 711, 796, 797, 799, 847, 851, 921, 1099, 1303, 1304, 1307, 1324, 1329, 1330, 1332, 1383, 1606, 1608, 1611, 1691, 1693, 1695, 1698, 3314, 3359, 3363, 3373, 3376, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3406,					

	3415, 3533, 4147, 4149, 4150					
	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri This includes PCT's: 74, 75, 83, 250, 266, 267, 268, 270, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 298, 302, 312, 341, 342, 347, 350, 352, 356, 367, 381, 382, 395, 401, 403, 421, 433, 434, 435, 436, 437, 451, 483, 484, 488, 492, 496, 508, 509, 510, 511, 528, 538, 544, 563, 567,	-	277_Thinned	No	20	Inland Slopes, Bogan-Macquarie, Bondo, Capertee Uplands, Capertee Valley, Crookwell, Hill End, Kerrabee, Lower Slopes, Murray Fans, Murrumbateman, Orange, Pilliga, Talbragar Valley and Wollemi. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	571, 589, 590, 597, 599, 618, 619, 622, 633, 654, 702, 703, 704, 705, 710, 711, 796, 797, 799, 847, 851, 921, 1099, 1303, 1304, 1307, 1324, 1329, 1330, 1332, 1383, 1606, 1608, 1611, 1691, 1693, 1695, 1698, 3314, 3359, 3363, 3373, 3376, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3406, 3415, 3533, 4147, 4149, 4150					
281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion	**Like-for-like credit retirement options**					
	Name of offset trading group	Trading group	Zone	HBT	Credits	IBRA region
	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin,	-	281_DNG	No	375	Inland Slopes, Bogan-Macquarie, Bondo, Capertee Uplands, Capertee Valley, Crookwell, Hill End, Kerrabee, Lower Slopes, Murray Fans, Murrumbateman, Orange, Pilliga, Talbragar Valley and Wollemi. or Any IBRA subregion that is within 100 kilometers of the outer edge of the

	South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri This includes PCT's: 74, 75, 83, 250, 266, 267, 268, 270, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 298, 302, 312, 341, 342, 347, 350, 352, 356, 367, 381, 382, 395, 401, 403, 421, 433, 434, 435, 436, 437, 451, 483, 484, 488, 492, 496, 508, 509, 510, 511, 528, 538, 544, 563, 567, 571, 589, 590, 597, 599, 618, 619, 622, 633, 654, 702, 703, 704, 705, 710, 711, 796, 797, 799, 847, 851, 921, 1099, 1303, 1304, 1307, 1324, 1329, 1330, 1332, 1383, 1606, 1608, 1611, 1691, 1693, 1695, 1698, 3314, 3359, 3363, 3373, 3376, 3387, 3388, 3394, 3395, 3396,					impacted site.

	3397, 3398, 3399, 3406, 3415, 3533, 4147, 4149, 4150					
	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri This includes PCT's: 74, 75, 83, 250, 266, 267, 268, 270, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 298, 302, 312, 341, 342, 347, 350, 352, 356, 367, 381, 382, 395, 401, 403, 421, 433, 434, 435, 436, 437, 451, 483, 484, 488, 492, 496, 508, 509, 510, 511,	-	281_Mod_Good	Yes	26	Inland Slopes, Bogan-Macquarie, Bondo, Capertee Uplands, Capertee Valley, Crookwell, Hill End, Kerrabee, Lower Slopes, Murray Fans, Murrumbateman, Orange, Pilliga, Talbragar Valley and Wollemi. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	528, 538, 544, 563, 567, 571, 589, 590, 597, 599, 618, 619, 622, 633, 654, 702, 703, 704, 705, 710, 711, 796, 797, 799, 847, 851, 921, 1099, 1303, 1304, 1307, 1324, 1329, 1330, 1332, 1383, 1606, 1608, 1611, 1691, 1693, 1695, 1698, 3314, 3359, 3363, 3373, 3376, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3406, 3415, 3533, 4147, 4149, 4150					
	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South	-	281_Thinned	Yes	435	Inland Slopes, Bogan-Macquarie, Bondo, Capertee Uplands, Capertee Valley, Crookwell, Hill End, Kerrabee, Lower Slopes, Murray Fans, Murrumbateman, Orange, Pilliga, Talbragar Valley and Wollemi. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	East Corner and Ri This includes PCT's: 74, 75, 83, 250, 266, 267, 268, 270, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 298, 302, 312, 341, 342, 347, 350, 352, 356, 367, 381, 382, 395, 401, 403, 421, 433, 434, 435, 436, 437, 451, 483, 484, 488, 492, 496, 508, 509, 510, 511, 528, 538, 544, 563, 567, 571, 589, 590, 597, 599, 618, 619, 622, 633, 654, 702, 703, 704, 705, 710, 711, 796, 797, 799, 847, 851, 921, 1099, 1303, 1304, 1307, 1324, 1329, 1330, 1332, 1383, 1606, 1608, 1611, 1691, 1693, 1695, 1698, 3314, 3359, 3363, 3373, 3376, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3406, 3415, 3533, 4147, 4149, 4150					

BAM Biodiversity Credit Report (Like for like)

Species Credit Summary

Species	Vegetation Zone/s	Area / Count	Credits
Cercartetus nanus / Eastern Pygmy-possum	**81_Thinned, 202_Thinned**	0.3	8.00
Delma impar / Striped Legless Lizard	**277_DNG, 277_Thinned**	7.3	53.00
Dichanthium setosum / Bluegrass	**281_DNG, 281_Mod_Good, 281_Thinned, 81_Thinned**	27.3	404.00
Euphrasia arguta / Euphrasia arguta	**281_Mod_Good**	0.6	31.00
Ninox connivens / Barking Owl	**281_DNG, 281_Thinned**	6.2	132.00
Petaurus norfolcensis / Squirrel Glider	**277_Thinned, 281_Mod_Good, 281_Thinned, 81_Thinned, 202_Thinned**	12.7	355.00
Phascolarctos cinereus / Koala	**202_Thinned, 277_Thinned, 281_Mod_Good, 281_Thinned**	12.6	349.00
Tyto novaehollandiae / Masked Owl	**281_DNG, 281_Thinned**	6.1	130.00

Credit Retirement Options

Like-for-like credit retirement options

Cercartetus nanus / Eastern Pygmy-possum	Spp	IBRA subregion
	Cercartetus nanus / Eastern Pygmy-possum	Any in NSW
Delma impar / Striped Legless Lizard	Spp	IBRA subregion

	Delma impar / Striped Legless Lizard	Any in NSW
Dichanthium setosum / Bluegrass	Spp	IBRA subregion
	Dichanthium setosum / Bluegrass	Any in NSW
Euphrasia arguta / Euphrasia arguta	Spp	IBRA subregion
	Euphrasia arguta / Euphrasia arguta	Any in NSW
Ninox connivens / Barking Owl	Spp	IBRA subregion
	Ninox connivens / Barking Owl	Any in NSW
Petaurus norfolcensis / Squirrel Glider	Spp	IBRA subregion
	Petaurus norfolcensis / Squirrel Glider	Any in NSW
Phascolarctos cinereus / Koala	Spp	IBRA subregion
	Phascolarctos cinereus / Koala	Any in NSW
Tyto novaehollandiae / Masked Owl	Spp	IBRA subregion
	Tyto novaehollandiae / Masked Owl	Any in NSW

BAM Biodiversity Credit Report (Variations)

Proposal Details

Assessment Id
00038202/BAAS17060/23/00038203

Proposal Name
CWOREZ Inland Slopes subregion CFG connection to Tallawang

BAM data last updated *
14/04/2023

Assessor Name
Lukas Leslie Clews

Assessor Number
BAAS17060

BAM Data version *
58

Proponent Name(s)

Report Created
13/06/2023

BAM Case Status
Open

Assessment Revision
2

Assessment Type
Major Projects

Date Finalised
To be finalised

* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.

Potential Serious and Irreversible Impacts

Name of threatened ecological community	Listing status	Name of Plant Community Type/ID
Fuzzy Box Woodland on alluvial Soils of the South Western Slopes, Darling Riverine Plains and Brigalow Belt South Bioregions	Endangered Ecological Community	202-Fuzzy Box woodland on colluvium and alluvial flats in the Brigalow Belt South Bioregion (including Pilliga) and Nandewar Bioregion
White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri	Critically Endangered Ecological Community	277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion

White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri	Critically Endangered Ecological Community	281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion

Species
Euphrasia arguta / Euphrasia arguta

Additional Information for Approval

PCT Outside Ibra Added

PCT
81-Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion
202-Fuzzy Box woodland on colluvium and alluvial flats in the Brigalow Belt South Bioregion (including Pilliga) and Nandewar Bioregion
277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion

PCTs With Customized Benchmarks

PCT
No Changes

Predicted Threatened Species Not On Site

Name
Varanus rosenbergi / Rosenberg's Goanna

Ecosystem Credit Summary (Number and class of biodiversity credits to be retired)

BAM Biodiversity Credit Report (Variations)

Name of Plant Community Type/ID	Name of threatened ecological community	Area of impact	HBT Cr	No HBT Cr	Total credits to be retired
81-Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion	Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions	0.2	6	0	6.00
202-Fuzzy Box woodland on colluvium and alluvial flats in the Brigalow Belt South Bioregion (including Pilliga) and Nandewar Bioregion	Fuzzy Box Woodland on alluvial Soils of the South Western Slopes, Darling Riverine Plains and Brigalow Belt South Bioregions	0.2	4	0	4.00
277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri	7.3	0	89	89.00
281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri	39.4	461	375	836.00

81-Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion

Like-for-like credit retirement options

Class	Trading group	Zone	HBT	Credits	IBRA region

	Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions This includes PCT's: 76, 80, 81, 82, 101, 110, 237, 248, 3405	-	81_Thinned	Yes	6	Inland Slopes,Bogan-Macquarie, Bondo, Capertee Uplands, Capertee Valley, Crookwell, Hill End, Kerrabee, Lower Slopes, Murray Fans, Murrumbateman, Orange, Pilliga, Talbragar Valley and Wollemi. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
	Variation options					
	Formation	Trading group	Zone	HBT	Credits	IBRA region
	Grassy Woodlands	Tier 3 or higher threat status	81_Thinned	Yes (including artificial)	6	IBRA Region: NSW South Western Slopes, or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
202-Fuzzy Box woodland on colluvium and alluvial flats in the Brigalow Belt South Bioregion (including Pilliga) and Nandewar Bioregion	**Like-for-like credit retirement options**					
	Class	Trading group	Zone	HBT	Credits	IBRA region

	Fuzzy Box Woodland on alluvial Soils of the South Western Slopes, Darling Riverine Plains and Brigalow Belt South Bioregions This includes PCT's: 201, 202, 1384, 3404	-	202_Thinned	Yes	4	Inland Slopes,Bogan-Macquarie, Bondo, Capertee Uplands, Capertee Valley, Crookwell, Hill End, Kerrabee, Lower Slopes, Murray Fans, Murrumbateman, Orange, Pilliga, Talbragar Valley and Wollemi. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
	Variation options					
	Formation	Trading group	Zone	HBT	Credits	IBRA region
	Grassy Woodlands	Tier 3 or higher threat status	202_Thinned	Yes (including artificial)	4	IBRA Region: NSW South Western Slopes, or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion	**Like-for-like credit retirement options**					
	Class	Trading group	Zone	HBT	Credits	IBRA region
	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland,	-	277_DNG	No	69	Inland Slopes,Bogan-Macquarie, Bondo, Capertee Uplands, Capertee Valley, Crookwell, Hill End, Kerrabee, Lower Slopes, Murray Fans, Murrumbateman, Orange, Pilliga, Talbragar Valley and Wollemi.

	Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri This includes PCT's: 74, 75, 83, 250, 266, 267, 268, 270, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 298, 302, 312, 341, 342, 347, 350, 352, 356, 367, 381, 382, 395, 401, 403, 421, 433, 434, 435, 436, 437, 451, 483, 484, 488, 492, 496, 508, 509, 510, 511, 528, 538, 544, 563, 567, 571, 589, 590, 597, 599, 618, 619, 622, 633, 654, 702, 703, 704, 705, 710, 711, 796, 797, 799, 847, 851, 921, 1099, 1303, 1304, 1307, 1324, 1329, 1330, 1332, 1383, 1606, 1608, 1611, 1691, 1693, 1695, 1698, 3314, 3359, 3363, 3373, 3376, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3406, 3415, 3533, 4147, 4149,					or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	4150					
	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri This includes PCT's: 74, 75, 83, 250, 266, 267, 268, 270, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 298, 302, 312, 341, 342, 347, 350, 352, 356, 367, 381, 382, 395, 401, 403, 421, 433, 434, 435, 436, 437, 451, 483, 484, 488, 492, 496, 508, 509, 510, 511, 528, 538, 544, 563, 567, 571, 589, 590, 597, 599, 618, 619, 622, 633, 654, 702, 703, 704, 705, 710, 711, 796, 797, 799, 847, 851, 921, 1099, 1303, 1304, 1307, 1324, 1329,	-	277_Thinned	No	20	Inland Slopes,Bogan-Macquarie, Bondo, Capertee Uplands, Capertee Valley, Crookwell, Hill End, Kerrabee, Lower Slopes, Murray Fans, Murrumbateman, Orange, Pilliga, Talbragar Valley and Wollemi. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	1330, 1332, 1383, 1606, 1608, 1611, 1691, 1693, 1695, 1698, 3314, 3359, 3363, 3373, 3376, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3406, 3415, 3533, 4147, 4149, 4150					
281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion	**Like-for-like credit retirement options**					
	Class	Trading group	Zone	HBT	Credits	IBRA region
	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri This includes PCT's: 74, 75, 83, 250, 266, 267, 268, 270, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 298, 302, 312, 341, 342, 347, 350, 352, 356, 367, 381, 382, 395, 401, 403, 421,	-	281_DNG	No	375	Inland Slopes,Bogan-Macquarie, Bondo, Capertee Uplands, Capertee Valley, Crookwell, Hill End, Kerrabee, Lower Slopes, Murray Fans, Murrumbateman, Orange, Pilliga, Talbragar Valley and Wollemi. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	433, 434, 435, 436, 437, 451, 483, 484, 488, 492, 496, 508, 509, 510, 511, 528, 538, 544, 563, 567, 571, 589, 590, 597, 599, 618, 619, 622, 633, 654, 702, 703, 704, 705, 710, 711, 796, 797, 799, 847, 851, 921, 1099, 1303, 1304, 1307, 1324, 1329, 1330, 1332, 1383, 1606, 1608, 1611, 1691, 1693, 1695, 1698, 3314, 3359, 3363, 3373, 3376, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3406, 3415, 3533, 4147, 4149, 4150					
	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri This includes PCT's:	-	281_Mod_Good	Yes	26	Inland Slopes,Bogan-Macquarie, Bondo, Capertee Uplands, Capertee Valley, Crookwell, Hill End, Kerrabee, Lower Slopes, Murray Fans, Murrumbateman, Orange, Pilliga, Talbragar Valley and Wollemi. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	74, 75, 83, 250, 266, 267, 268, 270, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 298, 302, 312, 341, 342, 347, 350, 352, 356, 367, 381, 382, 395, 401, 403, 421, 433, 434, 435, 436, 437, 451, 483, 484, 488, 492, 496, 508, 509, 510, 511, 528, 538, 544, 563, 567, 571, 589, 590, 597, 599, 618, 619, 622, 633, 654, 702, 703, 704, 705, 710, 711, 796, 797, 799, 847, 851, 921, 1099, 1303, 1304, 1307, 1324, 1329, 1330, 1332, 1383, 1606, 1608, 1611, 1691, 1693, 1695, 1698, 3314, 3359, 3363, 3373, 3376, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3406, 3415, 3533, 4147, 4149, 4150					
	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland,	-	281_Thinned	Yes	435	Inland Slopes,Bogan-Macquarie, Bondo, Capertee Uplands, Capertee Valley, Crookwell, Hill End, Kerrabee, Lower Slopes, Murray Fans, Murrumbateman, Orange, Pilliga, Talbragar Valley and Wollemi.

	Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri This includes PCT's: 74, 75, 83, 250, 266, 267, 268, 270, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 298, 302, 312, 341, 342, 347, 350, 352, 356, 367, 381, 382, 395, 401, 403, 421, 433, 434, 435, 436, 437, 451, 483, 484, 488, 492, 496, 508, 509, 510, 511, 528, 538, 544, 563, 567, 571, 589, 590, 597, 599, 618, 619, 622, 633, 654, 702, 703, 704, 705, 710, 711, 796, 797, 799, 847, 851, 921, 1099, 1303, 1304, 1307, 1324, 1329, 1330, 1332, 1383, 1606, 1608, 1611, 1691, 1693, 1695, 1698, 3314, 3359, 3363, 3373, 3376, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3406, 3415, 3533, 4147, 4149,					or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	4150					

Species Credit Summary

Species	Vegetation Zone/s	Area / Count	Credits
Cercartetus nanus / Eastern Pygmy-possum	**81_Thinned, 202_Thinned**	0.3	8.00
Delma impar / Striped Legless Lizard	**277_DNG, 277_Thinned**	7.3	53.00
Dichanthium setosum / Bluegrass	**281_DNG, 281_Mod_Good, 281_Thinned, 81_Thinned**	27.3	404.00
Euphrasia arguta / Euphrasia arguta	**281_Mod_Good**	0.6	31.00
Ninox connivens / Barking Owl	**281_DNG, 281_Thinned**	6.2	132.00
Petaurus norfolcensis / Squirrel Glider	**277_Thinned, 281_Mod_Good, 281_Thinned, 81_Thinned, 202_Thinned**	12.7	355.00
Phascolarctos cinereus / Koala	**202_Thinned, 277_Thinned, 281_Mod_Good, 281_Thinned**	12.6	349.00
Tyto novaehollandiae / Masked Owl	**281_DNG, 281_Thinned**	6.1	130.00

Credit Retirement Options

Like-for-like options

Cercartetus nanus/ Eastern Pygmy-possum	Spp	IBRA region	
	Cercartetus nanus/Eastern Pygmy-possum	Any in NSW	
	Variation options		
	Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act shown below	IBRA region

	Fauna	Vulnerable	Inland Slopes, Bogan-Macquarie, Bondo, Capertee Uplands, Capertee Valley, Crookwell, Hill End, Kerrabee, Lower Slopes, Murray Fans, Murrumbateman, Orange, Pilliga, Talbragar Valley and Wollemi. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Delma impar/ Striped Legless Lizard	Spp	IBRA region	
	Delma impar/Striped Legless Lizard	Any in NSW	
	Variation options		
	Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act shown below	IBRA region
	Fauna	Vulnerable	Inland Slopes, Bogan-Macquarie, Bondo, Capertee Uplands, Capertee Valley, Crookwell, Hill End, Kerrabee, Lower Slopes, Murray Fans, Murrumbateman, Orange, Pilliga, Talbragar Valley and Wollemi. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

Dichanthium setosum/ Bluegrass	Spp		IBRA region
	Dichanthium setosum/Bluegrass		Any in NSW
	Variation options		
	Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act shown below	IBRA region
	Flora	Vulnerable	Inland Slopes, Bogan-Macquarie, Bondo, Capertee Uplands, Capertee Valley, Crookwell, Hill End, Kerrabee, Lower Slopes, Murray Fans, Murrumbateman, Orange, Pilliga, Talbragar Valley and Wollemi. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Euphrasia arguta/ Euphrasia arguta	Spp		IBRA region
	Euphrasia arguta/Euphrasia arguta *Note: Variation rules do not apply for Critically Endangered species and impacts on Commonwealth listed entities that are a controlled action.*		Any in NSW
Ninox connivens/ Barking Owl	Spp		IBRA region
	Ninox connivens/Barking Owl		Any in NSW
	Variation options		

	Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act shown below	IBRA region
	Fauna	Vulnerable	Inland Slopes, Bogan-Macquarie, Bondo, Capertee Uplands, Capertee Valley, Crookwell, Hill End, Kerrabee, Lower Slopes, Murray Fans, Murrumbateman, Orange, Pilliga, Talbragar Valley and Wollemi. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Petaurus norfolcensis/ Squirrel Glider	Spp	IBRA region	
	Petaurus norfolcensis/Squirrel Glider	Any in NSW	
	Variation options		
	Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act shown below	IBRA region

	Fauna	Vulnerable	Inland Slopes, Bogan-Macquarie, Bondo, Capertee Uplands, Capertee Valley, Crookwell, Hill End, Kerrabee, Lower Slopes, Murray Fans, Murrumbateman, Orange, Pilliga, Talbragar Valley and Wollemi. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Phascolarctos cinereus/ Koala	Spp	IBRA region	
	Phascolarctos cinereus/Koala	Any in NSW	
	Variation options		
	Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act shown below	IBRA region
	Fauna	Endangered	Inland Slopes, Bogan-Macquarie, Bondo, Capertee Uplands, Capertee Valley, Crookwell, Hill End, Kerrabee, Lower Slopes, Murray Fans, Murrumbateman, Orange, Pilliga, Talbragar Valley and Wollemi. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

Tyto novaehollandiae/ Masked Owl	Spp		IBRA region
	Tyto novaehollandiae/Masked Owl		Any in NSW
	Variation options		
	Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act shown below	IBRA region
	Fauna	Vulnerable	Inland Slopes, Bogan-Macquarie, Bondo, Capertee Uplands, Capertee Valley, Crookwell, Hill End, Kerrabee, Lower Slopes, Murray Fans, Murrumbateman, Orange, Pilliga, Talbragar Valley and Wollemi. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

BAM Candidate Species Report

Proposal Details

Assessment Id 00038202/BAAS17060/23/00038203	Proposal Name CWOREZ Inland Slopes subregion CFG connection to Tallawang	BAM data last updated * 14/04/2023
Assessor Name Lukas Leslie Clews	Report Created 13/06/2023	BAM Data version * 58
Assessor Number BAAS17060	Assessment Type Major Projects	BAM Case Status Open
Assessment Revision 2	Date Finalised To be finalised	

* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.

List of Species Requiring Survey

Name	Presence	Survey Months
Acacia ausfeldii Ausfeld's Wattle	No (surveyed) *Survey months are outside of the months specified in Bionet.	☐ Jan ☑ Feb ☑ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☑ Sep ☑ Oct ☐ Nov ☐ Dec ☑ Survey month outside the specified months?
Aprasia parapulchella Pink-tailed Legless Lizard	No (surveyed)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☑ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Burhinus grallarius Bush Stone-curlew	No (surveyed)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☑ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?

Callocephalon fimbriatum Gang-gang Cockatoo	No (surveyed) *Survey months are outside of the months specified in Bionet.	☑ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☑ Aug ☐ Sep ☐ Oct ☑ Nov ☑ Dec ☑ Survey month outside the specified months?
Calyptorhynchus lathami Glossy Black-Cockatoo	No (surveyed) *Survey months are outside of the months specified in Bionet.	☐ Jan ☐ Feb ☑ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☑ Aug ☐ Sep ☐ Oct ☑ Nov ☑ Dec ☑ Survey month outside the specified months?
Cercartetus nanus Eastern Pygmy-possum	Yes (surveyed)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☑ Oct ☑ Nov ☐ Dec ☐ Survey month outside the specified months?
Chalinolobus dwyeri Large-eared Pied Bat	No (surveyed)	☑ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☑ Dec ☐ Survey month outside the specified months?
Delma impar Striped Legless Lizard	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Dichanthium setosum Bluegrass	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?

Diuris tricolor Pine Donkey Orchid	No (surveyed)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☑ Sep ☑ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Euphrasia arguta Euphrasia arguta	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Litoria booroolongensis Booroolong Frog	No (surveyed)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☑ Dec ☐ Survey month outside the specified months?
Ninox connivens Barking Owl	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Ninox strenua Powerful Owl	No (surveyed)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☑ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Petaurus norfolcensis Squirrel Glider	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?

Petrogale penicillata Brush-tailed Rock-wallaby	No (surveyed)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☑ Dec ☐ Survey month outside the specified months?
Phascolarctos cinereus Koala	Yes (surveyed)	☑ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☑ Dec ☐ Survey month outside the specified months?
Polytelis swainsonii Superb Parrot	No (surveyed)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☑ Sep ☑ Oct ☑ Nov ☐ Dec ☐ Survey month outside the specified months?
Pomaderris cotoneaster Cotoneaster Pomaderris	No (surveyed)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☑ Oct ☑ Nov ☐ Dec ☐ Survey month outside the specified months?
Prasophyllum petilum Tarengo Leek Orchid	No (surveyed)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☑ Sep ☑ Oct ☑ Nov ☐ Dec ☐ Survey month outside the specified months?
Swainsona recta Small Purple-pea	No (surveyed)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☑ Sep ☑ Oct ☑ Nov ☐ Dec ☐ Survey month outside the specified months?

Swainsona sericea Silky Swainson-pea	No (surveyed)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☑ Sep ☑ Oct ☑ Nov ☐ Dec ☐ Survey month outside the specified months?
Tylophora linearis Tylophora linearis	No (surveyed)	☑ Jan ☑ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☑ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Tyto novaehollandiae Masked Owl	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?

Threatened species Manually Added

None added

Threatened species assessed as not on site

Refer to BAR for detailed justification

Common name	Scientific name	Justification in the BAM-C
Brush-tailed Phascogale	Phascogale tapoatafa	Species is vagrant
Golden Sun Moth	Synemon plana	Refer to BAR
Grey-headed Flying-fox	Pteropus poliocephalus	Habitat constraints
Key's Matchstick Grasshopper	Keyacris scurra	Species is vagrant
Large Bent-winged Bat	Miniopterus orianae oceanensis	Habitat constraints
Little Eagle	Hieraaetus morphnoides	Habitat constraints
Major Mitchell's Cockatoo	Lophochroa leadbeateri	Species is vagrant
Prasophyllum sp. Wybong	Prasophyllum sp. Wybong	Refer to BAR

Regent Honeyeater	Anthochaera phrygia	Habitat constraints
Sloane's Froglet	Crinia sloanei	Species is vagrant
Small Scurf-pea	Cullen parvum	Species is vagrant
Square-tailed Kite	Lophoictinia isura	Habitat constraints
Squirrel Glider in the Wagga Wagga Local Government Area	Petaurus norfolcensis - endangered population	Refer to BAR
Swift Parrot	Lathamus discolor	Habitat constraints
White-bellied Sea-Eagle	Haliaeetus leucogaster	Habitat constraints
Yass Daisy	Ammobium craspedioides	Refer to BAR

BAM Credit Summary Report

Proposal Details

Assessment Id	Proposal Name	BAM data last updated *
00038202/BAAS17060/23/00038203	CWOREZ Inland Slopes subregion CFG connection to Tallawang	14/04/2023
Assessor Name	**Report Created**	**BAM Data version ***
Lukas Leslie Clews	13/06/2023	58
Assessor Number	**BAM Case Status**	**Date Finalised**
BAAS17060	Open	To be finalised
Assessment Revision	**Assessment Type**	
2	Major Projects	

* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.

Ecosystem credits for plant communities types (PCT), ecological communities & threatened species habitat

Zone	Vegetation zone name	TEC name	Current Vegetation integrity score	Change in Vegetation integrity (loss / gain)	Area (ha)	Sensitivity to loss (Justification)	Species sensitivity to gain class	BC Act Listing status	EPBC Act listing status	Biodiversity risk weighting	Potential SAII	Ecosystem credits

Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion												
3	277_DNG	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri	16.7	16.7	6.6	Population size	High Sensitivity to Gain	Critically Endangered Ecological Community	Not Listed	2.50	True	69

4	277_Thinned	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri	57.7	48.7	0.67	Population size	High Sensitivity to Gain	Critically Endangered Ecological Community	Not Listed	2.50	True	20
											Subtotal	**89**

Fuzzy Box woodland on colluvium and alluvial flats in the Brigalow Belt South Bioregion (including Pilliga) and Nandewar Bioregion												
2	202_Thinned	Fuzzy Box Woodland on alluvial Soils of the South Western Slopes, Darling Riverine Plains and Brigalow Belt South Bioregions	45.2	40.3	0.18	Geographic Distribution	High Sensitivity to Gain	Endangered Ecological Community	Not Listed	2.00	True	4
											Subtotal	**4**

Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion												
5	281_DNG	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri	22.9	22.9	26.2	Population size	High Sensitivity to Gain	Critically Endangered Ecological Community	Not Listed	2.50	True	375

6	281_Mod_Good	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri	90.5	66.4	0.63	Population size	High Sensitivity to Gain	Critically Endangered Ecological Community	Not Listed	2.50	True	26

7	281_Thinned	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri	81.9	55.3	12.6	Population size	High Sensitivity to Gain	Critically Endangered Ecological Community	Not Listed	2.50	True	435
											Subtotal	**836**

Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion												
1	81_Thinned	Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions	73.4	73.4	0.16	Biodiversity Conservation Act listing status	High Sensitivity to Gain	Endangered Ecological Community	Not Listed	2.00		6
											Subtotal	**6**
											Total	**935**

Species credits for threatened species

Vegetation zone name	Habitat condition (Vegetation Integrity)	Change in habitat condition	Area (ha)/Count (no. individuals)	Sensitivity to loss (Justification)	Sensitivity to gain (Justification)	BC Act Listing status	EPBC Act listing status	Potential SAII	Species credits
Cercartetus nanus / Eastern Pygmy-possum (Fauna)									
81_Thinned	73.4	73.4	0.16	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Not Listed	False	6

202_Thinned	40.3	40.3	0.11	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Not Listed	False	2
								Subtotal	**8**
Delma impar / Striped Legless Lizard (Fauna)									
277_DNG	16.7	16.7	6.6	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Vulnerable	False	41
277_Thinned	48.7	48.7	0.67	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Vulnerable	False	12
								Subtotal	**53**
Dichanthium setosum / Bluegrass (Flora)									
281_DNG	22.9	22.9	21.8	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Vulnerable	False	250

281_Mod_Good	66.4	66.4	0.24	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Vulnerable	False	8
281_Thinned	55.3	55.3	5	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Vulnerable	False	140
81_Thinned	73.4	73.4	0.16	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Vulnerable	False	6
								Subtotal	**404**
Euphrasia arguta / Euphrasia arguta (Flora)									
281_Mod_Good	66.4	66.4	0.63	Biodiversity Conservation Act listing status	Ecology or response to management is poorly known	Critically Endangered	Critically Endangered	True	31
								Subtotal	**31**
Ninox connivens / Barking Owl (Fauna)									
281_DNG	22.9	22.9	2.4	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	28

281_Thinned	55.3	55.3	3.8	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	104
								Subtotal	**132**
Petaurus norfolcensis / Squirrel Glider (Fauna)									
277_Thinned	48.7	48.7	0.41	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	10
281_Mod_Good	66.4	66.4	0.63	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	21
281_Thinned	55.3	55.3	11.4	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	316
81_Thinned	73.4	73.4	0.16	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	6
202_Thinned	40.3	40.3	0.11	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	2
								Subtotal	**355**

Phascolarctos cinereus / Koala (Fauna)									
202_Thinned	40.3	40.3	0.11	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Endangered	False	2
277_Thinned	48.7	48.7	0.41	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Endangered	False	10
281_Mod_Good	66.4	66.4	0.63	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Endangered	False	21
281_Thinned	55.3	55.3	11.4	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Endangered	False	316
								Subtotal	**349**
Tyto novaehollandiae / Masked Owl (Fauna)									
281_DNG	22.9	22.9	2.4	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	27

281_Thinned	55.3	55.3	3.7	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	103
								Subtotal	**130**

BAM Predicted Species Report

Proposal Details

Assessment Id	Proposal Name	BAM data last updated *
00038202/BAAS17060/23/00038203	CWOREZ Inland Slopes subregion CFG connection to Tallawang	14/04/2023
Assessor Name	**Report Created**	**BAM Data version ***
Lukas Leslie Clews	13/06/2023	58
Assessor Number	**Assessment Type**	**BAM Case Status**
BAAS17060	Major Projects	Open
Assessment Revision		**Date Finalised**
2		To be finalised

* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.

Threatened species reliably predicted to utilise the site. No surveys are required for these species. Ecosystem credits apply to these species.

Common Name	Scientific Name	Vegetation Types(s)
Barking Owl	Ninox connivens	81-Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion
		202-Fuzzy Box woodland on colluvium and alluvial flats in the Brigalow Belt South Bioregion (including Pilliga) and Nandewar Bioregion
		277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
		281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
Black Falcon	Falco subniger	277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
		281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
Black-chinned Honeyeater (eastern subspecies)	Melithreptus gularis gularis	81-Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion

Black-chinned Honeyeater (eastern subspecies)	Melithreptus gularis gularis	202-Fuzzy Box woodland on colluvium and alluvial flats in the Brigalow Belt South Bioregion (including Pilliga) and Nandewar Bioregion
		277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
		281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
Brown Treecreeper (eastern subspecies)	Climacteris picumnus victoriae	81-Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion
		202-Fuzzy Box woodland on colluvium and alluvial flats in the Brigalow Belt South Bioregion (including Pilliga) and Nandewar Bioregion
		277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
		281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
Corben's Long-eared Bat	Nyctophilus corbeni	81-Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion
		202-Fuzzy Box woodland on colluvium and alluvial flats in the Brigalow Belt South Bioregion (including Pilliga) and Nandewar Bioregion
Diamond Firetail	Stagonopleura guttata	81-Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion
		202-Fuzzy Box woodland on colluvium and alluvial flats in the Brigalow Belt South Bioregion (including Pilliga) and Nandewar Bioregion
		277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
		281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
Dusky Woodswallow	Artamus cyanopterus cyanopterus	81-Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion
		202-Fuzzy Box woodland on colluvium and alluvial flats in the Brigalow Belt South Bioregion (including Pilliga) and Nandewar Bioregion

Dusky Woodswallow	Artamus cyanopterus cyanopterus	277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
		281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
Eastern False Pipistrelle	Falsistrellus tasmaniensis	277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
Flame Robin	Petroica phoenicea	277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
		281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
Gang-gang Cockatoo	Callocephalon fimbriatum	277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
		281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
Glossy Black-Cockatoo	Calyptorhynchus lathami	81-Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion
		202-Fuzzy Box woodland on colluvium and alluvial flats in the Brigalow Belt South Bioregion (including Pilliga) and Nandewar Bioregion
Grey-crowned Babbler (eastern subspecies)	Pomatostomus temporalis temporalis	81-Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion
		202-Fuzzy Box woodland on colluvium and alluvial flats in the Brigalow Belt South Bioregion (including Pilliga) and Nandewar Bioregion
		277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
		281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
Grey-headed Flying-fox	Pteropus poliocephalus	81-Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion
		202-Fuzzy Box woodland on colluvium and alluvial flats in the Brigalow Belt South Bioregion (including Pilliga) and Nandewar Bioregion

Grey-headed Flying-fox	Pteropus poliocephalus	277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
		281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
Hooded Robin (south-eastern form)	Melanodryas cucullata cucullata	81-Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion
		202-Fuzzy Box woodland on colluvium and alluvial flats in the Brigalow Belt South Bioregion (including Pilliga) and Nandewar Bioregion
		277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
		281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
Large Bent-winged Bat	Miniopterus orianae oceanensis	81-Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion
		202-Fuzzy Box woodland on colluvium and alluvial flats in the Brigalow Belt South Bioregion (including Pilliga) and Nandewar Bioregion
		277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
		281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
Little Eagle	Hieraaetus morphnoides	81-Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion
		202-Fuzzy Box woodland on colluvium and alluvial flats in the Brigalow Belt South Bioregion (including Pilliga) and Nandewar Bioregion
		277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
		281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
Little Lorikeet	Glossopsitta pusilla	81-Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion

Little Lorikeet	Glossopsitta pusilla	202-Fuzzy Box woodland on colluvium and alluvial flats in the Brigalow Belt South Bioregion (including Pilliga) and Nandewar Bioregion
		277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
		281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
Little Pied Bat	Chalinolobus picatus	81-Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion
		202-Fuzzy Box woodland on colluvium and alluvial flats in the Brigalow Belt South Bioregion (including Pilliga) and Nandewar Bioregion
		281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
Major Mitchell's Cockatoo	Lophochroa leadbeateri	81-Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion
Masked Owl	Tyto novaehollandiae	81-Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion
		202-Fuzzy Box woodland on colluvium and alluvial flats in the Brigalow Belt South Bioregion (including Pilliga) and Nandewar Bioregion
		277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
		281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
Painted Honeyeater	Grantiella picta	81-Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion
		202-Fuzzy Box woodland on colluvium and alluvial flats in the Brigalow Belt South Bioregion (including Pilliga) and Nandewar Bioregion
		277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion

Painted Honeyeater	Grantiella picta	281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
Powerful Owl	Ninox strenua	202-Fuzzy Box woodland on colluvium and alluvial flats in the Brigalow Belt South Bioregion (including Pilliga) and Nandewar Bioregion
		281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
Regent Honeyeater	Anthochaera phrygia	81-Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion
		202-Fuzzy Box woodland on colluvium and alluvial flats in the Brigalow Belt South Bioregion (including Pilliga) and Nandewar Bioregion
		277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
		281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
Scarlet Robin	Petroica boodang	81-Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion
		202-Fuzzy Box woodland on colluvium and alluvial flats in the Brigalow Belt South Bioregion (including Pilliga) and Nandewar Bioregion
		277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
		281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
Speckled Warbler	Chthonicola sagittata	81-Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion
		202-Fuzzy Box woodland on colluvium and alluvial flats in the Brigalow Belt South Bioregion (including Pilliga) and Nandewar Bioregion
		277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion

Speckled Warbler	Chthonicola sagittata	281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
Spotted Harrier	Circus assimilis	277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
		281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
Spotted-tailed Quoll	Dasyurus maculatus	81-Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion
		202-Fuzzy Box woodland on colluvium and alluvial flats in the Brigalow Belt South Bioregion (including Pilliga) and Nandewar Bioregion
		277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
		281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
Square-tailed Kite	Lophoictinia isura	81-Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion
		202-Fuzzy Box woodland on colluvium and alluvial flats in the Brigalow Belt South Bioregion (including Pilliga) and Nandewar Bioregion
		277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
		281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
Superb Parrot	Polytelis swainsonii	81-Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion
		202-Fuzzy Box woodland on colluvium and alluvial flats in the Brigalow Belt South Bioregion (including Pilliga) and Nandewar Bioregion
		277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion

Superb Parrot	Polytelis swainsonii	281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
Swift Parrot	Lathamus discolor	81-Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion
		202-Fuzzy Box woodland on colluvium and alluvial flats in the Brigalow Belt South Bioregion (including Pilliga) and Nandewar Bioregion
		277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
		281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
Turquoise Parrot	Neophema pulchella	81-Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion
		202-Fuzzy Box woodland on colluvium and alluvial flats in the Brigalow Belt South Bioregion (including Pilliga) and Nandewar Bioregion
		277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
		281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
Varied Sittella	Daphoenositta chrysoptera	81-Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion
		202-Fuzzy Box woodland on colluvium and alluvial flats in the Brigalow Belt South Bioregion (including Pilliga) and Nandewar Bioregion
		277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
		281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
White-bellied Sea-Eagle	Haliaeetus leucogaster	81-Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion

White-bellied Sea-Eagle	Haliaeetus leucogaster	202-Fuzzy Box woodland on colluvium and alluvial flats in the Brigalow Belt South Bioregion (including Pilliga) and Nandewar Bioregion
		277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
		281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
White-throated Needletail	Hirundapus caudacutus	81-Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion
		202-Fuzzy Box woodland on colluvium and alluvial flats in the Brigalow Belt South Bioregion (including Pilliga) and Nandewar Bioregion
		277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
		281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
Yellow-bellied Sheathtail-bat	Saccolaimus flaviventris	81-Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion
		202-Fuzzy Box woodland on colluvium and alluvial flats in the Brigalow Belt South Bioregion (including Pilliga) and Nandewar Bioregion
		277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
		281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion

Threatened species Manually Added

None added

Threatened species assessed as not within the vegetation zone(s) for the PCT(s)

BAM Predicted Species Report

Common Name	Scientific Name	Plant Community Type(s)
Rosenberg's Goanna	Varanus rosenbergi	281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion

Threatened species assessed as not within the vegetation zone(s) for the PCT(s)

Refer to BAR for detailed justification

Common Name	Scientific Name	Justification in the BAM-C
Rosenberg's Goanna	Varanus rosenbergi	Refer to BAR

BAM Vegetation Zones Report

Proposal Details

Assessment Id
00038202/BAAS17060/23/00038203

Assessment name
CWOREZ Inland Slopes subregion CFG connection to Tallawang

BAM data last updated *
14/04/2023

Assessor Name
Lukas Leslie Clews

Report Created
13/06/2023

BAM Data version *
58

Assessor Number
BAAS17060

Assessment Type
Major Projects

BAM Case Status
Open

Assessment Revision
2

Date Finalised
To be finalised

* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.

Vegetation Zones

#	Name	PCT	Condition	Area	Minimum number of plots	Management zones
1	81_Thinned	81-Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion	Thinned	0.16	1	A (0.16 ha)

2	202_Thinned	202-Fuzzy Box woodland on colluvium and alluvial flats in the Brigalow Belt South Bioregion (including Pilliga) and Nandewar Bioregion	Thinned	0.18	1	A (0.12 ha) B (0.06 ha)
3	277_DNG	277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion	DNG	6.61	3	A (6.61 ha)
4	277_Thinned	277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion	Thinned	0.67	1	A (0.35 ha) B (0.32 ha)
5	281_DNG	281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion	DNG	26.2	4	A (26.2 ha)
6	281_Mod_Good	281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion	Mod_Good	0.63	1	A (0.33 ha) B (0.3 ha)
7	281_Thinned	281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion	Thinned	12.6	3	A (4.76 ha) B (7.84 ha)

BAM Biodiversity Credit Report (Like for like)

Proposal Details

Assessment Id
00038208/BAAS17060/23/00038209

Proposal Name
CWOREZ Inland Slopes subregion - RNI1

BAM data last updated *
22/06/2023

Assessor Name
Lukas Leslie Clews

Assessor Number
BAAS17060

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61

Proponent Names

Report Created
15/08/2023

BAM Case Status
Open

Assessment Revision
2

Assessment Type
Major Projects

Date Finalised
To be finalised

* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.

Potential Serious and Irreversible Impacts

Name of threatened ecological community	Listing status	Name of Plant Community Type/ID
White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla	Critically Endangered Ecological Community	266-White Box grassy woodland in the upper slopes sub-region of the NSW South Western Slopes Bioregion

White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla	Critically Endangered Ecological Community	277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla	Critically Endangered Ecological Community	281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion

Species
Chalinolobus dwyeri / Large-eared Pied Bat
Petrogale penicillata / Brush-tailed Rock-wallaby
Anthochaera phrygia / Regent Honeyeater
Euphrasia arguta / Euphrasia arguta

Additional Information for Approval

PCT Outside Ibra Added

PCT
81-Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion
266-White Box grassy woodland in the upper slopes sub-region of the NSW South Western Slopes Bioregion
277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion

281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
461-Tumbledown Gum woodland on hills in the northern NSW South Western Slopes Bioregion and southern Brigalow Belt South Bioregion

PCTs With Customized Benchmarks

PCT
No Changes

Predicted Threatened Species Not On Site

Name
Glossopsitta porphyrocephala / Purple-crowned Lorikeet

Ecosystem Credit Summary (Number and class of biodiversity credits to be retired)

Name of Plant Community Type/ID	Name of threatened ecological community	Area of impact	HBT Cr	No HBT Cr	Total credits to be retired
81-Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion	Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions	7.3	67	0	67

266-White Box grassy woodland in the upper slopes sub-region of the NSW South Western Slopes Bioregion	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla	29.5	324	202	526
277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla	70.9	175	815	990
281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla	74.8	1216	615	1831
440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion	Not a TEC	50.3	832	8	840
461-Tumbledown Gum woodland on hills in the northern NSW South Western Slopes Bioregion and southern Brigalow Belt South Bioregion	Not a TEC	6.5	123	5	128
478-Red Ironbark - Black Cypress Pine - stringybark +/- Narrow-leaved Wattle shrubby open forest on sandstone in the Gulgong - Mendooran region, southern Brigalow Belt South Bioregion	Not a TEC	0.5	11	0	11

479-Narrow-leaved Ironbark- Black Cypress Pine - stringybark +/- Grey Gum +/- Narrow-leaved Wattle shrubby open forest on sandstone hills in the southern Brigalow Belt South Bioregion and Sydney Basin Bioregion	Not a TEC	18.5	364	0	364
481-Rough-barked Apple - Blakely's Red Gum - Narrow-leaved Stringybark +/- Grey Gum sandstone riparian grass fern open forest on in the southern Brigalow Belt South Bioregion and Upper Hunter region	Not a TEC	9.5	177	0	177
1177-Slaty Gum woodland of the slopes of the southern Brigalow Belt South Bioregion	Not a TEC	41.7	818	69	887

81-Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion

Like-for-like credit retirement options

Name of offset trading group	Trading group	Zone	HBT	Credits	IBRA region
Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions This includes PCT's: 76, 80, 81, 82, 101, 110, 237, 248, 3405	-	81_DNG	No	0	Inland Slopes, Bogan-Macquarie, Bondo, Capertee Uplands, Capertee Valley, Crookwell, Hill End, Kerrabee, Lower Slopes, Murray Fans, Murrumbateman, Orange, Pilliga, Talbragar Valley and Wollemi. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions This includes PCT's: 76, 80, 81, 82, 101, 110, 237, 248, 3405	-	81_Mod_Good	Yes	58	Inland Slopes, Bogan-Macquarie, Bondo, Capertee Uplands, Capertee Valley, Crookwell, Hill End, Kerrabee, Lower Slopes, Murray Fans, Murrumbateman, Orange, Pilliga, Talbragar Valley and Wollemi. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
	Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions This includes PCT's: 76, 80, 81, 82, 101, 110, 237, 248, 3405	-	81_Thinned	Yes	9	Inland Slopes, Bogan-Macquarie, Bondo, Capertee Uplands, Capertee Valley, Crookwell, Hill End, Kerrabee, Lower Slopes, Murray Fans, Murrumbateman, Orange, Pilliga, Talbragar Valley and Wollemi. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

266-White Box grassy woodland in the upper slopes sub-region of the NSW South Western Slopes Bioregion

Like-for-like credit retirement options

Name of offset trading group	Trading group	Zone	HBT	Credits	IBRA region
White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla This includes PCT's: 74, 75, 83, 250, 266, 267, 268, 270, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 298, 302, 312, 341, 342, 347, 350, 352, 356, 367, 381, 382, 395, 401, 403, 421, 433, 434, 435, 436, 437, 451, 483, 484, 488, 492, 496, 508, 509, 510, 511, 528, 538, 544, 563, 567, 571, 589, 590, 597, 599, 618, 619, 622, 633, 654,	-	266_DNG	No	191	Inland Slopes, Bogan-Macquarie, Bondo, Capertee Uplands, Capertee Valley, Crookwell, Hill End, Kerrabee, Lower Slopes, Murray Fans, Murrumbateman, Orange, Pilliga, Talbragar Valley and Wollemi. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	702, 703, 704, 705, 710, 711, 796, 797, 799, 847, 851, 921, 1099, 1303, 1304, 1307, 1324, 1329, 1330, 1332, 1383, 1606, 1608, 1611, 1691, 1693, 1695, 1698, 3314, 3359, 3363, 3373, 3376, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3406, 3415, 3533, 4147, 4149, 4150					
	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla This includes PCT's: 74, 75, 83, 250, 266, 267, 268, 270, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 298,	-	266_DNS	No	11	Inland Slopes, Bogan-Macquarie, Bondo, Capertee Uplands, Capertee Valley, Crookwell, Hill End, Kerrabee, Lower Slopes, Murray Fans, Murrumbateman, Orange, Pilliga, Talbragar Valley and Wollemi. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	302, 312, 341, 342, 347, 350, 352, 356, 367, 381, 382, 395, 401, 403, 421, 433, 434, 435, 436, 437, 451, 483, 484, 488, 492, 496, 508, 509, 510, 511, 528, 538, 544, 563, 567, 571, 589, 590, 597, 599, 618, 619, 622, 633, 654, 702, 703, 704, 705, 710, 711, 796, 797, 799, 847, 851, 921, 1099, 1303, 1304, 1307, 1324, 1329, 1330, 1332, 1383, 1606, 1608, 1611, 1691, 1693, 1695, 1698, 3314, 3359, 3363, 3373, 3376, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3406, 3415, 3533, 4147, 4149, 4150					
	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New	-	266_Mod_Good	Yes	155	Inland Slopes, Bogan-Macquarie, Bondo, Capertee Uplands, Capertee Valley, Crookwell, Hill End, Kerrabee, Lower Slopes, Murray Fans, Murrumbateman, Orange, Pilliga, Talbragar Valley and Wollemi.

	England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla This includes PCT's: 74, 75, 83, 250, 266, 267, 268, 270, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 298, 302, 312, 341, 342, 347, 350, 352, 356, 367, 381, 382, 395, 401, 403, 421, 433, 434, 435, 436, 437, 451, 483, 484, 488, 492, 496, 508, 509, 510, 511, 528, 538, 544, 563, 567, 571, 589, 590, 597, 599, 618, 619, 622, 633, 654, 702, 703, 704, 705, 710, 711, 796, 797, 799, 847, 851, 921, 1099, 1303, 1304, 1307, 1324, 1329, 1330, 1332, 1383, 1606, 1608, 1611, 1691, 1693, 1695, 1698, 3314, 3359, 3363, 3373, 3376, 3387, 3388, 3394, 3395, 3396,					or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	3397, 3398, 3399, 3406, 3415, 3533, 4147, 4149, 4150					
	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla This includes PCT's: 74, 75, 83, 250, 266, 267, 268, 270, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 298, 302, 312, 341, 342, 347, 350, 352, 356, 367, 381, 382, 395, 401, 403, 421, 433, 434, 435, 436, 437, 451, 483, 484, 488, 492, 496, 508, 509, 510, 511, 528, 538, 544, 563, 567, 571, 589, 590, 597, 599, 618, 619, 622, 633, 654,	-	266_Thinned	Yes	169	Inland Slopes, Bogan-Macquarie, Bondo, Capertee Uplands, Capertee Valley, Crookwell, Hill End, Kerrabee, Lower Slopes, Murray Fans, Murrumbateman, Orange, Pilliga, Talbragar Valley and Wollemi. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	702, 703, 704, 705, 710, 711, 796, 797, 799, 847, 851, 921, 1099, 1303, 1304, 1307, 1324, 1329, 1330, 1332, 1383, 1606, 1608, 1611, 1691, 1693, 1695, 1698, 3314, 3359, 3363, 3373, 3376, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3406, 3415, 3533, 4147, 4149, 4150					
277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion	**Like-for-like credit retirement options**					
	Name of offset trading group	Trading group	Zone	HBT	Credits	IBRA region
	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla This includes PCT's:	-	277_DNG	No	593	Inland Slopes, Bogan-Macquarie, Bondo, Capertee Uplands, Capertee Valley, Crookwell, Hill End, Kerrabee, Lower Slopes, Murray Fans, Murrumbateman, Orange, Pilliga, Talbragar Valley and Wollemi. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	74, 75, 83, 250, 266, 267, 268, 270, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 298, 302, 312, 341, 342, 347, 350, 352, 356, 367, 381, 382, 395, 401, 403, 421, 433, 434, 435, 436, 437, 451, 483, 484, 488, 492, 496, 508, 509, 510, 511, 528, 538, 544, 563, 567, 571, 589, 590, 597, 599, 618, 619, 622, 633, 654, 702, 703, 704, 705, 710, 711, 796, 797, 799, 847, 851, 921, 1099, 1303, 1304, 1307, 1324, 1329, 1330, 1332, 1383, 1606, 1608, 1611, 1691, 1693, 1695, 1698, 3314, 3359, 3363, 3373, 3376, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3406, 3415, 3533, 4147, 4149, 4150					
	White Box - Yellow Box - Blakely's Red Gum	-	277_Mod_Good	Yes	175	Inland Slopes, Bogan-Macquarie, Bondo, Capertee Uplands, Capertee

	Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla This includes PCT's: 74, 75, 83, 250, 266, 267, 268, 270, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 298, 302, 312, 341, 342, 347, 350, 352, 356, 367, 381, 382, 395, 401, 403, 421, 433, 434, 435, 436, 437, 451, 483, 484, 488, 492, 496, 508, 509, 510, 511, 528, 538, 544, 563, 567, 571, 589, 590, 597, 599, 618, 619, 622, 633, 654, 702, 703, 704, 705, 710, 711, 796, 797, 799, 847, 851, 921, 1099, 1303, 1304, 1307, 1324, 1329, 1330, 1332, 1383, 1606,					Valley, Crookwell, Hill End, Kerrabee, Lower Slopes, Murray Fans, Murrumbateman, Orange, Pilliga, Talbragar Valley and Wollemi. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	1608, 1611, 1691, 1693, 1695, 1698, 3314, 3359, 3363, 3373, 3376, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3406, 3415, 3533, 4147, 4149, 4150					
	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla This includes PCT's: 74, 75, 83, 250, 266, 267, 268, 270, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 298, 302, 312, 341, 342, 347, 350, 352, 356, 367, 381, 382, 395, 401, 403, 421, 433, 434, 435, 436, 437, 451, 483, 484, 488, 492,	-	277_Thinned	No	222	Inland Slopes, Bogan-Macquarie, Bondo, Capertee Uplands, Capertee Valley, Crookwell, Hill End, Kerrabee, Lower Slopes, Murray Fans, Murrumbateman, Orange, Pilliga, Talbragar Valley and Wollemi. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	496, 508, 509, 510, 511, 528, 538, 544, 563, 567, 571, 589, 590, 597, 599, 618, 619, 622, 633, 654, 702, 703, 704, 705, 710, 711, 796, 797, 799, 847, 851, 921, 1099, 1303, 1304, 1307, 1324, 1329, 1330, 1332, 1383, 1606, 1608, 1611, 1691, 1693, 1695, 1698, 3314, 3359, 3363, 3373, 3376, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3406, 3415, 3533, 4147, 4149, 4150					
281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion	**Like-for-like credit retirement options**					
	Name of offset trading group	Trading group	Zone	HBT	Credits	IBRA region
	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland,	-	281_DNG	No	615	Inland Slopes, Bogan-Macquarie, Bondo, Capertee Uplands, Capertee Valley, Crookwell, Hill End, Kerrabee, Lower Slopes, Murray Fans, Murrumbateman, Orange, Pilliga, Talbragar Valley and Wollemi. or

	Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla This includes PCT's: 74, 75, 83, 250, 266, 267, 268, 270, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 298, 302, 312, 341, 342, 347, 350, 352, 356, 367, 381, 382, 395, 401, 403, 421, 433, 434, 435, 436, 437, 451, 483, 484, 488, 492, 496, 508, 509, 510, 511, 528, 538, 544, 563, 567, 571, 589, 590, 597, 599, 618, 619, 622, 633, 654, 702, 703, 704, 705, 710, 711, 796, 797, 799, 847, 851, 921, 1099, 1303, 1304, 1307, 1324, 1329, 1330, 1332, 1383, 1606, 1608, 1611, 1691, 1693, 1695, 1698, 3314, 3359, 3363, 3373, 3376, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3406,					Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	3415, 3533, 4147, 4149, 4150					
	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla This includes PCT's: 74, 75, 83, 250, 266, 267, 268, 270, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 298, 302, 312, 341, 342, 347, 350, 352, 356, 367, 381, 382, 395, 401, 403, 421, 433, 434, 435, 436, 437, 451, 483, 484, 488, 492, 496, 508, 509, 510, 511, 528, 538, 544, 563, 567, 571, 589, 590, 597, 599, 618, 619, 622, 633, 654, 702, 703, 704, 705, 710,	-	281_Mod_Good	Yes	226	Inland Slopes, Bogan-Macquarie, Bondo, Capertee Uplands, Capertee Valley, Crookwell, Hill End, Kerrabee, Lower Slopes, Murray Fans, Murrumbateman, Orange, Pilliga, Talbragar Valley and Wollemi. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	711, 796, 797, 799, 847, 851, 921, 1099, 1303, 1304, 1307, 1324, 1329, 1330, 1332, 1383, 1606, 1608, 1611, 1691, 1693, 1695, 1698, 3314, 3359, 3363, 3373, 3376, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3406, 3415, 3533, 4147, 4149, 4150					
	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla This includes PCT's: 74, 75, 83, 250, 266, 267, 268, 270, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 298, 302, 312, 341, 342, 347,	-	281_Poor	Yes	3	Inland Slopes, Bogan-Macquarie, Bondo, Capertee Uplands, Capertee Valley, Crookwell, Hill End, Kerrabee, Lower Slopes, Murray Fans, Murrumbateman, Orange, Pilliga, Talbragar Valley and Wollemi. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	350, 352, 356, 367, 381, 382, 395, 401, 403, 421, 433, 434, 435, 436, 437, 451, 483, 484, 488, 492, 496, 508, 509, 510, 511, 528, 538, 544, 563, 567, 571, 589, 590, 597, 599, 618, 619, 622, 633, 654, 702, 703, 704, 705, 710, 711, 796, 797, 799, 847, 851, 921, 1099, 1303, 1304, 1307, 1324, 1329, 1330, 1332, 1383, 1606, 1608, 1611, 1691, 1693, 1695, 1698, 3314, 3359, 3363, 3373, 3376, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3406, 3415, 3533, 4147, 4149, 4150					
	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland,	-	281_Thinned	Yes	987	Inland Slopes, Bogan-Macquarie, Bondo, Capertee Uplands, Capertee Valley, Crookwell, Hill End, Kerrabee, Lower Slopes, Murray Fans, Murrumbateman, Orange, Pilliga, Talbragar Valley and Wollemi. or

	Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla This includes PCT's: 74, 75, 83, 250, 266, 267, 268, 270, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 298, 302, 312, 341, 342, 347, 350, 352, 356, 367, 381, 382, 395, 401, 403, 421, 433, 434, 435, 436, 437, 451, 483, 484, 488, 492, 496, 508, 509, 510, 511, 528, 538, 544, 563, 567, 571, 589, 590, 597, 599, 618, 619, 622, 633, 654, 702, 703, 704, 705, 710, 711, 796, 797, 799, 847, 851, 921, 1099, 1303, 1304, 1307, 1324, 1329, 1330, 1332, 1383, 1606, 1608, 1611, 1691, 1693, 1695, 1698, 3314, 3359, 3363, 3373, 3376, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3406,					Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	3415, 3533, 4147, 4149, 4150					
440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion	**Like-for-like credit retirement options**					
	Class	Trading group	Zone	HBT	Credits	IBRA region
	Western Slopes Dry Sclerophyll Forests This includes PCT's: 54, 110, 179, 217, 243, 255, 270, 273, 287, 291, 309, 321, 322, 323, 324, 325, 327, 330, 331, 333, 341, 343, 346, 348, 354, 358, 379, 387, 396, 398, 399, 401, 402, 403, 404, 405, 406, 407, 408, 409, 414, 415, 417, 419, 420, 423, 425, 430, 431, 440, 443, 449, 455, 456, 457, 459, 462, 463, 467, 468, 469, 470, 471, 472, 473, 476, 477, 478, 479, 480, 482, 515, 531, 532, 576, 577, 581, 592, 610, 617, 671, 673, 676, 712, 713, 714, 746, 863, 889, 940, 956, 1133, 1176, 1277,	Western Slopes Dry Sclerophyll Forests <50%	440_DNG	No	0	Inland Slopes, Bogan-Macquarie, Bondo, Capertee Uplands, Capertee Valley, Crookwell, Hill End, Kerrabee, Lower Slopes, Murray Fans, Murrumbateman, Orange, Pilliga, Talbragar Valley and Wollemi. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	1278, 1279, 1307, 1313, 1314, 1316, 1381, 1610, 1654, 1655, 1656, 1660, 1661, 1663, 1668, 1669, 1671, 1672, 1674, 1676, 1679, 1709, 1711, 1770, 1771, 3753, 3754, 3756, 3757, 3758, 3759, 3760, 3761, 3762, 3763, 3766, 3767, 3768, 3769, 3770, 3771, 3772, 3773, 3774, 3775, 3776, 3777, 3778, 3780, 3781, 3782, 3783, 3784, 3785, 3786, 4153					
	Western Slopes Dry Sclerophyll Forests This includes PCT's: 54, 110, 179, 217, 243, 255, 270, 273, 287, 291, 309, 321, 322, 323, 324, 325, 327, 330, 331, 333, 341, 343, 346, 348, 354, 358, 379, 387, 396, 398, 399, 401, 402, 403, 404, 405, 406, 407, 408, 409, 414, 415, 417, 419, 420, 423, 425, 430, 431, 440,	Western Slopes Dry Sclerophyll Forests <50%	440_DNS	No	1	Inland Slopes, Bogan-Macquarie, Bondo, Capertee Uplands, Capertee Valley, Crookwell, Hill End, Kerrabee, Lower Slopes, Murray Fans, Murrumbateman, Orange, Pilliga, Talbragar Valley and Wollemi. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	443, 449, 455, 456, 457, 459, 462, 463, 467, 468, 469, 470, 471, 472, 473, 476, 477, 478, 479, 480, 482, 515, 531, 532, 576, 577, 581, 592, 610, 617, 671, 673, 676, 712, 713, 714, 746, 863, 889, 940, 956, 1133, 1176, 1277, 1278, 1279, 1307, 1313, 1314, 1316, 1381, 1610, 1654, 1655, 1656, 1660, 1661, 1663, 1668, 1669, 1671, 1672, 1674, 1676, 1679, 1709, 1711, 1770, 1771, 3753, 3754, 3756, 3757, 3758, 3759, 3760, 3761, 3762, 3763, 3766, 3767, 3768, 3769, 3770, 3771, 3772, 3773, 3774, 3775, 3776, 3777, 3778, 3780, 3781, 3782, 3783, 3784, 3785, 3786, 4153					
	Western Slopes Dry Sclerophyll Forests This includes PCT's: 54, 110, 179, 217, 243,	Western Slopes Dry Sclerophyll Forests <50%	440_Mod_Good	Yes	686	Inland Slopes, Bogan-Macquarie, Bondo, Capertee Uplands, Capertee Valley, Crookwell, Hill End, Kerrabee, Lower Slopes, Murray Fans,

	255, 270, 273, 287, 291, 309, 321, 322, 323, 324, 325, 327, 330, 331, 333, 341, 343, 346, 348, 354, 358, 379, 387, 396, 398, 399, 401, 402, 403, 404, 405, 406, 407, 408, 409, 414, 415, 417, 419, 420, 423, 425, 430, 431, 440, 443, 449, 455, 456, 457, 459, 462, 463, 467, 468, 469, 470, 471, 472, 473, 476, 477, 478, 479, 480, 482, 515, 531, 532, 576, 577, 581, 592, 610, 617, 671, 673, 676, 712, 713, 714, 746, 863, 889, 940, 956, 1133, 1176, 1277, 1278, 1279, 1307, 1313, 1314, 1316, 1381, 1610, 1654, 1655, 1656, 1660, 1661, 1663, 1668, 1669, 1671, 1672, 1674, 1676, 1679, 1709, 1711, 1770, 1771, 3753, 3754, 3756, 3757, 3758, 3759, 3760, 3761, 3762, 3763, 3766,					Murrumbateman, Orange, Pilliga, Talbragar Valley and Wollemi. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	3767, 3768, 3769, 3770, 3771, 3772, 3773, 3774, 3775, 3776, 3777, 3778, 3780, 3781, 3782, 3783, 3784, 3785, 3786, 4153					
	Western Slopes Dry Sclerophyll Forests This includes PCT's: 54, 110, 179, 217, 243, 255, 270, 273, 287, 291, 309, 321, 322, 323, 324, 325, 327, 330, 331, 333, 341, 343, 346, 348, 354, 358, 379, 387, 396, 398, 399, 401, 402, 403, 404, 405, 406, 407, 408, 409, 414, 415, 417, 419, 420, 423, 425, 430, 431, 440, 443, 449, 455, 456, 457, 459, 462, 463, 467, 468, 469, 470, 471, 472, 473, 476, 477, 478, 479, 480, 482, 515, 531, 532, 576, 577, 581, 592, 610, 617, 671, 673, 676, 712, 713, 714, 746, 863, 889, 940, 956, 1133, 1176, 1277,	Western Slopes Dry Sclerophyll Forests <50%	440_Poor	No	7	Inland Slopes, Bogan-Macquarie, Bondo, Capertee Uplands, Capertee Valley, Crookwell, Hill End, Kerrabee, Lower Slopes, Murray Fans, Murrumbateman, Orange, Pilliga, Talbragar Valley and Wollemi. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	1278, 1279, 1307, 1313, 1314, 1316, 1381, 1610, 1654, 1655, 1656, 1660, 1661, 1663, 1668, 1669, 1671, 1672, 1674, 1676, 1679, 1709, 1711, 1770, 1771, 3753, 3754, 3756, 3757, 3758, 3759, 3760, 3761, 3762, 3763, 3766, 3767, 3768, 3769, 3770, 3771, 3772, 3773, 3774, 3775, 3776, 3777, 3778, 3780, 3781, 3782, 3783, 3784, 3785, 3786, 4153					
	Western Slopes Dry Sclerophyll Forests This includes PCT's: 54, 110, 179, 217, 243, 255, 270, 273, 287, 291, 309, 321, 322, 323, 324, 325, 327, 330, 331, 333, 341, 343, 346, 348, 354, 358, 379, 387, 396, 398, 399, 401, 402, 403, 404, 405, 406, 407, 408, 409, 414, 415, 417, 419, 420, 423, 425, 430, 431, 440,	Western Slopes Dry Sclerophyll Forests <50%	440_Thinned	Yes	146	Inland Slopes, Bogan-Macquarie, Bondo, Capertee Uplands, Capertee Valley, Crookwell, Hill End, Kerrabee, Lower Slopes, Murray Fans, Murrumbateman, Orange, Pilliga, Talbragar Valley and Wollemi. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	443, 449, 455, 456, 457, 459, 462, 463, 467, 468, 469, 470, 471, 472, 473, 476, 477, 478, 479, 480, 482, 515, 531, 532, 576, 577, 581, 592, 610, 617, 671, 673, 676, 712, 713, 714, 746, 863, 889, 940, 956, 1133, 1176, 1277, 1278, 1279, 1307, 1313, 1314, 1316, 1381, 1610, 1654, 1655, 1656, 1660, 1661, 1663, 1668, 1669, 1671, 1672, 1674, 1676, 1679, 1709, 1711, 1770, 1771, 3753, 3754, 3756, 3757, 3758, 3759, 3760, 3761, 3762, 3763, 3766, 3767, 3768, 3769, 3770, 3771, 3772, 3773, 3774, 3775, 3776, 3777, 3778, 3780, 3781, 3782, 3783, 3784, 3785, 3786, 4153					

461-Tumbledown Gum woodland on hills in the northern NSW South Western Slopes Bioregion and southern Brigalow Belt South Bioregion

Like-for-like credit retirement options

Class	Trading group	Zone	HBT	Credits	IBRA region
Western Slopes Grassy Woodlands This includes PCT's: 201, 202, 266, 267, 268, 272, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 301, 316, 326, 337, 347, 383, 421, 426, 433, 434, 437, 441, 444, 461, 483, 509, 516, 544, 589, 590, 593, 599, 847, 955, 1303, 1304, 1315, 1329, 1383, 1609, 1693, 1695, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3401, 3403, 3404, 3405, 3406, 3485, 4147	Western Slopes Grassy Woodlands >=50% and <70%	461_DNG	No	4	Inland Slopes, Bogan-Macquarie, Bondo, Capertee Uplands, Capertee Valley, Crookwell, Hill End, Kerrabee, Lower Slopes, Murray Fans, Murrumbateman, Orange, Pilliga, Talbragar Valley and Wollemi. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	Western Slopes Grassy Woodlands This includes PCT's: 201, 202, 266, 267, 268, 272, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 301, 316, 326, 337, 347, 383, 421, 426, 433, 434, 437, 441, 444, 461, 483, 509, 516, 544, 589, 590, 593, 599, 847, 955, 1303, 1304, 1315, 1329, 1383, 1609, 1693, 1695, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3401, 3403, 3404, 3405, 3406, 3485, 4147	Western Slopes Grassy Woodlands >=50% and <70%	461_Mod_Good	Yes	123	Inland Slopes, Bogan-Macquarie, Bondo, Capertee Uplands, Capertee Valley, Crookwell, Hill End, Kerrabee, Lower Slopes, Murray Fans, Murrumbateman, Orange, Pilliga, Talbragar Valley and Wollemi. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	Western Slopes Grassy Woodlands This includes PCT's: 201, 202, 266, 267, 268, 272, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 301, 316, 326, 337, 347, 383, 421, 426, 433, 434, 437, 441, 444, 461, 483, 509, 516, 544, 589, 590, 593, 599, 847, 955, 1303, 1304, 1315, 1329, 1383, 1609, 1693, 1695, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3401, 3403, 3404, 3405, 3406, 3485, 4147	Western Slopes Grassy Woodlands >=50% and <70%	461_Thinned	No	1	Inland Slopes, Bogan-Macquarie, Bondo, Capertee Uplands, Capertee Valley, Crookwell, Hill End, Kerrabee, Lower Slopes, Murray Fans, Murrumbateman, Orange, Pilliga, Talbragar Valley and Wollemi. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

478-Red Ironbark - Black Cypress Pine - stringybark +/- Narrow-leaved Wattle shrubby open forest on sandstone in the Gulgong - Mendooran region, southern Brigalow Belt South Bioregion	Like-for-like credit retirement options					
	Class	Trading group	Zone	HBT	Credits	IBRA region
	Western Slopes Dry Sclerophyll Forests This includes PCT's: 54, 110, 179, 217, 243, 255, 270, 273, 287, 291, 309, 321, 322, 323, 324, 325, 327, 330, 331, 333, 341, 343, 346, 348, 354, 358, 379, 387, 396, 398, 399, 401, 402, 403, 404, 405, 406, 407, 408, 409, 414, 415, 417, 419, 420, 423, 425, 430, 431, 440, 443, 449, 455, 456, 457, 459, 462, 463, 467, 468, 469, 470, 471, 472, 473, 476, 477, 478, 479, 480, 482, 515, 531, 532, 576, 577, 581, 592, 610, 617, 671, 673, 676, 712, 713, 714, 746, 863, 889, 940, 956, 1133, 1176, 1277, 1278, 1279, 1307, 1313, 1314, 1316, 1381, 1610,	Western Slopes Dry Sclerophyll Forests <50%	478_Mod_Good	Yes	5	Inland Slopes, Bogan-Macquarie, Bondo, Capertee Uplands, Capertee Valley, Crookwell, Hill End, Kerrabee, Lower Slopes, Murray Fans, Murrumbateman, Orange, Pilliga, Talbragar Valley and Wollemi. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	1654, 1655, 1656, 1660, 1661, 1663, 1668, 1669, 1671, 1672, 1674, 1676, 1679, 1709, 1711, 1770, 1771, 3753, 3754, 3756, 3757, 3758, 3759, 3760, 3761, 3762, 3763, 3766, 3767, 3768, 3769, 3770, 3771, 3772, 3773, 3774, 3775, 3776, 3777, 3778, 3780, 3781, 3782, 3783, 3784, 3785, 3786, 4153					
	Western Slopes Dry Sclerophyll Forests This includes PCT's: 54, 110, 179, 217, 243, 255, 270, 273, 287, 291, 309, 321, 322, 323, 324, 325, 327, 330, 331, 333, 341, 343, 346, 348, 354, 358, 379, 387, 396, 398, 399, 401, 402, 403, 404, 405, 406, 407, 408, 409, 414, 415, 417, 419, 420, 423, 425, 430, 431, 440, 443, 449, 455, 456, 457, 459, 462, 463, 467, 468,	Western Slopes Dry Sclerophyll Forests <50%	478_Thinned	Yes	6	Inland Slopes, Bogan-Macquarie, Bondo, Capertee Uplands, Capertee Valley, Crookwell, Hill End, Kerrabee, Lower Slopes, Murray Fans, Murrumbateman, Orange, Pilliga, Talbragar Valley and Wollemi. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	469, 470, 471, 472, 473, 476, 477, 478, 479, 480, 482, 515, 531, 532, 576, 577, 581, 592, 610, 617, 671, 673, 676, 712, 713, 714, 746, 863, 889, 940, 956, 1133, 1176, 1277, 1278, 1279, 1307, 1313, 1314, 1316, 1381, 1610, 1654, 1655, 1656, 1660, 1661, 1663, 1668, 1669, 1671, 1672, 1674, 1676, 1679, 1709, 1711, 1770, 1771, 3753, 3754, 3756, 3757, 3758, 3759, 3760, 3761, 3762, 3763, 3766, 3767, 3768, 3769, 3770, 3771, 3772, 3773, 3774, 3775, 3776, 3777, 3778, 3780, 3781, 3782, 3783, 3784, 3785, 3786, 4153					

479-Narrow-leaved Ironbark-Black Cypress Pine - stringybark +/- Grey Gum +/- Narrow-leaved Wattle shrubby open forest on sandstone hills in the southern Brigalow Belt South Bioregion and Sydney Basin Bioregion	Like-for-like credit retirement options					
	Class	Trading group	Zone	HBT	Credits	IBRA region
	Western Slopes Dry Sclerophyll Forests This includes PCT's: 54, 110, 179, 217, 243, 255, 270, 273, 287, 291, 309, 321, 322, 323, 324, 325, 327, 330, 331, 333, 341, 343, 346, 348, 354, 358, 379, 387, 396, 398, 399, 401, 402, 403, 404, 405, 406, 407, 408, 409, 414, 415, 417, 419, 420, 423, 425, 430, 431, 440, 443, 449, 455, 456, 457, 459, 462, 463, 467, 468, 469, 470, 471, 472, 473, 476, 477, 478, 479, 480, 482, 515, 531, 532, 576, 577, 581, 592, 610, 617, 671, 673, 676, 712, 713, 714, 746, 863, 889, 940, 956, 1133, 1176, 1277, 1278, 1279, 1307, 1313, 1314, 1316, 1381, 1610,	Western Slopes Dry Sclerophyll Forests <50%	479_DNG	No	0	Inland Slopes, Bogan-Macquarie, Bondo, Capertee Uplands, Capertee Valley, Crookwell, Hill End, Kerrabee, Lower Slopes, Murray Fans, Murrumbateman, Orange, Pilliga, Talbragar Valley and Wollemi. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	1654, 1655, 1656, 1660, 1661, 1663, 1668, 1669, 1671, 1672, 1674, 1676, 1679, 1709, 1711, 1770, 1771, 3753, 3754, 3756, 3757, 3758, 3759, 3760, 3761, 3762, 3763, 3766, 3767, 3768, 3769, 3770, 3771, 3772, 3773, 3774, 3775, 3776, 3777, 3778, 3780, 3781, 3782, 3783, 3784, 3785, 3786, 4153					
	Western Slopes Dry Sclerophyll Forests This includes PCT's: 54, 110, 179, 217, 243, 255, 270, 273, 287, 291, 309, 321, 322, 323, 324, 325, 327, 330, 331, 333, 341, 343, 346, 348, 354, 358, 379, 387, 396, 398, 399, 401, 402, 403, 404, 405, 406, 407, 408, 409, 414, 415, 417, 419, 420, 423, 425, 430, 431, 440, 443, 449, 455, 456, 457, 459, 462, 463, 467, 468,	Western Slopes Dry Sclerophyll Forests <50%	479_Mod_Good	Yes	245	Inland Slopes, Bogan-Macquarie, Bondo, Capertee Uplands, Capertee Valley, Crookwell, Hill End, Kerrabee, Lower Slopes, Murray Fans, Murrumbateman, Orange, Pilliga, Talbragar Valley and Wollemi. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	469, 470, 471, 472, 473, 476, 477, 478, 479, 480, 482, 515, 531, 532, 576, 577, 581, 592, 610, 617, 671, 673, 676, 712, 713, 714, 746, 863, 889, 940, 956, 1133, 1176, 1277, 1278, 1279, 1307, 1313, 1314, 1316, 1381, 1610, 1654, 1655, 1656, 1660, 1661, 1663, 1668, 1669, 1671, 1672, 1674, 1676, 1679, 1709, 1711, 1770, 1771, 3753, 3754, 3756, 3757, 3758, 3759, 3760, 3761, 3762, 3763, 3766, 3767, 3768, 3769, 3770, 3771, 3772, 3773, 3774, 3775, 3776, 3777, 3778, 3780, 3781, 3782, 3783, 3784, 3785, 3786, 4153					
	Western Slopes Dry Sclerophyll Forests This includes PCT's: 54, 110, 179, 217, 243, 255, 270, 273, 287, 291, 309, 321, 322, 323, 324,	Western Slopes Dry Sclerophyll Forests <50%	479_Thinned	Yes	119	Inland Slopes, Bogan-Macquarie, Bondo, Capertee Uplands, Capertee Valley, Crookwell, Hill End, Kerrabee, Lower Slopes, Murray Fans, Murrumbateman, Orange, Pilliga, Talbragar Valley and Wollemi.

	325, 327, 330, 331, 333, 341, 343, 346, 348, 354, 358, 379, 387, 396, 398, 399, 401, 402, 403, 404, 405, 406, 407, 408, 409, 414, 415, 417, 419, 420, 423, 425, 430, 431, 440, 443, 449, 455, 456, 457, 459, 462, 463, 467, 468, 469, 470, 471, 472, 473, 476, 477, 478, 479, 480, 482, 515, 531, 532, 576, 577, 581, 592, 610, 617, 671, 673, 676, 712, 713, 714, 746, 863, 889, 940, 956, 1133, 1176, 1277, 1278, 1279, 1307, 1313, 1314, 1316, 1381, 1610, 1654, 1655, 1656, 1660, 1661, 1663, 1668, 1669, 1671, 1672, 1674, 1676, 1679, 1709, 1711, 1770, 1771, 3753, 3754, 3756, 3757, 3758, 3759, 3760, 3761, 3762, 3763, 3766, 3767, 3768, 3769, 3770, 3771, 3772, 3773, 3774,					or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	3775, 3776, 3777, 3778, 3780, 3781, 3782, 3783, 3784, 3785, 3786, 4153					

481-Rough-barked Apple - Blakely's Red Gum - Narrow-leaved Stringybark +/- Grey Gum sandstone riparian grass fern open forest on in the southern Brigalow Belt South Bioregion and Upper Hunter region

Like-for-like credit retirement options

Class	Trading group	Zone	HBT	Credits	IBRA region
North Coast Dry Sclerophyll Forests This includes PCT's: 481, 2247, 2250, 3557, 3558, 3559, 3560, 3561, 3563, 3564, 3565, 3566, 3567, 3568, 3569, 3570, 3571, 3572, 3573, 3574, 3575, 3576, 3577	North Coast Dry Sclerophyll Forests <50%	481_Mod_Good	Yes	114	Inland Slopes, Bogan-Macquarie, Bondo, Capertee Uplands, Capertee Valley, Crookwell, Hill End, Kerrabee, Lower Slopes, Murray Fans, Murrumbateman, Orange, Pilliga, Talbragar Valley and Wollemi. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	North Coast Dry Sclerophyll Forests This includes PCT's: 481, 2247, 2250, 3557, 3558, 3559, 3560, 3561, 3563, 3564, 3565, 3566, 3567, 3568, 3569, 3570, 3571, 3572, 3573, 3574, 3575, 3576, 3577	North Coast Dry Sclerophyll Forests <50%	481_Thinned	Yes	63	Inland Slopes, Bogan-Macquarie, Bondo, Capertee Uplands, Capertee Valley, Crookwell, Hill End, Kerrabee, Lower Slopes, Murray Fans, Murrumbateman, Orange, Pilliga, Talbragar Valley and Wollemi. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

1177-Slaty Gum woodland of the slopes of the southern Brigalow Belt South Bioregion	**Like-for-like credit retirement options**					
	Class	Trading group	Zone	HBT	Credits	IBRA region
	Southern Tableland Dry Sclerophyll Forests This includes PCT's: 299, 344, 349, 351, 352, 653, 701, 727, 730, 957, 1093, 1177, 3730, 3732, 3734, 3735, 3737, 3738, 3741, 3743, 3744, 3746, 3747	Southern Tableland Dry Sclerophyll Forests >=50% and <70%	1177_DNG	No	10	Inland Slopes, Bogan-Macquarie, Bondo, Capertee Uplands, Capertee Valley, Crookwell, Hill End, Kerrabee, Lower Slopes, Murray Fans, Murrumbateman, Orange, Pilliga, Talbragar Valley and Wollemi. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	Southern Tableland Dry Sclerophyll Forests This includes PCT's: 299, 344, 349, 351, 352, 653, 701, 727, 730, 957, 1093, 1177, 3730, 3732, 3734, 3735, 3737, 3738, 3741, 3743, 3744, 3746, 3747	Southern Tableland Dry Sclerophyll Forests >=50% and <70%	1177_DNS	No	16	Inland Slopes, Bogan-Macquarie, Bondo, Capertee Uplands, Capertee Valley, Crookwell, Hill End, Kerrabee, Lower Slopes, Murray Fans, Murrumbateman, Orange, Pilliga, Talbragar Valley and Wollemi. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
	Southern Tableland Dry Sclerophyll Forests This includes PCT's: 299, 344, 349, 351, 352, 653, 701, 727, 730, 957, 1093, 1177, 3730, 3732, 3734, 3735, 3737, 3738, 3741, 3743, 3744, 3746, 3747	Southern Tableland Dry Sclerophyll Forests >=50% and <70%	1177_Mod_Good	Yes	818	Inland Slopes, Bogan-Macquarie, Bondo, Capertee Uplands, Capertee Valley, Crookwell, Hill End, Kerrabee, Lower Slopes, Murray Fans, Murrumbateman, Orange, Pilliga, Talbragar Valley and Wollemi. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	Southern Tableland Dry Sclerophyll Forests This includes PCT's: 299, 344, 349, 351, 352, 653, 701, 727, 730, 957, 1093, 1177, 3730, 3732, 3734, 3735, 3737, 3738, 3741, 3743, 3744, 3746, 3747	Southern Tableland Dry Sclerophyll Forests >=50% and <70%	1177_Thinned	No	43	Inland Slopes, Bogan-Macquarie, Bondo, Capertee Uplands, Capertee Valley, Crookwell, Hill End, Kerrabee, Lower Slopes, Murray Fans, Murrumbateman, Orange, Pilliga, Talbragar Valley and Wollemi. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

Species Credit Summary

Species	Vegetation Zone/s	Area / Count	Credits
Acacia ausfeldii / Ausfeld's Wattle	**281_DNG, 281_Mod_Good, 281_Thinned, 481_Mod_Good, 481_Thinned**	3.5	94.00
Anthochaera phrygia / Regent Honeyeater	**461_Mod_Good, 281_Mod_Good, 281_Thinned**	2.4	112.00
Aprasia parapulchella / Pink-tailed Legless Lizard	**440_Mod_Good, 440_Poor, 440_Thinned**	13.3	391.00

Calyptorhynchus lathami / Glossy Black-Cockatoo	**266_Mod_Good, 266_Thinned, 1177_Thinned, 81_Mod_Good**	5.6	122.00
Cercartetus nanus / Eastern Pygmy-possum	**81_Thinned, 266_Mod_Good, 266_Thinned, 440_Mod_Good, 440_Poor, 440_Thinned, 461_Mod_Good, 81_Mod_Good, 461_Thinned**	56.7	1540.00
Chalinolobus dwyeri / Large-eared Pied Bat	**277_Mod_Good, 277_Thinned, 281_Thinned, 440_Mod_Good, 440_Poor, 440_Thinned, 461_Mod_Good, 281_Poor, 461_Thinned**	41.5	1689.00
Dichanthium setosum / Bluegrass	**81_DNG, 81_Thinned, 281_DNG, 461_Mod_Good, 281_Mod_Good, 281_Thinned, 81_Mod_Good, 281_Poor**	51.9	878.00
Eucalyptus cannonii / Capertee Stringybark	**281_DNG, 440_Mod_Good, 478_Thinned, 440_DNS**	9.0	14.00
Euphrasia arguta / Euphrasia arguta	**266_Mod_Good, 277_Mod_Good, 281_Mod_Good**	6.4	292.00

Hoplocephalus bitorquatus / Pale-headed Snake	**440_Mod_Good, 440_Poor, 440_Thinned**	37.2	1117.00
Ninox connivens / Barking Owl	**266_DNG, 266_Mod_Good, 266_Thinned, 277_DNG, 277_Mod_Good, 277_Thinned, 281_DNG, 281_Thinned, 1177_Mod_Good, 1177_Thinned, 81_Mod_Good**	17.4	386.00
Petaurus norfolcensis / Squirrel Glider	**81_Thinned, 266_Mod_Good, 266_Thinned, 277_Mod_Good, 277_Thinned, 281_Mod_Good, 281_Thinned, 440_Mod_Good, 440_Poor, 440_Thinned, 461_Mod_Good, 1177_Mod_Good, 1177_Thinned, 81_Mod_Good, 281_Poor, 461_Thinned**	138.4	3718.00
Petrogale penicillata / Brush-tailed Rock-wallaby	**277_Thinned, 281_Thinned, 440_Mod_Good, 440_Poor, 440_Thinned**	16.9	732.00

Phascolarctos cinereus / Koala	**81_Mod_Good, 81_Thinned, 266_Mod_Good, 266_Thinned, 277_Mod_Good, 277_Thinned, 281_Mod_Good, 281_Poor, 281_Thinned, 440_Mod_Good, 440_Poor, 440_Thinned, 461_Mod_Good, 461_Thinned, 478_Mod_Good, 478_Thinned, 479_Mod_Good, 479_Thinned, 481_Mod_Good, 481_Thinned, 1177_Mod_Good, 1177_Thinned**	116.1	3179.00
Swainsona recta / Small Purple-pea	**266_Mod_Good, 266_Thinned, 277_Mod_Good**	3.9	84.00
Swainsona sericea / Silky Swainson-pea	**440_Mod_Good, 266_Mod_Good, 266_Thinned, 277_Mod_Good, 281_Mod_Good, 281_Thinned**	8.2	211.00

Tyto novaehollandiae / Masked Owl	**81_DNG, 266_DNG, 266_Mod_Good, 266_Thinned, 277_DNG, 277_Mod_Good, 277_Thinned, 281_DNG, 281_Thinned, 1177_Mod_Good, 1177_Thinned, 81_Mod_Good**	21.0	421.00

Credit Retirement Options

Like-for-like credit retirement options

Acacia ausfeldii / Ausfeld's Wattle	Spp	IBRA subregion
	Acacia ausfeldii / Ausfeld's Wattle	Any in NSW
Anthochaera phrygia / Regent Honeyeater	Spp	IBRA subregion
	Anthochaera phrygia / Regent Honeyeater	Any in NSW
Aprasia parapulchella / Pink-tailed Legless Lizard	Spp	IBRA subregion
	Aprasia parapulchella / Pink-tailed Legless Lizard	Any in NSW
Calyptorhynchus lathami / Glossy Black-Cockatoo	Spp	IBRA subregion
	Calyptorhynchus lathami / Glossy Black-Cockatoo	Any in NSW

Cercartetus nanus / Eastern Pygmy-possum	Spp	IBRA subregion
	Cercartetus nanus / Eastern Pygmy-possum	Any in NSW
Chalinolobus dwyeri / Large-eared Pied Bat	Spp	IBRA subregion
	Chalinolobus dwyeri / Large-eared Pied Bat	Any in NSW
Dichanthium setosum / Bluegrass	Spp	IBRA subregion
	Dichanthium setosum / Bluegrass	Any in NSW
Eucalyptus cannonii / Capertee Stringybark	Spp	IBRA subregion
	Eucalyptus cannonii / Capertee Stringybark	Any in NSW
Euphrasia arguta / Euphrasia arguta	Spp	IBRA subregion
	Euphrasia arguta / Euphrasia arguta	Any in NSW
Hoplocephalus bitorquatus / Pale-headed Snake	Spp	IBRA subregion
	Hoplocephalus bitorquatus / Pale-headed Snake	Any in NSW
Ninox connivens / Barking Owl	Spp	IBRA subregion

	Ninox connivens / Barking Owl	Any in NSW
Petaurus norfolcensis / Squirrel Glider	Spp	IBRA subregion
	Petaurus norfolcensis / Squirrel Glider	Any in NSW
Petrogale penicillata / Brush-tailed Rock-wallaby	Spp	IBRA subregion
	Petrogale penicillata / Brush-tailed Rock-wallaby	Any in NSW
Phascolarctos cinereus / Koala	Spp	IBRA subregion
	Phascolarctos cinereus / Koala	Any in NSW
Swainsona recta / Small Purple-pea	Spp	IBRA subregion
	Swainsona recta / Small Purple-pea	Any in NSW
Swainsona sericea / Silky Swainson-pea	Spp	IBRA subregion
	Swainsona sericea / Silky Swainson-pea	Any in NSW
Tyto novaehollandiae / Masked Owl	Spp	IBRA subregion
	Tyto novaehollandiae / Masked Owl	Any in NSW

BAM Biodiversity Credit Report (Variations)

Proposal Details

Assessment Id
00038208/BAAS17060/23/00038209

Proposal Name
CWOREZ Inland Slopes subregion - RNI1

BAM data last updated *
22/06/2023

Assessor Name
Lukas Leslie Clews

Assessor Number
BAAS17060

BAM Data version *
61

Proponent Name(s)

Report Created
15/08/2023

BAM Case Status
Open

Assessment Revision
2

Assessment Type
Major Projects

Date Finalised
To be finalised

* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.

Potential Serious and Irreversible Impacts

Name of threatened ecological community	Listing status	Name of Plant Community Type/ID
White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla	Critically Endangered Ecological Community	266-White Box grassy woodland in the upper slopes sub-region of the NSW South Western Slopes Bioregion
White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla	Critically Endangered Ecological Community	277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion

White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla	Critically Endangered Ecological Community	281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion

Species
Chalinolobus dwyeri / Large-eared Pied Bat
Petrogale penicillata / Brush-tailed Rock-wallaby
Anthochaera phrygia / Regent Honeyeater
Euphrasia arguta / Euphrasia arguta

Additional Information for Approval

PCT Outside Ibra Added

PCT
81-Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion
266-White Box grassy woodland in the upper slopes sub-region of the NSW South Western Slopes Bioregion
277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
461-Tumbledown Gum woodland on hills in the northern NSW South Western Slopes Bioregion and southern Brigalow Belt South Bioregion

PCTs With Customized Benchmarks

PCT
No Changes

Predicted Threatened Species Not On Site

BAM Biodiversity Credit Report (Variations)

Name
Glossopsitta porphyrocephala / Purple-crowned Lorikeet

Ecosystem Credit Summary (Number and class of biodiversity credits to be retired)

Name of Plant Community Type/ID	Name of threatened ecological community	Area of impact	HBT Cr	No HBT Cr	Total credits to be retired
81-Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion	Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions	7.3	67	0	67.00
266-White Box grassy woodland in the upper slopes sub-region of the NSW South Western Slopes Bioregion	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla	29.5	324	202	526.00
277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla	70.9	175	815	990.00
281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla	74.8	1216	615	1831.00
440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion	Not a TEC	50.3	832	8	840.00

461-Tumbledown Gum woodland on hills in the northern NSW South Western Slopes Bioregion and southern Brigalow Belt South Bioregion	Not a TEC	6.5	123	5	128.00
478-Red Ironbark - Black Cypress Pine - stringybark +/- Narrow-leaved Wattle shrubby open forest on sandstone in the Gulgong - Mendooran region, southern Brigalow Belt South Bioregion	Not a TEC	0.5	11	0	11.00
479-Narrow-leaved Ironbark- Black Cypress Pine - stringybark +/- Grey Gum +/- Narrow-leaved Wattle shrubby open forest on sandstone hills in the southern Brigalow Belt South Bioregion and Sydney Basin Bioregion	Not a TEC	18.5	364	0	364.00
481-Rough-barked Apple - Blakely's Red Gum - Narrow-leaved Stringybark +/- Grey Gum sandstone riparian grass fern open forest on in the southern Brigalow Belt South Bioregion and Upper Hunter region	Not a TEC	9.5	177	0	177.00
1177-Slaty Gum woodland of the slopes of the southern Brigalow Belt South Bioregion	Not a TEC	41.7	818	69	887.00

81-Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion

Like-for-like credit retirement options

Class	Trading group	Zone	HBT	Credits	IBRA region

Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions This includes PCT's: 76, 80, 81, 82, 101, 110, 237, 248, 3405	-	81_DNG	No	0	Inland Slopes,Bogan-Macquarie, Bondo, Capertee Uplands, Capertee Valley, Crookwell, Hill End, Kerrabee, Lower Slopes, Murray Fans, Murrumbateman, Orange, Pilliga, Talbragar Valley and Wollemi. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions This includes PCT's: 76, 80, 81, 82, 101, 110, 237, 248, 3405	-	81_Mod_Good	Yes	58	Inland Slopes,Bogan-Macquarie, Bondo, Capertee Uplands, Capertee Valley, Crookwell, Hill End, Kerrabee, Lower Slopes, Murray Fans, Murrumbateman, Orange, Pilliga, Talbragar Valley and Wollemi. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions This includes PCT's: 76, 80, 81, 82, 101, 110, 237, 248, 3405	-	81_Thinned	Yes	9	Inland Slopes,Bogan-Macquarie, Bondo, Capertee Uplands, Capertee Valley, Crookwell, Hill End, Kerrabee, Lower Slopes, Murray Fans, Murrumbateman, Orange, Pilliga, Talbragar Valley and Wollemi. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	Variation options					
	Formation	Trading group	Zone	HBT	Credits	IBRA region
	Grassy Woodlands	Tier 3 or higher threat status	81_DNG	No	0	IBRA Region: NSW South Western Slopes, or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
	Grassy Woodlands	Tier 3 or higher threat status	81_Mod_Good	Yes (including artificial)	58	IBRA Region: NSW South Western Slopes, or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
	Grassy Woodlands	Tier 3 or higher threat status	81_Thinned	Yes (including artificial)	9	IBRA Region: NSW South Western Slopes, or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
266-White Box grassy woodland in the upper slopes sub-region of the NSW South Western Slopes Bioregion	**Like-for-like credit retirement options**					
	Class	Trading group	Zone	HBT	Credits	IBRA region
	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt	-	266_DNG	No	191	Inland Slopes,Bogan-Macquarie, Bondo, Capertee Uplands, Capertee Valley, Crookwell, Hill End, Kerrabee, Lower Slopes, Murray Fans, Murrumbateman, Orange, Pilliga, Talbragar Valley and Wollemi. or

	South, Sydney Basin, South Eastern Highla This includes PCT's: 74, 75, 83, 250, 266, 267, 268, 270, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 298, 302, 312, 341, 342, 347, 350, 352, 356, 367, 381, 382, 395, 401, 403, 421, 433, 434, 435, 436, 437, 451, 483, 484, 488, 492, 496, 508, 509, 510, 511, 528, 538, 544, 563, 567, 571, 589, 590, 597, 599, 618, 619, 622, 633, 654, 702, 703, 704, 705, 710, 711, 796, 797, 799, 847, 851, 921, 1099, 1303, 1304, 1307, 1324, 1329, 1330, 1332, 1383, 1606, 1608, 1611, 1691, 1693, 1695, 1698, 3314, 3359, 3363, 3373, 3376, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3406, 3415, 3533, 4147, 4149, 4150					Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived	-	266_DNS	No	11	Inland Slopes,Bogan-Macquarie, Bondo, Capertee Uplands, Capertee Valley, Crookwell, Hill End, Kerrabee, Lower

	Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla This includes PCT's: 74, 75, 83, 250, 266, 267, 268, 270, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 298, 302, 312, 341, 342, 347, 350, 352, 356, 367, 381, 382, 395, 401, 403, 421, 433, 434, 435, 436, 437, 451, 483, 484, 488, 492, 496, 508, 509, 510, 511, 528, 538, 544, 563, 567, 571, 589, 590, 597, 599, 618, 619, 622, 633, 654, 702, 703, 704, 705, 710, 711, 796, 797, 799, 847, 851, 921, 1099, 1303, 1304, 1307, 1324, 1329, 1330, 1332, 1383, 1606, 1608, 1611, 1691, 1693, 1695, 1698, 3314, 3359, 3363, 3373, 3376, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3406, 3415, 3533, 4147, 4149,					Slopes, Murray Fans, Murrumbateman, Orange, Pilliga, Talbragar Valley and Wollemi. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	4150					
	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla This includes PCT's: 74, 75, 83, 250, 266, 267, 268, 270, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 298, 302, 312, 341, 342, 347, 350, 352, 356, 367, 381, 382, 395, 401, 403, 421, 433, 434, 435, 436, 437, 451, 483, 484, 488, 492, 496, 508, 509, 510, 511, 528, 538, 544, 563, 567, 571, 589, 590, 597, 599, 618, 619, 622, 633, 654, 702, 703, 704, 705, 710, 711, 796, 797, 799, 847, 851, 921, 1099, 1303, 1304, 1307, 1324, 1329, 1330, 1332, 1383, 1606, 1608, 1611, 1691, 1693, 1695, 1698, 3314, 3359,	-	266_Mod_Good	Yes	155	Inland Slopes,Bogan-Macquarie, Bondo, Capertee Uplands, Capertee Valley, Crookwell, Hill End, Kerrabee, Lower Slopes, Murray Fans, Murrumbateman, Orange, Pilliga, Talbragar Valley and Wollemi. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	3363, 3373, 3376, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3406, 3415, 3533, 4147, 4149, 4150					
	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla This includes PCT's: 74, 75, 83, 250, 266, 267, 268, 270, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 298, 302, 312, 341, 342, 347, 350, 352, 356, 367, 381, 382, 395, 401, 403, 421, 433, 434, 435, 436, 437, 451, 483, 484, 488, 492, 496, 508, 509, 510, 511, 528, 538, 544, 563, 567, 571, 589, 590, 597, 599, 618, 619, 622, 633, 654, 702, 703, 704, 705, 710, 711, 796, 797, 799, 847, 851, 921, 1099, 1303,	-	266_Thinned	Yes	169	Inland Slopes,Bogan-Macquarie, Bondo, Capertee Uplands, Capertee Valley, Crookwell, Hill End, Kerrabee, Lower Slopes, Murray Fans, Murrumbateman, Orange, Pilliga, Talbragar Valley and Wollemi. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	1304, 1307, 1324, 1329, 1330, 1332, 1383, 1606, 1608, 1611, 1691, 1693, 1695, 1698, 3314, 3359, 3363, 3373, 3376, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3406, 3415, 3533, 4147, 4149, 4150					
277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion	**Like-for-like credit retirement options**					
	Class	Trading group	Zone	HBT	Credits	IBRA region
	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla This includes PCT's: 74, 75, 83, 250, 266, 267, 268, 270, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 298, 302, 312, 341, 342, 347, 350, 352, 356, 367, 381, 382, 395, 401, 403, 421, 433, 434, 435, 436, 437, 451, 483, 484, 488, 492,	-	277_DNG	No	593	Inland Slopes,Bogan-Macquarie, Bondo, Capertee Uplands, Capertee Valley, Crookwell, Hill End, Kerrabee, Lower Slopes, Murray Fans, Murrumbateman, Orange, Pilliga, Talbragar Valley and Wollemi. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	496, 508, 509, 510, 511, 528, 538, 544, 563, 567, 571, 589, 590, 597, 599, 618, 619, 622, 633, 654, 702, 703, 704, 705, 710, 711, 796, 797, 799, 847, 851, 921, 1099, 1303, 1304, 1307, 1324, 1329, 1330, 1332, 1383, 1606, 1608, 1611, 1691, 1693, 1695, 1698, 3314, 3359, 3363, 3373, 3376, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3406, 3415, 3533, 4147, 4149, 4150					
	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla This includes PCT's: 74, 75, 83, 250, 266, 267, 268, 270, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 298, 302, 312, 341, 342, 347,	-	277_Mod_ Good	Yes	175	Inland Slopes,Bogan-Macquarie, Bondo, Capertee Uplands, Capertee Valley, Crookwell, Hill End, Kerrabee, Lower Slopes, Murray Fans, Murrumbateman, Orange, Pilliga, Talbragar Valley and Wollemi. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	350, 352, 356, 367, 381, 382, 395, 401, 403, 421, 433, 434, 435, 436, 437, 451, 483, 484, 488, 492, 496, 508, 509, 510, 511, 528, 538, 544, 563, 567, 571, 589, 590, 597, 599, 618, 619, 622, 633, 654, 702, 703, 704, 705, 710, 711, 796, 797, 799, 847, 851, 921, 1099, 1303, 1304, 1307, 1324, 1329, 1330, 1332, 1383, 1606, 1608, 1611, 1691, 1693, 1695, 1698, 3314, 3359, 3363, 3373, 3376, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3406, 3415, 3533, 4147, 4149, 4150					
	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla This includes PCT's: 74, 75, 83, 250, 266, 267,	-	277_Thinned	No	222	Inland Slopes,Bogan-Macquarie, Bondo, Capertee Uplands, Capertee Valley, Crookwell, Hill End, Kerrabee, Lower Slopes, Murray Fans, Murrumbateman, Orange, Pilliga, Talbragar Valley and Wollemi. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	268, 270, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 298, 302, 312, 341, 342, 347, 350, 352, 356, 367, 381, 382, 395, 401, 403, 421, 433, 434, 435, 436, 437, 451, 483, 484, 488, 492, 496, 508, 509, 510, 511, 528, 538, 544, 563, 567, 571, 589, 590, 597, 599, 618, 619, 622, 633, 654, 702, 703, 704, 705, 710, 711, 796, 797, 799, 847, 851, 921, 1099, 1303, 1304, 1307, 1324, 1329, 1330, 1332, 1383, 1606, 1608, 1611, 1691, 1693, 1695, 1698, 3314, 3359, 3363, 3373, 3376, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3406, 3415, 3533, 4147, 4149, 4150					

281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion	Like-for-like credit retirement options					
	Class	Trading group	Zone	HBT	Credits	IBRA region
	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla This includes PCT's: 74, 75, 83, 250, 266, 267, 268, 270, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 298, 302, 312, 341, 342, 347, 350, 352, 356, 367, 381, 382, 395, 401, 403, 421, 433, 434, 435, 436, 437, 451, 483, 484, 488, 492, 496, 508, 509, 510, 511, 528, 538, 544, 563, 567, 571, 589, 590, 597, 599, 618, 619, 622, 633, 654, 702, 703, 704, 705, 710, 711, 796, 797, 799, 847, 851, 921, 1099, 1303, 1304, 1307, 1324, 1329, 1330, 1332, 1383, 1606,	-	281_DNG	No	615	Inland Slopes,Bogan-Macquarie, Bondo, Capertee Uplands, Capertee Valley, Crookwell, Hill End, Kerrabee, Lower Slopes, Murray Fans, Murrumbateman, Orange, Pilliga, Talbragar Valley and Wollemi. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	1608, 1611, 1691, 1693, 1695, 1698, 3314, 3359, 3363, 3373, 3376, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3406, 3415, 3533, 4147, 4149, 4150					
	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla This includes PCT's: 74, 75, 83, 250, 266, 267, 268, 270, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 298, 302, 312, 341, 342, 347, 350, 352, 356, 367, 381, 382, 395, 401, 403, 421, 433, 434, 435, 436, 437, 451, 483, 484, 488, 492, 496, 508, 509, 510, 511, 528, 538, 544, 563, 567, 571, 589, 590, 597, 599, 618, 619, 622, 633, 654, 702, 703, 704, 705, 710,	-	281_Mod_Good	Yes	226	Inland Slopes,Bogan-Macquarie, Bondo, Capertee Uplands, Capertee Valley, Crookwell, Hill End, Kerrabee, Lower Slopes, Murray Fans, Murrumbateman, Orange, Pilliga, Talbragar Valley and Wollemi. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	711, 796, 797, 799, 847, 851, 921, 1099, 1303, 1304, 1307, 1324, 1329, 1330, 1332, 1383, 1606, 1608, 1611, 1691, 1693, 1695, 1698, 3314, 3359, 3363, 3373, 3376, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3406, 3415, 3533, 4147, 4149, 4150					
	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla This includes PCT's: 74, 75, 83, 250, 266, 267, 268, 270, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 298, 302, 312, 341, 342, 347, 350, 352, 356, 367, 381, 382, 395, 401, 403, 421, 433, 434, 435, 436, 437, 451, 483, 484, 488, 492, 496, 508, 509, 510, 511,	-	281_Poor	Yes	3	Inland Slopes,Bogan-Macquarie, Bondo, Capertee Uplands, Capertee Valley, Crookwell, Hill End, Kerrabee, Lower Slopes, Murray Fans, Murrumbateman, Orange, Pilliga, Talbragar Valley and Wollemi. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	528, 538, 544, 563, 567, 571, 589, 590, 597, 599, 618, 619, 622, 633, 654, 702, 703, 704, 705, 710, 711, 796, 797, 799, 847, 851, 921, 1099, 1303, 1304, 1307, 1324, 1329, 1330, 1332, 1383, 1606, 1608, 1611, 1691, 1693, 1695, 1698, 3314, 3359, 3363, 3373, 3376, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3406, 3415, 3533, 4147, 4149, 4150					
	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla This includes PCT's: 74, 75, 83, 250, 266, 267, 268, 270, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 298, 302, 312, 341, 342, 347, 350, 352, 356, 367, 381,	-	281_Thinned	Yes	987	Inland Slopes,Bogan-Macquarie, Bondo, Capertee Uplands, Capertee Valley, Crookwell, Hill End, Kerrabee, Lower Slopes, Murray Fans, Murrumbateman, Orange, Pilliga, Talbragar Valley and Wollemi. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	382, 395, 401, 403, 421, 433, 434, 435, 436, 437, 451, 483, 484, 488, 492, 496, 508, 509, 510, 511, 528, 538, 544, 563, 567, 571, 589, 590, 597, 599, 618, 619, 622, 633, 654, 702, 703, 704, 705, 710, 711, 796, 797, 799, 847, 851, 921, 1099, 1303, 1304, 1307, 1324, 1329, 1330, 1332, 1383, 1606, 1608, 1611, 1691, 1693, 1695, 1698, 3314, 3359, 3363, 3373, 3376, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3406, 3415, 3533, 4147, 4149, 4150					
440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion	**Like-for-like credit retirement options**					
	Class	Trading group	Zone	HBT	Credits	IBRA region
	Western Slopes Dry Sclerophyll Forests This includes PCT's: 54, 110, 179, 217, 243, 255, 270, 273, 287, 291, 309, 321, 322, 323, 324, 325, 327, 330, 331, 333, 341, 343, 346, 348, 354, 358, 379, 387, 396, 398,	Western Slopes Dry Sclerophyll Forests <50%	440_DNG	No	0	Inland Slopes,Bogan-Macquarie, Bondo, Capertee Uplands, Capertee Valley, Crookwell, Hill End, Kerrabee, Lower Slopes, Murray Fans, Murrumbateman, Orange, Pilliga, Talbragar Valley and Wollemi. or Any IBRA subregion that is within 100 kilometers of the outer edge of the

	399, 401, 402, 403, 404, 405, 406, 407, 408, 409, 414, 415, 417, 419, 420, 423, 425, 430, 431, 440, 443, 449, 455, 456, 457, 459, 462, 463, 467, 468, 469, 470, 471, 472, 473, 476, 477, 478, 479, 480, 482, 515, 531, 532, 576, 577, 581, 592, 610, 617, 671, 673, 676, 712, 713, 714, 746, 863, 889, 940, 956, 1133, 1176, 1277, 1278, 1279, 1307, 1313, 1314, 1316, 1381, 1610, 1654, 1655, 1656, 1660, 1661, 1663, 1668, 1669, 1671, 1672, 1674, 1676, 1679, 1709, 1711, 1770, 1771, 3753, 3754, 3756, 3757, 3758, 3759, 3760, 3761, 3762, 3763, 3766, 3767, 3768, 3769, 3770, 3771, 3772, 3773, 3774, 3775, 3776, 3777, 3778, 3780, 3781, 3782, 3783, 3784, 3785, 3786, 4153					impacted site.
	Western Slopes Dry Sclerophyll Forests This includes PCT's: 54, 110, 179, 217, 243,	Western Slopes Dry Sclerophyll Forests <50%	440_DNS	No	1	Inland Slopes,Bogan-Macquarie, Bondo, Capertee Uplands, Capertee Valley, Crookwell, Hill End, Kerrabee, Lower Slopes, Murray Fans, Murrumbateman,

	255, 270, 273, 287, 291, 309, 321, 322, 323, 324, 325, 327, 330, 331, 333, 341, 343, 346, 348, 354, 358, 379, 387, 396, 398, 399, 401, 402, 403, 404, 405, 406, 407, 408, 409, 414, 415, 417, 419, 420, 423, 425, 430, 431, 440, 443, 449, 455, 456, 457, 459, 462, 463, 467, 468, 469, 470, 471, 472, 473, 476, 477, 478, 479, 480, 482, 515, 531, 532, 576, 577, 581, 592, 610, 617, 671, 673, 676, 712, 713, 714, 746, 863, 889, 940, 956, 1133, 1176, 1277, 1278, 1279, 1307, 1313, 1314, 1316, 1381, 1610, 1654, 1655, 1656, 1660, 1661, 1663, 1668, 1669, 1671, 1672, 1674, 1676, 1679, 1709, 1711, 1770, 1771, 3753, 3754, 3756, 3757, 3758, 3759, 3760, 3761, 3762, 3763, 3766, 3767, 3768, 3769, 3770, 3771, 3772, 3773, 3774, 3775, 3776, 3777, 3778, 3780, 3781, 3782, 3783,					Orange, Pilliga, Talbragar Valley and Wollemi. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	3784, 3785, 3786, 4153					
	Western Slopes Dry Sclerophyll Forests This includes PCT's: 54, 110, 179, 217, 243, 255, 270, 273, 287, 291, 309, 321, 322, 323, 324, 325, 327, 330, 331, 333, 341, 343, 346, 348, 354, 358, 379, 387, 396, 398, 399, 401, 402, 403, 404, 405, 406, 407, 408, 409, 414, 415, 417, 419, 420, 423, 425, 430, 431, 440, 443, 449, 455, 456, 457, 459, 462, 463, 467, 468, 469, 470, 471, 472, 473, 476, 477, 478, 479, 480, 482, 515, 531, 532, 576, 577, 581, 592, 610, 617, 671, 673, 676, 712, 713, 714, 746, 863, 889, 940, 956, 1133, 1176, 1277, 1278, 1279, 1307, 1313, 1314, 1316, 1381, 1610, 1654, 1655, 1656, 1660, 1661, 1663, 1668, 1669, 1671, 1672, 1674, 1676, 1679, 1709, 1711, 1770, 1771, 3753, 3754, 3756, 3757, 3758, 3759, 3760,	Western Slopes Dry Sclerophyll Forests <50%	440_Mod_ Good	Yes	686	Inland Slopes,Bogan-Macquarie, Bondo, Capertee Uplands, Capertee Valley, Crookwell, Hill End, Kerrabee, Lower Slopes, Murray Fans, Murrumbateman, Orange, Pilliga, Talbragar Valley and Wollemi. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	3761, 3762, 3763, 3766, 3767, 3768, 3769, 3770, 3771, 3772, 3773, 3774, 3775, 3776, 3777, 3778, 3780, 3781, 3782, 3783, 3784, 3785, 3786, 4153					
	Western Slopes Dry Sclerophyll Forests This includes PCT's: 54, 110, 179, 217, 243, 255, 270, 273, 287, 291, 309, 321, 322, 323, 324, 325, 327, 330, 331, 333, 341, 343, 346, 348, 354, 358, 379, 387, 396, 398, 399, 401, 402, 403, 404, 405, 406, 407, 408, 409, 414, 415, 417, 419, 420, 423, 425, 430, 431, 440, 443, 449, 455, 456, 457, 459, 462, 463, 467, 468, 469, 470, 471, 472, 473, 476, 477, 478, 479, 480, 482, 515, 531, 532, 576, 577, 581, 592, 610, 617, 671, 673, 676, 712, 713, 714, 746, 863, 889, 940, 956, 1133, 1176, 1277, 1278, 1279, 1307, 1313, 1314, 1316, 1381, 1610, 1654, 1655, 1656, 1660,	Western Slopes Dry Sclerophyll Forests <50%	440_Poor	No	7	Inland Slopes,Bogan-Macquarie, Bondo, Capertee Uplands, Capertee Valley, Crookwell, Hill End, Kerrabee, Lower Slopes, Murray Fans, Murrumbateman, Orange, Pilliga, Talbragar Valley and Wollemi. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	1661, 1663, 1668, 1669, 1671, 1672, 1674, 1676, 1679, 1709, 1711, 1770, 1771, 3753, 3754, 3756, 3757, 3758, 3759, 3760, 3761, 3762, 3763, 3766, 3767, 3768, 3769, 3770, 3771, 3772, 3773, 3774, 3775, 3776, 3777, 3778, 3780, 3781, 3782, 3783, 3784, 3785, 3786, 4153					
	Western Slopes Dry Sclerophyll Forests This includes PCT's: 54, 110, 179, 217, 243, 255, 270, 273, 287, 291, 309, 321, 322, 323, 324, 325, 327, 330, 331, 333, 341, 343, 346, 348, 354, 358, 379, 387, 396, 398, 399, 401, 402, 403, 404, 405, 406, 407, 408, 409, 414, 415, 417, 419, 420, 423, 425, 430, 431, 440, 443, 449, 455, 456, 457, 459, 462, 463, 467, 468, 469, 470, 471, 472, 473, 476, 477, 478, 479, 480, 482, 515, 531, 532, 576, 577, 581, 592, 610, 617, 671, 673, 676, 712, 713,	Western Slopes Dry Sclerophyll Forests <50%	440_Thinned	Yes	146	Inland Slopes,Bogan-Macquarie, Bondo, Capertee Uplands, Capertee Valley, Crookwell, Hill End, Kerrabee, Lower Slopes, Murray Fans, Murrumbateman, Orange, Pilliga, Talbragar Valley and Wollemi. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

714, 746, 863, 889, 940, 956, 1133, 1176, 1277, 1278, 1279, 1307, 1313, 1314, 1316, 1381, 1610, 1654, 1655, 1656, 1660, 1661, 1663, 1668, 1669, 1671, 1672, 1674, 1676, 1679, 1709, 1711, 1770, 1771, 3753, 3754, 3756, 3757, 3758, 3759, 3760, 3761, 3762, 3763, 3766, 3767, 3768, 3769, 3770, 3771, 3772, 3773, 3774, 3775, 3776, 3777, 3778, 3780, 3781, 3782, 3783, 3784, 3785, 3786, 4153					

Variation options

Formation	Trading group	Zone	HBT	Credits	IBRA region
Dry Sclerophyll Forests (Shrubby sub-formation)	Tier 4 or higher threat status	440_DNG	No	0	IBRA Region: NSW South Western Slopes, or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Dry Sclerophyll Forests (Shrubby sub-formation)	Tier 4 or higher threat status	440_DNS	No	1	IBRA Region: NSW South Western Slopes, or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	Dry Sclerophyll Forests (Shrubby sub-formation)	Tier 4 or higher threat status	440_Mod_Good	Yes (including artificial)	686	IBRA Region: NSW South Western Slopes, or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
	Dry Sclerophyll Forests (Shrubby sub-formation)	Tier 4 or higher threat status	440_Poor	No	7	IBRA Region: NSW South Western Slopes, or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
	Dry Sclerophyll Forests (Shrubby sub-formation)	Tier 4 or higher threat status	440_Thinned	Yes (including artificial)	146	IBRA Region: NSW South Western Slopes, or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

461-Tumbledown Gum woodland on hills in the northern NSW South Western Slopes Bioregion and southern Brigalow Belt South Bioregion	**Like-for-like credit retirement options**					
	Class	Trading group	Zone	HBT	Credits	IBRA region

Western Slopes Grassy Woodlands This includes PCT's: 201, 202, 266, 267, 268, 272, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 301, 316, 326, 337, 347, 383, 421, 426, 433, 434, 437, 441, 444, 461, 483, 509, 516, 544, 589, 590, 593, 599, 847, 955, 1303, 1304, 1315, 1329, 1383, 1609, 1693, 1695, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3401, 3403, 3404, 3405, 3406, 3485, 4147	Western Slopes Grassy Woodlands >=50% and <70%	461_DNG	No	4	Inland Slopes,Bogan-Macquarie, Bondo, Capertee Uplands, Capertee Valley, Crookwell, Hill End, Kerrabee, Lower Slopes, Murray Fans, Murrumbateman, Orange, Pilliga, Talbragar Valley and Wollemi. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

Western Slopes Grassy Woodlands This includes PCT's: 201, 202, 266, 267, 268, 272, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 301, 316, 326, 337, 347, 383, 421, 426, 433, 434, 437, 441, 444, 461, 483, 509, 516, 544, 589, 590, 593, 599, 847, 955, 1303, 1304, 1315, 1329, 1383, 1609, 1693, 1695, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3401, 3403, 3404, 3405, 3406, 3485, 4147	Western Slopes Grassy Woodlands >=50% and <70%	461_Mod_Good	Yes	123	Inland Slopes,Bogan-Macquarie, Bondo, Capertee Uplands, Capertee Valley, Crookwell, Hill End, Kerrabee, Lower Slopes, Murray Fans, Murrumbateman, Orange, Pilliga, Talbragar Valley and Wollemi. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

Western Slopes Grassy Woodlands This includes PCT's: 201, 202, 266, 267, 268, 272, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 301, 316, 326, 337, 347, 383, 421, 426, 433, 434, 437, 441, 444, 461, 483, 509, 516, 544, 589, 590, 593, 599, 847, 955, 1303, 1304, 1315, 1329, 1383, 1609, 1693, 1695, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3401, 3403, 3404, 3405, 3406, 3485, 4147	Western Slopes Grassy Woodlands >=50% and <70%	461_Thinned	No	1	Inland Slopes,Bogan-Macquarie, Bondo, Capertee Uplands, Capertee Valley, Crookwell, Hill End, Kerrabee, Lower Slopes, Murray Fans, Murrumbateman, Orange, Pilliga, Talbragar Valley and Wollemi. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

Variation options

Formation	Trading group	Zone	HBT	Credits	IBRA region
Grassy Woodlands	Tier 3 or higher threat status	461_DNG	No	4	IBRA Region: NSW South Western Slopes, or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	Grassy Woodlands	Tier 3 or higher threat status	461_Mod_Good	Yes (including artificial)	123	IBRA Region: NSW South Western Slopes, or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
	Grassy Woodlands	Tier 3 or higher threat status	461_Thinned	No	1	IBRA Region: NSW South Western Slopes, or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
478-Red Ironbark - Black Cypress Pine - stringybark +/- Narrow-leaved Wattle shrubby open forest on sandstone in the Gulgong - Mendooran region, southern Brigalow Belt South Bioregion	**Like-for-like credit retirement options**					
	Class	Trading group	Zone	HBT	Credits	IBRA region
	Western Slopes Dry Sclerophyll Forests This includes PCT's: 54, 110, 179, 217, 243, 255, 270, 273, 287, 291, 309, 321, 322, 323, 324, 325, 327, 330, 331, 333, 341, 343, 346, 348, 354, 358, 379, 387, 396, 398, 399, 401, 402, 403, 404, 405, 406, 407, 408, 409, 414, 415, 417, 419, 420, 423, 425, 430, 431, 440, 443, 449, 455, 456, 457, 459, 462, 463, 467, 468, 469, 470, 471, 472, 473,	Western Slopes Dry Sclerophyll Forests <50%	478_Mod_Good	Yes	5	Inland Slopes,Bogan-Macquarie, Bondo, Capertee Uplands, Capertee Valley, Crookwell, Hill End, Kerrabee, Lower Slopes, Murray Fans, Murrumbateman, Orange, Pilliga, Talbragar Valley and Wollemi. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	476, 477, 478, 479, 480, 482, 515, 531, 532, 576, 577, 581, 592, 610, 617, 671, 673, 676, 712, 713, 714, 746, 863, 889, 940, 956, 1133, 1176, 1277, 1278, 1279, 1307, 1313, 1314, 1316, 1381, 1610, 1654, 1655, 1656, 1660, 1661, 1663, 1668, 1669, 1671, 1672, 1674, 1676, 1679, 1709, 1711, 1770, 1771, 3753, 3754, 3756, 3757, 3758, 3759, 3760, 3761, 3762, 3763, 3766, 3767, 3768, 3769, 3770, 3771, 3772, 3773, 3774, 3775, 3776, 3777, 3778, 3780, 3781, 3782, 3783, 3784, 3785, 3786, 4153					
	Western Slopes Dry Sclerophyll Forests This includes PCT's: 54, 110, 179, 217, 243, 255, 270, 273, 287, 291, 309, 321, 322, 323, 324, 325, 327, 330, 331, 333, 341, 343, 346, 348, 354, 358, 379, 387, 396, 398, 399, 401, 402, 403, 404, 405, 406, 407, 408, 409,	Western Slopes Dry Sclerophyll Forests <50%	478_Thinned	Yes	6	Inland Slopes,Bogan-Macquarie, Bondo, Capertee Uplands, Capertee Valley, Crookwell, Hill End, Kerrabee, Lower Slopes, Murray Fans, Murrumbateman, Orange, Pilliga, Talbragar Valley and Wollemi. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	414, 415, 417, 419, 420, 423, 425, 430, 431, 440, 443, 449, 455, 456, 457, 459, 462, 463, 467, 468, 469, 470, 471, 472, 473, 476, 477, 478, 479, 480, 482, 515, 531, 532, 576, 577, 581, 592, 610, 617, 671, 673, 676, 712, 713, 714, 746, 863, 889, 940, 956, 1133, 1176, 1277, 1278, 1279, 1307, 1313, 1314, 1316, 1381, 1610, 1654, 1655, 1656, 1660, 1661, 1663, 1668, 1669, 1671, 1672, 1674, 1676, 1679, 1709, 1711, 1770, 1771, 3753, 3754, 3756, 3757, 3758, 3759, 3760, 3761, 3762, 3763, 3766, 3767, 3768, 3769, 3770, 3771, 3772, 3773, 3774, 3775, 3776, 3777, 3778, 3780, 3781, 3782, 3783, 3784, 3785, 3786, 4153					
	Variation options					
	Formation	Trading group	Zone	HBT	Credits	IBRA region

	Dry Sclerophyll Forests (Shrubby sub-formation)	Tier 4 or higher threat status	478_Mod_Good	Yes (including artificial)	5	IBRA Region: NSW South Western Slopes, or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
	Dry Sclerophyll Forests (Shrubby sub-formation)	Tier 4 or higher threat status	478_Thinned	Yes (including artificial)	6	IBRA Region: NSW South Western Slopes, or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
479-Narrow-leaved Ironbark-Black Cypress Pine - stringybark +/- Grey Gum +/- Narrow-leaved Wattle shrubby open forest on sandstone hills in the southern Brigalow Belt South Bioregion and Sydney Basin Bioregion	**Like-for-like credit retirement options**					
	Class	Trading group	Zone	HBT	Credits	IBRA region
	Western Slopes Dry Sclerophyll Forests This includes PCT's: 54, 110, 179, 217, 243, 255, 270, 273, 287, 291, 309, 321, 322, 323, 324, 325, 327, 330, 331, 333, 341, 343, 346, 348, 354, 358, 379, 387, 396, 398, 399, 401, 402, 403, 404, 405, 406, 407, 408, 409, 414, 415, 417, 419, 420, 423, 425, 430, 431, 440, 443, 449, 455, 456, 457, 459, 462, 463, 467, 468, 469, 470, 471, 472, 473,	Western Slopes Dry Sclerophyll Forests <50%	479_DNG	No	0	Inland Slopes,Bogan-Macquarie, Bondo, Capertee Uplands, Capertee Valley, Crookwell, Hill End, Kerrabee, Lower Slopes, Murray Fans, Murrumbateman, Orange, Pilliga, Talbragar Valley and Wollemi. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	476, 477, 478, 479, 480, 482, 515, 531, 532, 576, 577, 581, 592, 610, 617, 671, 673, 676, 712, 713, 714, 746, 863, 889, 940, 956, 1133, 1176, 1277, 1278, 1279, 1307, 1313, 1314, 1316, 1381, 1610, 1654, 1655, 1656, 1660, 1661, 1663, 1668, 1669, 1671, 1672, 1674, 1676, 1679, 1709, 1711, 1770, 1771, 3753, 3754, 3756, 3757, 3758, 3759, 3760, 3761, 3762, 3763, 3766, 3767, 3768, 3769, 3770, 3771, 3772, 3773, 3774, 3775, 3776, 3777, 3778, 3780, 3781, 3782, 3783, 3784, 3785, 3786, 4153					
	Western Slopes Dry Sclerophyll Forests This includes PCT's: 54, 110, 179, 217, 243, 255, 270, 273, 287, 291, 309, 321, 322, 323, 324, 325, 327, 330, 331, 333, 341, 343, 346, 348, 354, 358, 379, 387, 396, 398, 399, 401, 402, 403, 404, 405, 406, 407, 408, 409,	Western Slopes Dry Sclerophyll Forests <50%	479_Mod_Good	Yes	245	Inland Slopes,Bogan-Macquarie, Bondo, Capertee Uplands, Capertee Valley, Crookwell, Hill End, Kerrabee, Lower Slopes, Murray Fans, Murrumbateman, Orange, Pilliga, Talbragar Valley and Wollemi. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	414, 415, 417, 419, 420, 423, 425, 430, 431, 440, 443, 449, 455, 456, 457, 459, 462, 463, 467, 468, 469, 470, 471, 472, 473, 476, 477, 478, 479, 480, 482, 515, 531, 532, 576, 577, 581, 592, 610, 617, 671, 673, 676, 712, 713, 714, 746, 863, 889, 940, 956, 1133, 1176, 1277, 1278, 1279, 1307, 1313, 1314, 1316, 1381, 1610, 1654, 1655, 1656, 1660, 1661, 1663, 1668, 1669, 1671, 1672, 1674, 1676, 1679, 1709, 1711, 1770, 1771, 3753, 3754, 3756, 3757, 3758, 3759, 3760, 3761, 3762, 3763, 3766, 3767, 3768, 3769, 3770, 3771, 3772, 3773, 3774, 3775, 3776, 3777, 3778, 3780, 3781, 3782, 3783, 3784, 3785, 3786, 4153					
	Western Slopes Dry Sclerophyll Forests This includes PCT's: 54, 110, 179, 217, 243, 255, 270, 273, 287, 291, 309, 321, 322, 323, 324,	Western Slopes Dry Sclerophyll Forests <50%	479_Thinned	Yes	119	Inland Slopes,Bogan-Macquarie, Bondo, Capertee Uplands, Capertee Valley, Crookwell, Hill End, Kerrabee, Lower Slopes, Murray Fans, Murrumbateman, Orange, Pilliga, Talbragar Valley and Wollemi.

	325, 327, 330, 331, 333, 341, 343, 346, 348, 354, 358, 379, 387, 396, 398, 399, 401, 402, 403, 404, 405, 406, 407, 408, 409, 414, 415, 417, 419, 420, 423, 425, 430, 431, 440, 443, 449, 455, 456, 457, 459, 462, 463, 467, 468, 469, 470, 471, 472, 473, 476, 477, 478, 479, 480, 482, 515, 531, 532, 576, 577, 581, 592, 610, 617, 671, 673, 676, 712, 713, 714, 746, 863, 889, 940, 956, 1133, 1176, 1277, 1278, 1279, 1307, 1313, 1314, 1316, 1381, 1610, 1654, 1655, 1656, 1660, 1661, 1663, 1668, 1669, 1671, 1672, 1674, 1676, 1679, 1709, 1711, 1770, 1771, 3753, 3754, 3756, 3757, 3758, 3759, 3760, 3761, 3762, 3763, 3766, 3767, 3768, 3769, 3770, 3771, 3772, 3773, 3774, 3775, 3776, 3777, 3778, 3780, 3781, 3782, 3783, 3784, 3785, 3786, 4153					or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
	Variation options					

	Formation	Trading group	Zone	HBT	Credits	IBRA region
	Dry Sclerophyll Forests (Shrubby sub-formation)	Tier 4 or higher threat status	479_DNG	No	0	IBRA Region: NSW South Western Slopes, or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
	Dry Sclerophyll Forests (Shrubby sub-formation)	Tier 4 or higher threat status	479_Mod_Good	Yes (including artificial)	245	IBRA Region: NSW South Western Slopes, or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
	Dry Sclerophyll Forests (Shrubby sub-formation)	Tier 4 or higher threat status	479_Thinned	Yes (including artificial)	119	IBRA Region: NSW South Western Slopes, or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

481-Rough-barked Apple - Blakely's Red Gum - Narrow-leaved Stringybark +/- Grey Gum sandstone riparian grass fern open forest on in the southern Brigalow Belt South Bioregion and Upper Hunter region	**Like-for-like credit retirement options**					
	Class	Trading group	Zone	HBT	Credits	IBRA region

North Coast Dry Sclerophyll Forests This includes PCT's: 481, 2247, 2250, 3557, 3558, 3559, 3560, 3561, 3563, 3564, 3565, 3566, 3567, 3568, 3569, 3570, 3571, 3572, 3573, 3574, 3575, 3576, 3577	North Coast Dry Sclerophyll Forests <50%	481_Mod_ Good	Yes	114	Inland Slopes,Bogan-Macquarie, Bondo, Capertee Uplands, Capertee Valley, Crookwell, Hill End, Kerrabee, Lower Slopes, Murray Fans, Murrumbateman, Orange, Pilliga, Talbragar Valley and Wollemi. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
North Coast Dry Sclerophyll Forests This includes PCT's: 481, 2247, 2250, 3557, 3558, 3559, 3560, 3561, 3563, 3564, 3565, 3566, 3567, 3568, 3569, 3570, 3571, 3572, 3573, 3574, 3575, 3576, 3577	North Coast Dry Sclerophyll Forests <50%	481_Thinne d	Yes	63	Inland Slopes,Bogan-Macquarie, Bondo, Capertee Uplands, Capertee Valley, Crookwell, Hill End, Kerrabee, Lower Slopes, Murray Fans, Murrumbateman, Orange, Pilliga, Talbragar Valley and Wollemi. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

Variation options

Formation	Trading group	Zone	HBT	Credits	IBRA region
Dry Sclerophyll Forests (Shrubby sub-formation)	Tier 4 or higher threat status	481_Mod_ Good	Yes (includi ng artificia l)	114	IBRA Region: NSW South Western Slopes, or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	Dry Sclerophyll Forests (Shrubby sub-formation)	Tier 4 or higher threat status	481_Thinned	Yes (including artificial)	63	IBRA Region: NSW South Western Slopes, or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

1177-Slaty Gum woodland of the slopes of the southern Brigalow Belt South Bioregion

Like-for-like credit retirement options

Class	Trading group	Zone	HBT	Credits	IBRA region
Southern Tableland Dry Sclerophyll Forests This includes PCT's: 299, 344, 349, 351, 352, 653, 701, 727, 730, 957, 1093, 1177, 3730, 3732, 3734, 3735, 3737, 3738, 3741, 3743, 3744, 3746, 3747	Southern Tableland Dry Sclerophyll Forests >=50% and <70%	1177_DNG	No	10	Inland Slopes,Bogan-Macquarie, Bondo, Capertee Uplands, Capertee Valley, Crookwell, Hill End, Kerrabee, Lower Slopes, Murray Fans, Murrumbateman, Orange, Pilliga, Talbragar Valley and Wollemi. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Southern Tableland Dry Sclerophyll Forests This includes PCT's: 299, 344, 349, 351, 352, 653, 701, 727, 730, 957, 1093, 1177, 3730, 3732, 3734, 3735, 3737, 3738, 3741, 3743, 3744, 3746, 3747	Southern Tableland Dry Sclerophyll Forests >=50% and <70%	1177_DNS	No	16	Inland Slopes,Bogan-Macquarie, Bondo, Capertee Uplands, Capertee Valley, Crookwell, Hill End, Kerrabee, Lower Slopes, Murray Fans, Murrumbateman, Orange, Pilliga, Talbragar Valley and Wollemi. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

Southern Tableland Dry Sclerophyll Forests This includes PCT's: 299, 344, 349, 351, 352, 653, 701, 727, 730, 957, 1093, 1177, 3730, 3732, 3734, 3735, 3737, 3738, 3741, 3743, 3744, 3746, 3747	Southern Tableland Dry Sclerophyll Forests >=50% and <70%	1177_Mod_Good	Yes	818	Inland Slopes,Bogan-Macquarie, Bondo, Capertee Uplands, Capertee Valley, Crookwell, Hill End, Kerrabee, Lower Slopes, Murray Fans, Murrumbateman, Orange, Pilliga, Talbragar Valley and Wollemi. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Southern Tableland Dry Sclerophyll Forests This includes PCT's: 299, 344, 349, 351, 352, 653, 701, 727, 730, 957, 1093, 1177, 3730, 3732, 3734, 3735, 3737, 3738, 3741, 3743, 3744, 3746, 3747	Southern Tableland Dry Sclerophyll Forests >=50% and <70%	1177_Thinned	No	43	Inland Slopes,Bogan-Macquarie, Bondo, Capertee Uplands, Capertee Valley, Crookwell, Hill End, Kerrabee, Lower Slopes, Murray Fans, Murrumbateman, Orange, Pilliga, Talbragar Valley and Wollemi. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

Variation options

Formation	Trading group	Zone	HBT	Credits	IBRA region
Dry Sclerophyll Forests (Shrubby sub-formation)	Tier 3 or higher threat status	1177_DNG	No	10	IBRA Region: NSW South Western Slopes, or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	Dry Sclerophyll Forests (Shrubby sub-formation)	Tier 3 or higher threat status	1177_DNS	No	16	IBRA Region: NSW South Western Slopes, or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
	Dry Sclerophyll Forests (Shrubby sub-formation)	Tier 3 or higher threat status	1177_Mod_Good	Yes (including artificial)	818	IBRA Region: NSW South Western Slopes, or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
	Dry Sclerophyll Forests (Shrubby sub-formation)	Tier 3 or higher threat status	1177_Thinned	No	43	IBRA Region: NSW South Western Slopes, or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

Species Credit Summary

Species	Vegetation Zone/s	Area / Count	Credits
Acacia ausfeldii / Ausfeld's Wattle	**281_DNG, 281_Mod_Good, 281_Thinned, 481_Mod_Good, 481_Thinned**	3.5	94.00
Anthochaera phrygia / Regent Honeyeater	**461_Mod_Good, 281_Mod_Good, 281_Thinned**	2.4	112.00
Aprasia parapulchella / Pink-tailed Legless Lizard	**440_Mod_Good, 440_Poor, 440_Thinned**	13.3	391.00

Calyptorhynchus lathami / Glossy Black-Cockatoo	**266_Mod_Good, 266_Thinned, 1177_Thinned, 81_Mod_Good**	5.6	122.00
Cercartetus nanus / Eastern Pygmy-possum	**81_Thinned, 266_Mod_Good, 266_Thinned, 440_Mod_Good, 440_Poor, 440_Thinned, 461_Mod_Good, 81_Mod_Good, 461_Thinned**	56.7	1540.00
Chalinolobus dwyeri / Large-eared Pied Bat	**277_Mod_Good, 277_Thinned, 281_Thinned, 440_Mod_Good, 440_Poor, 440_Thinned, 461_Mod_Good, 281_Poor, 461_Thinned**	41.5	1689.00
Dichanthium setosum / Bluegrass	**81_DNG, 81_Thinned, 281_DNG, 461_Mod_Good, 281_Mod_Good, 281_Thinned, 81_Mod_Good, 281_Poor**	51.9	878.00
Eucalyptus cannonii / Capertee Stringybark	**281_DNG, 440_Mod_Good, 478_Thinned, 440_DNS**	9.0	14.00
Euphrasia arguta / Euphrasia arguta	**266_Mod_Good, 277_Mod_Good, 281_Mod_Good**	6.4	292.00
Hoplocephalus bitorquatus / Pale-headed Snake	**440_Mod_Good, 440_Poor, 440_Thinned**	37.2	1117.00
Ninox connivens / Barking Owl	**266_DNG, 266_Mod_Good, 266_Thinned, 277_DNG, 277_Mod_Good, 277_Thinned, 281_DNG, 281_Thinned, 1177_Mod_Good, 1177_Thinned, 81_Mod_Good**	17.4	386.00

Petaurus norfolcensis / Squirrel Glider	**81_Thinned, 266_Mod_Good, 266_Thinned, 277_Mod_Good, 277_Thinned, 281_Mod_Good, 281_Thinned, 440_Mod_Good, 440_Poor, 440_Thinned, 461_Mod_Good, 1177_Mod_Good, 1177_Thinned, 81_Mod_Good, 281_Poor, 461_Thinned**	138.4	3718.00
Petrogale penicillata / Brush-tailed Rock-wallaby	**277_Thinned, 281_Thinned, 440_Mod_Good, 440_Poor, 440_Thinned**	16.9	732.00
Phascolarctos cinereus / Koala	**81_Mod_Good, 81_Thinned, 266_Mod_Good, 266_Thinned, 277_Mod_Good, 277_Thinned, 281_Mod_Good, 281_Poor, 281_Thinned, 440_Mod_Good, 440_Poor, 440_Thinned, 461_Mod_Good, 461_Thinned, 478_Mod_Good, 478_Thinned, 479_Mod_Good, 479_Thinned, 481_Mod_Good, 481_Thinned, 1177_Mod_Good, 1177_Thinned**	116.1	3179.00
Swainsona recta / Small Purple-pea	**266_Mod_Good, 266_Thinned, 277_Mod_Good**	3.9	84.00
Swainsona sericea / Silky Swainson-pea	**440_Mod_Good, 266_Mod_Good, 266_Thinned, 277_Mod_Good, 281_Mod_Good, 281_Thinned**	8.2	211.00

Tyto novaehollandiae / Masked Owl	**81_DNG, 266_DNG, 266_Mod_Good, 266_Thinned, 277_DNG, 277_Mod_Good, 277_Thinned, 281_DNG, 281_Thinned, 1177_Mod_Good, 1177_Thinned, 81_Mod_Good**	21.0	421.00

Credit Retirement Options

Like-for-like options

Acacia ausfeldii/ Ausfeld's Wattle	Spp	IBRA region	
	Acacia ausfeldii/Ausfeld's Wattle	Any in NSW	
	Variation options		
	Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act shown below	IBRA region
	Flora	Vulnerable	Inland Slopes, Bogan-Macquarie, Bondo, Capertee Uplands, Capertee Valley, Crookwell, Hill End, Kerrabee, Lower Slopes, Murray Fans, Murrumbateman, Orange, Pilliga, Talbragar Valley and Wollemi. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Anthochaera phrygia/ Regent Honeyeater	Spp	IBRA region	

	Anthochaera phrygia/Regent Honeyeater *Note: Variation rules do not apply for Critically Endangered species and impacts on Commonwealth listed entities that are a controlled action.*		Any in NSW
Aprasia parapulchella/ Pink-tailed Legless Lizard	Spp		IBRA region
	Aprasia parapulchella/Pink-tailed Legless Lizard		Any in NSW
	Variation options		
	Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act shown below	IBRA region
	Fauna	Vulnerable	Inland Slopes, Bogan-Macquarie, Bondo, Capertee Uplands, Capertee Valley, Crookwell, Hill End, Kerrabee, Lower Slopes, Murray Fans, Murrumbateman, Orange, Pilliga, Talbragar Valley and Wollemi. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Calyptorhynchus lathami/ Glossy Black-Cockatoo	Spp		IBRA region
	Calyptorhynchus lathami/Glossy Black-Cockatoo		Any in NSW
	Variation options		
	Kingdom	Any species with same or	IBRA region

		higher category of listing under Part 4 of the BC Act shown below	
	Fauna	Vulnerable	Inland Slopes, Bogan-Macquarie, Bondo, Capertee Uplands, Capertee Valley, Crookwell, Hill End, Kerrabee, Lower Slopes, Murray Fans, Murrumbateman, Orange, Pilliga, Talbragar Valley and Wollemi. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Cercartetus nanus/ Eastern Pygmy-possum	Spp	IBRA region	
	Cercartetus nanus/Eastern Pygmy-possum	Any in NSW	
	Variation options		
	Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act shown below	IBRA region

	Fauna	Vulnerable	Inland Slopes, Bogan-Macquarie, Bondo, Capertee Uplands, Capertee Valley, Crookwell, Hill End, Kerrabee, Lower Slopes, Murray Fans, Murrumbateman, Orange, Pilliga, Talbragar Valley and Wollemi. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Chalinolobus dwyeri/ Large-eared Pied Bat	Spp	IBRA region	
	Chalinolobus dwyeri/Large-eared Pied Bat	Any in NSW	
	Variation options		
	Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act shown below	IBRA region
	Fauna	Vulnerable	Inland Slopes, Bogan-Macquarie, Bondo, Capertee Uplands, Capertee Valley, Crookwell, Hill End, Kerrabee, Lower Slopes, Murray Fans, Murrumbateman, Orange, Pilliga, Talbragar Valley and Wollemi. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

Dichanthium setosum/ Bluegrass	Spp		IBRA region
	Dichanthium setosum/Bluegrass		Any in NSW
	Variation options		
	Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act shown below	IBRA region
	Flora	Vulnerable	Inland Slopes, Bogan-Macquarie, Bondo, Capertee Uplands, Capertee Valley, Crookwell, Hill End, Kerrabee, Lower Slopes, Murray Fans, Murrumbateman, Orange, Pilliga, Talbragar Valley and Wollemi. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Eucalyptus cannonii/ Capertee Stringybark	Spp		IBRA region
	Eucalyptus cannonii/Capertee Stringybark		Any in NSW
	Variation options		
	Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act shown below	IBRA region

	Flora	Vulnerable	Inland Slopes, Bogan-Macquarie, Bondo, Capertee Uplands, Capertee Valley, Crookwell, Hill End, Kerrabee, Lower Slopes, Murray Fans, Murrumbateman, Orange, Pilliga, Talbragar Valley and Wollemi. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Euphrasia arguta/ Euphrasia arguta	Spp		IBRA region
	Euphrasia arguta/Euphrasia arguta *Note: Variation rules do not apply for Critically Endangered species and impacts on Commonwealth listed entities that are a controlled action.*		Any in NSW
Hoplocephalus bitorquatus/ Pale-headed Snake	Spp		IBRA region
	Hoplocephalus bitorquatus/Pale-headed Snake		Any in NSW
	Variation options		
	Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act shown below	IBRA region

	Fauna	Vulnerable	Inland Slopes, Bogan-Macquarie, Bondo, Capertee Uplands, Capertee Valley, Crookwell, Hill End, Kerrabee, Lower Slopes, Murray Fans, Murrumbateman, Orange, Pilliga, Talbragar Valley and Wollemi. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Ninox connivens/ Barking Owl	Spp	IBRA region	
	Ninox connivens/Barking Owl	Any in NSW	
	Variation options		
	Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act shown below	IBRA region
	Fauna	Vulnerable	Inland Slopes, Bogan-Macquarie, Bondo, Capertee Uplands, Capertee Valley, Crookwell, Hill End, Kerrabee, Lower Slopes, Murray Fans, Murrumbateman, Orange, Pilliga, Talbragar Valley and Wollemi. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

Petaurus norfolcensis/ Squirrel Glider	Spp		IBRA region
	Petaurus norfolcensis/Squirrel Glider		Any in NSW
	Variation options		
	Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act shown below	IBRA region
	Fauna	Vulnerable	Inland Slopes, Bogan-Macquarie, Bondo, Capertee Uplands, Capertee Valley, Crookwell, Hill End, Kerrabee, Lower Slopes, Murray Fans, Murrumbateman, Orange, Pilliga, Talbragar Valley and Wollemi. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Petrogale penicillata/ Brush-tailed Rock-wallaby	Spp		IBRA region
	Petrogale penicillata/Brush-tailed Rock-wallaby		Any in NSW
	Variation options		
	Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act shown below	IBRA region

	Fauna	Endangered	Inland Slopes, Bogan-Macquarie, Bondo, Capertee Uplands, Capertee Valley, Crookwell, Hill End, Kerrabee, Lower Slopes, Murray Fans, Murrumbateman, Orange, Pilliga, Talbragar Valley and Wollemi. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Phascolarctos cinereus/ Koala	Spp	IBRA region	
	Phascolarctos cinereus/Koala	Any in NSW	
	Variation options		
	Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act shown below	IBRA region
	Fauna	Endangered	Inland Slopes, Bogan-Macquarie, Bondo, Capertee Uplands, Capertee Valley, Crookwell, Hill End, Kerrabee, Lower Slopes, Murray Fans, Murrumbateman, Orange, Pilliga, Talbragar Valley and Wollemi. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

Swainsona recta/ Small Purple-pea	Spp		IBRA region
	Swainsona recta/Small Purple-pea		Any in NSW
	Variation options		
	Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act shown below	IBRA region
	Flora	Endangered	Inland Slopes, Bogan-Macquarie, Bondo, Capertee Uplands, Capertee Valley, Crookwell, Hill End, Kerrabee, Lower Slopes, Murray Fans, Murrumbateman, Orange, Pilliga, Talbragar Valley and Wollemi. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Swainsona sericea/ Silky Swainson-pea	Spp		IBRA region
	Swainsona sericea/Silky Swainson-pea		Any in NSW
	Variation options		
	Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act shown below	IBRA region

	Flora	Vulnerable	Inland Slopes, Bogan-Macquarie, Bondo, Capertee Uplands, Capertee Valley, Crookwell, Hill End, Kerrabee, Lower Slopes, Murray Fans, Murrumbateman, Orange, Pilliga, Talbragar Valley and Wollemi. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Tyto novaehollandiae/ Masked Owl	Spp	IBRA region	
	Tyto novaehollandiae/Masked Owl	Any in NSW	
	Variation options		
	Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act shown below	IBRA region
	Fauna	Vulnerable	Inland Slopes, Bogan-Macquarie, Bondo, Capertee Uplands, Capertee Valley, Crookwell, Hill End, Kerrabee, Lower Slopes, Murray Fans, Murrumbateman, Orange, Pilliga, Talbragar Valley and Wollemi. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

BAM Candidate Species Report

Proposal Details

Assessment Id 00038208/BAAS17060/23/00038209	Proposal Name CWOREZ Inland Slopes subregion - RNI1	BAM data last updated * 22/06/2023
Assessor Name Lukas Leslie Clews	Report Created 15/08/2023	BAM Data version * 61
Assessor Number BAAS17060	Assessment Type Major Projects	BAM Case Status Open
Assessment Revision 2	Date Finalised To be finalised	

* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.

List of Species Requiring Survey

Name	Presence	Survey Months
Acacia ausfeldii Ausfeld's Wattle	Yes (surveyed) *Survey months are outside of the months specified in Bionet.	☑ Jan ☑ Feb ☑ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☑ Sep ☑ Oct ☐ Nov ☐ Dec ☑ Survey month outside the specified months?
Anthochaera phrygia Regent Honeyeater	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Aprasia parapulchella Pink-tailed Legless Lizard	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?

Burhinus grallarius Bush Stone-curlew	No (surveyed)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☑ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Callocephalon fimbriatum Gang-gang Cockatoo	No (surveyed)	☑ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☑ Oct ☑ Nov ☑ Dec ☐ Survey month outside the specified months?
Calyptorhynchus lathami Glossy Black-Cockatoo	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Cercartetus nanus Eastern Pygmy-possum	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Chalinolobus dwyeri Large-eared Pied Bat	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Dichanthium setosum Bluegrass	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?

Diuris tricolor Pine Donkey Orchid	No (surveyed)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☑ Sep ☑ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Eucalyptus cannonii Capertee Stringybark	Yes (surveyed)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☑ Oct ☑ Nov ☑ Dec ☐ Survey month outside the specified months?
Euphrasia arguta Euphrasia arguta	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Hieraaetus morphnoides Little Eagle	No (surveyed)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☑ Aug ☑ Sep ☑ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Homoranthus darwinioides Fairy Bells	No (surveyed)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☑ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Hoplocephalus bitorquatus Pale-headed Snake	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?

Litoria booroolongensis Booroolong Frog	No (surveyed)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☑ Nov ☐ Dec ☐ Survey month outside the specified months?
Ninox connivens Barking Owl	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Ninox strenua Powerful Owl	No (surveyed)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☑ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Petauroides volans Southern Greater Glider	No (surveyed)	☑ Jan ☑ Feb ☑ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☑ Aug ☐ Sep ☐ Oct ☑ Nov ☑ Dec ☐ Survey month outside the specified months?
Petaurus norfolcensis Squirrel Glider	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Petrogale penicillata Brush-tailed Rock-wallaby	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?

Phascolarctos cinereus Koala	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Polytelis swainsonii Superb Parrot	No (surveyed)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☑ Sep ☑ Oct ☑ Nov ☐ Dec ☐ Survey month outside the specified months?
Pomaderris cotoneaster Cotoneaster Pomaderris	No (surveyed)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☑ Oct ☑ Nov ☐ Dec ☐ Survey month outside the specified months?
Pomaderris queenslandica Scant Pomaderris	No (surveyed)	☑ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☑ Jul ☑ Aug ☑ Sep ☑ Oct ☑ Nov ☑ Dec ☐ Survey month outside the specified months?
Prasophyllum petilum Tarengo Leek Orchid	No (surveyed)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☑ Sep ☑ Oct ☑ Nov ☑ Dec ☐ Survey month outside the specified months?
Swainsona recta Small Purple-pea	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?

Swainsona sericea Silky Swainson-pea	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Tylophora linearis Tylophora linearis	No (surveyed)	☑ Jan ☑ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☑ Oct ☑ Nov ☑ Dec ☐ Survey month outside the specified months?
Tyto novaehollandiae Masked Owl	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Vespadelus troughtoni Eastern Cave Bat	No (surveyed)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☑ Dec ☐ Survey month outside the specified months?

Threatened species Manually Added

Common Name	Scientific Name
Capertee Stringybark	Eucalyptus cannonii
Eastern Cave Bat	Vespadelus troughtoni

Threatened species assessed as not on site

Refer to BAR for detailed justification

Common name	Scientific name	Justification in the BAM-C
Brush-tailed Phascogale	Phascogale tapoatafa	Species is vagrant Geographic limitations
Clandulla Geebung	Persoonia marginata	Species is vagrant
Golden Sun Moth	Synemon plana	Species is vagrant

Grey-headed Flying-fox	Pteropus poliocephalus	Habitat constraints
Key's Matchstick Grasshopper	Keyacris scurra	Species is vagrant
Large Bent-winged Bat	Miniopterus orianae oceanensis	Habitat constraints
Major Mitchell's Cockatoo	Lophochroa leadbeateri	Species is vagrant
Prasophyllum sp. Wybong	Prasophyllum sp. Wybong	Species is vagrant
Sloane's Froglet	Crinia sloanei	Species is vagrant
Small Scurf-pea	Cullen parvum	Species is vagrant
Square-tailed Kite	Lophoictinia isura	Habitat constraints
Squirrel Glider in the Wagga Wagga Local Government Area	Petaurus norfolcensis - endangered population	Refer to BAR
Striped Legless Lizard	Delma impar	Refer to BAR
Swift Parrot	Lathamus discolor	Habitat constraints
Tumut Grevillea	Grevillea wilkinsonii	Species is vagrant
White-bellied Sea-Eagle	Haliaeetus leucogaster	Habitat constraints
Yass Daisy	Ammobium craspedioides	Refer to BAR

BAM Credit Summary Report

Proposal Details

Assessment Id
00038208/BAAS17060/23/00038209

Proposal Name
CWOREZ Inland Slopes subregion - RNI1

BAM data last updated *
22/06/2023

Assessor Name
Lukas Leslie Clews

Report Created
15/08/2023

BAM Data version *
61

Assessor Number
BAAS17060

BAM Case Status
Open

Date Finalised
To be finalised

Assessment Revision
2

Assessment Type
Major Projects

* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.

Ecosystem credits for plant communities types (PCT), ecological communities & threatened species habitat

Zone	Vegetation zone name	TEC name	Current Vegetation integrity score	Change in Vegetation integrity (loss / gain)	Area (ha)	Sensitivity to loss (Justification)	Species sensitivity to gain class	BC Act Listing status	EPBC Act listing status	Biodiversity risk weighting	Potential SAII	Ecosystem credits

Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion												
8	277_DNG	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla	16.7	16.7	56.9	Population size	High Sensitivity to Gain	Critically Endangered Ecological Community	Not Listed	2.50	True	593

9	277_Mod_Good	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla	85	46.5	6	Population size	High Sensitivity to Gain	Critically Endangered Ecological Community	Not Listed	2.50	True	175

10	277_Thinned	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla	57.7	44.9	7.9	Population size	High Sensitivity to Gain	Critically Endangered Ecological Community	Not Listed	2.50	True	222
											Subtotal	**990**
Narrow-leaved Ironbark- Black Cypress Pine - stringybark +/- Grey Gum +/- Narrow-leaved Wattle shrubby open forest on sandstone hills in the southern Brigalow Belt South Bioregion and Sydney Basin Bioregion												
25	479_DNG	Not a TEC	9.8	9.8	3.2	PCT Cleared - 40%	High Sensitivity to Gain			1.50		0
26	479_Mod_Good	Not a TEC	90.4	63.4	10.3	PCT Cleared - 40%	High Sensitivity to Gain			1.50		245
27	479_Thinned	Not a TEC	79	63.1	5	PCT Cleared - 40%	High Sensitivity to Gain			1.50		119

											Subtotal	**364**
Red Ironbark - Black Cypress Pine - stringybark +/- Narrow-leaved Wattle shrubby open forest on sandstone in the Gulgong - Mendooran region, southern Brigalow Belt South Bioregion												
23	478_Mod_Good	Not a TEC	80.6	58.0	0.24	PCT Cleared - 29%	High Sensitivity to Gain			1.50		5
24	478_Thinned	Not a TEC	80.6	70.3	0.21	PCT Cleared - 29%	High Sensitivity to Gain			1.50		6
											Subtotal	**11**
Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion												
15	440_DNG	Not a TEC	7.6	7.6	13.1	PCT Cleared - 34%	High Sensitivity to Gain			1.50		0
16	440_DNS	Not a TEC	23.4	23.4	0.01	PCT Cleared - 34%	High Sensitivity to Gain			1.50		1
17	440_Mod_Good	Not a TEC	90.8	62.3	29.4	PCT Cleared - 34%	High Sensitivity to Gain			1.50		686
18	440_Poor	Not a TEC	25.1	21.5	0.86	PCT Cleared - 34%	High Sensitivity to Gain			1.50		7
19	440_Thinned	Not a TEC	66.5	55.6	7	PCT Cleared - 34%	High Sensitivity to Gain			1.50		146

											Subtotal	**840**
Rough-barked Apple - Blakely's Red Gum - Narrow-leaved Stringybark +/- Grey Gum sandstone riparian grass fern open forest on in the southern Brigalow Belt South Bioregion and Upper Hunter region												
28	481_Mod_Good	Not a TEC	78.4	48.4	6.3	PCT Cleared - 28%	High Sensitivity to Gain			1.50		114
29	481_Thinned	Not a TEC	85.5	52.5	3.2	PCT Cleared - 28%	High Sensitivity to Gain			1.50		63
											Subtotal	**177**

Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion												
11	281_DNG	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla	22.9	22.9	43	Population size	High Sensitivity to Gain	Critically Endangered Ecological Community	Not Listed	2.50	True	615

12	281_Mod_Good	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla	90.5	73.8	4.9	Population size	High Sensitivity to Gain	Critically Endangered Ecological Community	Not Listed	2.50	True	226

13	281_Poor	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla	81.9	43.0	0.11	Population size	High Sensitivity to Gain	Critically Endangered Ecological Community	Not Listed	2.50	True	3

14	281_Thinned	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla	81.9	59.0	26.8	Population size	High Sensitivity to Gain	Critically Endangered Ecological Community	Not Listed	2.50	True	987
											Subtotal	**1831**
Slaty Gum woodland of the slopes of the southern Brigalow Belt South Bioregion												
30	1177_DNG	Not a TEC	24.1	24.1	0.93	PCT Cleared - 65%	High Sensitivity to Gain			1.75		10
31	1177_DNS	Not a TEC	36.1	36.1	1	PCT Cleared - 65%	High Sensitivity to Gain			1.75		16
32	1177_Mod_Good	Not a TEC	68	50.4	37.1	PCT Cleared - 65%	High Sensitivity to Gain			1.75		818

33	1177_Thinned	Not a TEC	49.2	35.9	2.7	PCT Cleared - 65%	High Sensitivity to Gain			1.75		43
											Subtotal	**887**
Tumbledown Gum woodland on hills in the northern NSW South Western Slopes Bioregion and southern Brigalow Belt South Bioregion												
20	461_DNG	Not a TEC	28.5	28.5	0.33	PCT Cleared - 50%	High Sensitivity to Gain			1.75		4
21	461_Mod_Good	Not a TEC	83.3	45.9	6.1	PCT Cleared - 50%	High Sensitivity to Gain			1.75		123
22	461_Thinned	Not a TEC	72.7	18.9	0.01	PCT Cleared - 50%	High Sensitivity to Gain			1.75		1
											Subtotal	**128**
Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion												
1	81_DNG	Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions	13.2	13.2	4.4	Biodiversity Conservation Act listing status	High Sensitivity to Gain	Endangered Ecological Community	Not Listed	2.00		0

2	81_Mod_Good	Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions	80.4	47.6	2.4	Biodiversity Conservation Act listing status	High Sensitivity to Gain	Endangered Ecological Community	Not Listed	2.00		58
3	81_Thinned	Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions	73.4	39.6	0.45	Biodiversity Conservation Act listing status	High Sensitivity to Gain	Endangered Ecological Community	Not Listed	2.00		9
											Subtotal	**67**

White Box grassy woodland in the upper slopes sub-region of the NSW South Western Slopes Bioregion												
4	266_DNG	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla	18.4	18.4	16.6	Population size	High Sensitivity to Gain	Critically Endangered Ecological Community	Not Listed	2.50	True	191

5	266_DNS	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla	36.3	36.3	0.49	Population size	High Sensitivity to Gain	Critically Endangered Ecological Community	Not Listed	2.50	True	11

6	266_Mod_Good	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla	83.6	47.8	5.2	Population size	High Sensitivity to Gain	Critically Endangered Ecological Community	Not Listed	2.50	True	155

7	266_Thinned	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla	55.6	37.8	7.1	Population size	High Sensitivity to Gain	Critically Endangered Ecological Community	Not Listed	2.50	True	169
											Subtotal	**526**
											Total	**5821**

Species credits for threatened species

Vegetation zone name	Habitat condition (Vegetation Integrity)	Change in habitat condition	Area (ha)/Count (no. individuals)	Sensitivity to loss (Justification)	Sensitivity to gain (Justification)	BC Act Listing status	EPBC Act listing status	Potential SAII	Species credits

Acacia ausfeldii / Ausfeld's Wattle (Flora)									
281_DNG	22.9	22.9	0.13	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Not Listed	False	1
281_Mod_Good	73.8	73.8	0.08	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Not Listed	False	3
281_Thinned	59.0	59.0	2.1	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Not Listed	False	61
481_Mod_Good	48.4	48.4	1	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Not Listed	False	25
481_Thinned	52.5	52.5	0.16	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Not Listed	False	4
								Subtotal	**94**

Anthochaera phrygia / Regent Honeyeater (Fauna)									
461_Mod_Good	45.9	45.9	0.48	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Critically Endangered	Critically Endangered	True	17
281_Mod_Good	73.8	73.8	0.7	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Critically Endangered	Critically Endangered	True	39
281_Thinned	59.0	59.0	1.3	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Critically Endangered	Critically Endangered	True	56
								Subtotal	**112**
Aprasia parapulchella / Pink-tailed Legless Lizard (Fauna)									
440_Mod_Good	62.3	62.3	8.5	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Vulnerable	False	265
440_Poor	21.5	21.5	0.53	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Vulnerable	False	6

440_Thinned	55.6	55.6	4.3	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Vulnerable	False	120
								Subtotal	**391**
Calyptorhynchus lathami / Glossy Black-Cockatoo (Fauna)									
266_Mod_Good	47.8	47.8	1.8	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Vulnerable	False	42
266_Thinned	37.8	37.8	1	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Vulnerable	False	19
1177_Thinned	35.9	35.9	1	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Vulnerable	False	18
81_Mod_Good	47.6	47.6	1.8	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Vulnerable	False	43
								Subtotal	**122**

Cercartetus nanus / Eastern Pygmy-possum (Fauna)									
81_Thinned	39.6	39.6	0.44	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Not Listed	False	9
266_Mod_Good	47.8	47.8	5.2	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Not Listed	False	124
266_Thinned	37.8	37.8	6.3	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Not Listed	False	119
440_Mod_Good	62.3	62.3	29.4	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Not Listed	False	914
440_Poor	21.5	21.5	0.86	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Not Listed	False	9

440_Thinned	55.6	55.6	6	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Not Listed	False	166
461_Mod_Good	45.9	45.9	6.1	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Not Listed	False	140
81_Mod_Good	47.6	47.6	2.4	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Not Listed	False	58
461_Thinned	18.9	18.9	0.01	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Not Listed	False	1
								Subtotal	**1540**
Chalinolobus dwyeri / Large-eared Pied Bat (Fauna)									
277_Mod_Good	46.5	46.5	5.3	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Vulnerable	True	185

277_Thinned	44.9	44.9	3.9	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Vulnerable	True	131
281_Thinned	59.0	59.0	7.4	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Vulnerable	True	328
440_Mod_Good	62.3	62.3	14	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Vulnerable	True	654
440_Poor	21.5	21.5	0.86	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Vulnerable	True	14
440_Thinned	55.6	55.6	4	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Vulnerable	True	167
461_Mod_Good	45.9	45.9	5.9	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Vulnerable	True	205
281_Poor	43.0	43.0	0.11	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Vulnerable	True	4

461_Thinned	18.9	18.9	0.01	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Vulnerable	True	1
								Subtotal	**1689**
Dichanthium setosum / Bluegrass (Flora)									
81_DNG	13.2	13.2	2	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Vulnerable	False	13
81_Thinned	39.6	39.6	0.05	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Vulnerable	False	1
281_DNG	22.9	22.9	34.6	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Vulnerable	False	396
461_Mod_Good	45.9	45.9	0.6	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Vulnerable	False	14

281_Mod_Good	73.8	73.8	3.2	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Vulnerable	False	119
281_Thinned	59.0	59.0	11	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Vulnerable	False	324
81_Mod_Good	47.6	47.6	0.42	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Vulnerable	False	10
281_Poor	43.0	43.0	0.01	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Vulnerable	False	1
								Subtotal	**878**
Eucalyptus cannonii / Capertee Stringybark (Flora)									
281_DNG	N/A	N/A	2	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Not Listed	False	3

440_Mod_Good	N/A	N/A	4	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Not Listed	False	6
478_Thinned	N/A	N/A	1	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Not Listed	False	2
440_DNS	N/A	N/A	2	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Not Listed	False	3
								Subtotal	**14**
Euphrasia arguta / Euphrasia arguta (Flora)									
266_Mod_Good	47.8	47.8	1.7	Biodiversity Conservation Act listing status	Ecology or response to management is poorly known	Critically Endangered	Critically Endangered	True	60
277_Mod_Good	46.5	46.5	1.4	Biodiversity Conservation Act listing status	Ecology or response to management is poorly known	Critically Endangered	Critically Endangered	True	50

281_Mod_Good	73.8	73.8	3.3	Biodiversity Conservation Act listing status	Ecology or response to management is poorly known	Critically Endangered	Critically Endangered	True	182
								Subtotal	**292**
Hoplocephalus bitorquatus / Pale-headed Snake (Fauna)									
440_Mod_Good	62.3	62.3	29.4	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	914
440_Poor	21.5	21.5	0.86	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	9
440_Thinned	55.6	55.6	7	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	194
								Subtotal	**1117**
Ninox connivens / Barking Owl (Fauna)									
266_DNG	18.4	18.4	1.6	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	15

266_Mod_Good	47.8	47.8	0.14	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	3
266_Thinned	37.8	37.8	0.44	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	8
277_DNG	16.7	16.7	0.65	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	5
277_Mod_Good	46.5	46.5	4	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	94
277_Thinned	44.9	44.9	0.12	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	3
281_DNG	22.9	22.9	0.36	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	4
281_Thinned	59.0	59.0	1.4	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	40

1177_Mod_Good	50.4	50.4	7.4	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	187
1177_Thinned	35.9	35.9	0.41	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	7
81_Mod_Good	47.6	47.6	0.84	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	20
								Subtotal	**386**
Petaurus norfolcensis / Squirrel Glider (Fauna)									
81_Thinned	39.6	39.6	0.44	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	9
266_Mod_Good	47.8	47.8	5.1	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	123
266_Thinned	37.8	37.8	6.3	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	119

277_Mod_Good	46.5	46.5	6	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	140
277_Thinned	44.9	44.9	6.5	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	146
281_Mod_Good	73.8	73.8	4.9	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	181
281_Thinned	59.0	59.0	25.5	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	753
440_Mod_Good	62.3	62.3	29.4	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	914
440_Poor	21.5	21.5	0.86	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	9
440_Thinned	55.6	55.6	6.3	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	175

461_Mod_Good	45.9	45.9	6.1	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	140
1177_Mod_Good	50.4	50.4	35.7	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	899
1177_Thinned	35.9	35.9	2.7	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	49
81_Mod_Good	47.6	47.6	2.4	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	58
281_Poor	43.0	43.0	0.11	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	2
461_Thinned	18.9	18.9	0.01	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	1
								Subtotal	**3718**

Petrogale penicillata / Brush-tailed Rock-wallaby (Fauna)									
277_Thinned	44.9	44.9	2.1	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Endangered	Vulnerable	True	71
281_Thinned	59.0	59.0	0.51	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Endangered	Vulnerable	True	23
440_Mod_Good	62.3	62.3	11.2	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Endangered	Vulnerable	True	524
440_Poor	21.5	21.5	0.47	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Endangered	Vulnerable	True	8
440_Thinned	55.6	55.6	2.6	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Endangered	Vulnerable	True	106
								Subtotal	**732**
Phascolarctos cinereus / Koala (Fauna)									
81_Mod_Good	47.6	47.6	0.32	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Endangered	False	8

81_Thinned	39.6	39.6	0.44	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Endangered	False	9
266_Mod_Good	47.8	47.8	5.1	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Endangered	False	123
266_Thinned	37.8	37.8	6.3	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Endangered	False	119
277_Mod_Good	46.5	46.5	6	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Endangered	False	140
277_Thinned	44.9	44.9	5.8	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Endangered	False	130
281_Mod_Good	73.8	73.8	4.9	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Endangered	False	181

281_Poor	43.0	43.0	0.11	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Endangered	False	2
281_Thinned	59.0	59.0	25.5	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Endangered	False	753
440_Mod_Good	62.3	62.3	15.3	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Endangered	False	476
440_Poor	21.5	21.5	0.86	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Endangered	False	9
440_Thinned	55.6	55.6	6.3	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Endangered	False	175
461_Mod_Good	45.9	45.9	6.1	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Endangered	False	140

461_Thinned	18.9	18.9	0.01	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Endangered	False	1
478_Mod_Good	58.0	58.0	0.24	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Endangered	False	7
478_Thinned	70.3	70.3	0.21	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Endangered	False	7
479_Mod_Good	63.4	63.4	10.3	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Endangered	False	327
479_Thinned	63.1	63.1	5	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Endangered	False	158
481_Mod_Good	48.4	48.4	6.3	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Endangered	False	152

481_Thinned	52.5	52.5	3.2	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Endangered	False	85
1177_Mod_Good	50.4	50.4	5.1	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Endangered	False	128
1177_Thinned	35.9	35.9	2.7	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Endangered	False	49
								Subtotal	**3179**
Swainsona recta / Small Purple-pea (Flora)									
266_Mod_Good	47.8	47.8	1.6	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Endangered	False	39
266_Thinned	37.8	37.8	2	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Endangered	False	38

277_Mod_Good	46.5	46.5	0.29	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Endangered	False	7
								Subtotal	**84**
Swainsona sericea / Silky Swainson-pea (Flora)									
440_Mod_Good	62.3	62.3	3.2	Biodiversity Conservation Act listing status	Ability to colonise improved habitat	Vulnerable	Not Listed	False	99
266_Mod_Good	47.8	47.8	1.6	Biodiversity Conservation Act listing status	Ability to colonise improved habitat	Vulnerable	Not Listed	False	39
266_Thinned	37.8	37.8	2	Biodiversity Conservation Act listing status	Ability to colonise improved habitat	Vulnerable	Not Listed	False	38
277_Mod_Good	46.5	46.5	0.97	Biodiversity Conservation Act listing status	Ability to colonise improved habitat	Vulnerable	Not Listed	False	23
281_Mod_Good	73.8	73.8	0.08	Biodiversity Conservation Act listing status	Ability to colonise improved habitat	Vulnerable	Not Listed	False	3

281_Thinned	59.0	59.0	0.3	Biodiversity Conservation Act listing status	Ability to colonise improved habitat	Vulnerable	Not Listed	False	9
								Subtotal	**211**
Tyto novaehollandiae / Masked Owl (Fauna)									
81_DNG	13.2	13.2	0.49	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	3
266_DNG	18.4	18.4	3.7	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	34
266_Mod_Good	47.8	47.8	0.14	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	3
266_Thinned	37.8	37.8	0.44	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	8
277_DNG	16.7	16.7	1.7	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	14

277_Mod_Good	46.5	46.5	3.2	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	73
277_Thinned	44.9	44.9	0.03	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	1
281_DNG	22.9	22.9	0.09	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	1
281_Thinned	59.0	59.0	1.4	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	40
1177_Mod_Good	50.4	50.4	8.5	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	214
1177_Thinned	35.9	35.9	0.54	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	10
81_Mod_Good	47.6	47.6	0.84	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	20
								Subtotal	**421**

BAM Predicted Species Report

Proposal Details

Assessment Id	Proposal Name	BAM data last updated *
00038208/BAAS17060/23/00038209	CWOREZ Inland Slopes subregion - RNI1	22/06/2023
Assessor Name	**Report Created**	**BAM Data version ***
Lukas Leslie Clews	15/08/2023	61
Assessor Number	**Assessment Type**	**BAM Case Status**
BAAS17060	Major Projects	Open
Assessment Revision		**Date Finalised**
2		To be finalised

* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.

Threatened species reliably predicted to utilise the site. No surveys are required for these species. Ecosystem credits apply to these species.

Common Name	Scientific Name	Vegetation Types(s)
Barking Owl	Ninox connivens	81-Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion
		266-White Box grassy woodland in the upper slopes sub-region of the NSW South Western Slopes Bioregion
		277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
		281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
		461-Tumbledown Gum woodland on hills in the northern NSW South Western Slopes Bioregion and southern Brigalow Belt South Bioregion
		478-Red Ironbark - Black Cypress Pine - stringybark +/- Narrow-leaved Wattle shrubby open forest on sandstone in the Gulgong - Mendooran region, southern Brigalow Belt South Bioregion

Barking Owl	Ninox connivens	479-Narrow-leaved Ironbark- Black Cypress Pine - stringybark +/- Grey Gum +/- Narrow-leaved Wattle shrubby open forest on sandstone hills in the southern Brigalow Belt South Bioregion and Sydney Basin Bioregion
		481-Rough-barked Apple - Blakely's Red Gum - Narrow-leaved Stringybark +/- Grey Gum sandstone riparian grass fern open forest on in the southern Brigalow Belt South Bioregion and Upper Hunter region
		1177-Slaty Gum woodland of the slopes of the southern Brigalow Belt South Bioregion
Black Falcon	Falco subniger	266-White Box grassy woodland in the upper slopes sub-region of the NSW South Western Slopes Bioregion
		277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
		281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
Black-chinned Honeyeater (eastern subspecies)	Melithreptus gularis gularis	81-Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion
		266-White Box grassy woodland in the upper slopes sub-region of the NSW South Western Slopes Bioregion
		277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
		281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		461-Tumbledown Gum woodland on hills in the northern NSW South Western Slopes Bioregion and southern Brigalow Belt South Bioregion
		1177-Slaty Gum woodland of the slopes of the southern Brigalow Belt South Bioregion
Brown Treecreeper (eastern subspecies)	Climacteris picumnus victoriae	81-Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion
		266-White Box grassy woodland in the upper slopes sub-region of the NSW South Western Slopes Bioregion
		277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion

Brown Treecreeper (eastern subspecies)	Climacteris picumnus victoriae	281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
		461-Tumbledown Gum woodland on hills in the northern NSW South Western Slopes Bioregion and southern Brigalow Belt South Bioregion
		1177-Slaty Gum woodland of the slopes of the southern Brigalow Belt South Bioregion
Corben's Long-eared Bat	Nyctophilus corbeni	81-Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion
		266-White Box grassy woodland in the upper slopes sub-region of the NSW South Western Slopes Bioregion
		440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
		461-Tumbledown Gum woodland on hills in the northern NSW South Western Slopes Bioregion and southern Brigalow Belt South Bioregion
		1177-Slaty Gum woodland of the slopes of the southern Brigalow Belt South Bioregion
Diamond Firetail	Stagonopleura guttata	81-Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion
		266-White Box grassy woodland in the upper slopes sub-region of the NSW South Western Slopes Bioregion
		277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
		281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
		461-Tumbledown Gum woodland on hills in the northern NSW South Western Slopes Bioregion and southern Brigalow Belt South Bioregion

Diamond Firetail	Stagonopleura guttata	1177-Slaty Gum woodland of the slopes of the southern Brigalow Belt South Bioregion
Dusky Woodswallow	Artamus cyanopterus cyanopterus	81-Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion
		266-White Box grassy woodland in the upper slopes sub-region of the NSW South Western Slopes Bioregion
		277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
		281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
		461-Tumbledown Gum woodland on hills in the northern NSW South Western Slopes Bioregion and southern Brigalow Belt South Bioregion
		478-Red Ironbark - Black Cypress Pine - stringybark +/- Narrow-leaved Wattle shrubby open forest on sandstone in the Gulgong - Mendooran region, southern Brigalow Belt South Bioregion
		479-Narrow-leaved Ironbark- Black Cypress Pine - stringybark +/- Grey Gum +/- Narrow-leaved Wattle shrubby open forest on sandstone hills in the southern Brigalow Belt South Bioregion and Sydney Basin Bioregion
		1177-Slaty Gum woodland of the slopes of the southern Brigalow Belt South Bioregion
Eastern False Pipistrelle	Falsistrellus tasmaniensis	266-White Box grassy woodland in the upper slopes sub-region of the NSW South Western Slopes Bioregion
		277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
Flame Robin	Petroica phoenicea	266-White Box grassy woodland in the upper slopes sub-region of the NSW South Western Slopes Bioregion
		277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
		281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion

Flame Robin	Petroica phoenicea	440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
		461-Tumbledown Gum woodland on hills in the northern NSW South Western Slopes Bioregion and southern Brigalow Belt South Bioregion
Gang-gang Cockatoo	Callocephalon fimbriatum	266-White Box grassy woodland in the upper slopes sub-region of the NSW South Western Slopes Bioregion
		277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
		281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
Gilbert's Whistler	Pachycephala inornata	440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
Glossy Black-Cockatoo	Calyptorhynchus lathami	81-Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion
		266-White Box grassy woodland in the upper slopes sub-region of the NSW South Western Slopes Bioregion
		440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
		461-Tumbledown Gum woodland on hills in the northern NSW South Western Slopes Bioregion and southern Brigalow Belt South Bioregion
Grey-crowned Babbler (eastern subspecies)	Pomatostomus temporalis temporalis	81-Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion
		266-White Box grassy woodland in the upper slopes sub-region of the NSW South Western Slopes Bioregion
		277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
		281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		461-Tumbledown Gum woodland on hills in the northern NSW South Western Slopes Bioregion and southern Brigalow Belt South Bioregion

Grey-crowned Babbler (eastern subspecies)	Pomatostomus temporalis temporalis	1177-Slaty Gum woodland of the slopes of the southern Brigalow Belt South Bioregion
Grey-headed Flying-fox	Pteropus poliocephalus	81-Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion
		266-White Box grassy woodland in the upper slopes sub-region of the NSW South Western Slopes Bioregion
		277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
		281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
		461-Tumbledown Gum woodland on hills in the northern NSW South Western Slopes Bioregion and southern Brigalow Belt South Bioregion
		1177-Slaty Gum woodland of the slopes of the southern Brigalow Belt South Bioregion
Hooded Robin (south-eastern form)	Melanodryas cucullata cucullata	81-Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion
		266-White Box grassy woodland in the upper slopes sub-region of the NSW South Western Slopes Bioregion
		277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
		281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
		461-Tumbledown Gum woodland on hills in the northern NSW South Western Slopes Bioregion and southern Brigalow Belt South Bioregion
		1177-Slaty Gum woodland of the slopes of the southern Brigalow Belt South Bioregion
Large Bent-winged Bat	Miniopterus orianae oceanensis	81-Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion

Large Bent-winged Bat	Miniopterus orianae oceanensis	266-White Box grassy woodland in the upper slopes sub-region of the NSW South Western Slopes Bioregion
		277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
		281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
		461-Tumbledown Gum woodland on hills in the northern NSW South Western Slopes Bioregion and southern Brigalow Belt South Bioregion
Little Eagle	Hieraaetus morphnoides	81-Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion
		266-White Box grassy woodland in the upper slopes sub-region of the NSW South Western Slopes Bioregion
		277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
		281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
		461-Tumbledown Gum woodland on hills in the northern NSW South Western Slopes Bioregion and southern Brigalow Belt South Bioregion
		1177-Slaty Gum woodland of the slopes of the southern Brigalow Belt South Bioregion
Little Lorikeet	Glossopsitta pusilla	81-Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion
		266-White Box grassy woodland in the upper slopes sub-region of the NSW South Western Slopes Bioregion
		277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion

Little Lorikeet	Glossopsitta pusilla	281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
		461-Tumbledown Gum woodland on hills in the northern NSW South Western Slopes Bioregion and southern Brigalow Belt South Bioregion
		478-Red Ironbark - Black Cypress Pine - stringybark +/- Narrow-leaved Wattle shrubby open forest on sandstone in the Gulgong - Mendooran region, southern Brigalow Belt South Bioregion
		479-Narrow-leaved Ironbark- Black Cypress Pine - stringybark +/- Grey Gum +/- Narrow-leaved Wattle shrubby open forest on sandstone hills in the southern Brigalow Belt South Bioregion and Sydney Basin Bioregion
		481-Rough-barked Apple - Blakely's Red Gum - Narrow-leaved Stringybark +/- Grey Gum sandstone riparian grass fern open forest on in the southern Brigalow Belt South Bioregion and Upper Hunter region
Little Pied Bat	Chalinolobus picatus	81-Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion
		281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
		461-Tumbledown Gum woodland on hills in the northern NSW South Western Slopes Bioregion and southern Brigalow Belt South Bioregion
Major Mitchell's Cockatoo	Lophochroa leadbeateri	440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
		461-Tumbledown Gum woodland on hills in the northern NSW South Western Slopes Bioregion and southern Brigalow Belt South Bioregion
Masked Owl	Tyto novaehollandiae	81-Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion

Masked Owl	Tyto novaehollandiae	266-White Box grassy woodland in the upper slopes sub-region of the NSW South Western Slopes Bioregion
		277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
		281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
		461-Tumbledown Gum woodland on hills in the northern NSW South Western Slopes Bioregion and southern Brigalow Belt South Bioregion
		1177-Slaty Gum woodland of the slopes of the southern Brigalow Belt South Bioregion
New Holland Mouse	Pseudomys novaehollandiae	440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
Painted Honeyeater	Grantiella picta	81-Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion
		266-White Box grassy woodland in the upper slopes sub-region of the NSW South Western Slopes Bioregion
		277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
		281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
		461-Tumbledown Gum woodland on hills in the northern NSW South Western Slopes Bioregion and southern Brigalow Belt South Bioregion
		478-Red Ironbark - Black Cypress Pine - stringybark +/- Narrow-leaved Wattle shrubby open forest on sandstone in the Gulgong - Mendooran region, southern Brigalow Belt South Bioregion

Painted Honeyeater	Grantiella picta	479-Narrow-leaved Ironbark- Black Cypress Pine - stringybark +/- Grey Gum +/- Narrow-leaved Wattle shrubby open forest on sandstone hills in the southern Brigalow Belt South Bioregion and Sydney Basin Bioregion
		481-Rough-barked Apple - Blakely's Red Gum - Narrow-leaved Stringybark +/- Grey Gum sandstone riparian grass fern open forest on in the southern Brigalow Belt South Bioregion and Upper Hunter region
		1177-Slaty Gum woodland of the slopes of the southern Brigalow Belt South Bioregion
Powerful Owl	Ninox strenua	281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		1177-Slaty Gum woodland of the slopes of the southern Brigalow Belt South Bioregion
Regent Honeyeater	Anthochaera phrygia	81-Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion
		266-White Box grassy woodland in the upper slopes sub-region of the NSW South Western Slopes Bioregion
		277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
		281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		461-Tumbledown Gum woodland on hills in the northern NSW South Western Slopes Bioregion and southern Brigalow Belt South Bioregion
		479-Narrow-leaved Ironbark- Black Cypress Pine - stringybark +/- Grey Gum +/- Narrow-leaved Wattle shrubby open forest on sandstone hills in the southern Brigalow Belt South Bioregion and Sydney Basin Bioregion
		481-Rough-barked Apple - Blakely's Red Gum - Narrow-leaved Stringybark +/- Grey Gum sandstone riparian grass fern open forest on in the southern Brigalow Belt South Bioregion and Upper Hunter region
Rosenberg's Goanna	Varanus rosenbergi	281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion

Scarlet Robin	Petroica boodang	81-Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion
		266-White Box grassy woodland in the upper slopes sub-region of the NSW South Western Slopes Bioregion
		277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
		281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
		461-Tumbledown Gum woodland on hills in the northern NSW South Western Slopes Bioregion and southern Brigalow Belt South Bioregion
		1177-Slaty Gum woodland of the slopes of the southern Brigalow Belt South Bioregion
Speckled Warbler	Chthonicola sagittata	81-Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion
		266-White Box grassy woodland in the upper slopes sub-region of the NSW South Western Slopes Bioregion
		277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
		281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
		461-Tumbledown Gum woodland on hills in the northern NSW South Western Slopes Bioregion and southern Brigalow Belt South Bioregion
		1177-Slaty Gum woodland of the slopes of the southern Brigalow Belt South Bioregion
Spotted Harrier	Circus assimilis	266-White Box grassy woodland in the upper slopes sub-region of the NSW South Western Slopes Bioregion
		277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion

Spotted Harrier	Circus assimilis	281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
		461-Tumbledown Gum woodland on hills in the northern NSW South Western Slopes Bioregion and southern Brigalow Belt South Bioregion
Spotted-tailed Quoll	Dasyurus maculatus	81-Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion
		266-White Box grassy woodland in the upper slopes sub-region of the NSW South Western Slopes Bioregion
		277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
		281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
		461-Tumbledown Gum woodland on hills in the northern NSW South Western Slopes Bioregion and southern Brigalow Belt South Bioregion
		1177-Slaty Gum woodland of the slopes of the southern Brigalow Belt South Bioregion
Square-tailed Kite	Lophoictinia isura	81-Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion
		266-White Box grassy woodland in the upper slopes sub-region of the NSW South Western Slopes Bioregion
		277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
		281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion

Square-tailed Kite	Lophoictinia isura	461-Tumbledown Gum woodland on hills in the northern NSW South Western Slopes Bioregion and southern Brigalow Belt South Bioregion
Superb Parrot	Polytelis swainsonii	81-Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion
		266-White Box grassy woodland in the upper slopes sub-region of the NSW South Western Slopes Bioregion
		277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
		281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
		461-Tumbledown Gum woodland on hills in the northern NSW South Western Slopes Bioregion and southern Brigalow Belt South Bioregion
Swift Parrot	Lathamus discolor	81-Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion
		266-White Box grassy woodland in the upper slopes sub-region of the NSW South Western Slopes Bioregion
		277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
		281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
		461-Tumbledown Gum woodland on hills in the northern NSW South Western Slopes Bioregion and southern Brigalow Belt South Bioregion
		478-Red Ironbark - Black Cypress Pine - stringybark +/- Narrow-leaved Wattle shrubby open forest on sandstone in the Gulgong - Mendooran region, southern Brigalow Belt South Bioregion

Swift Parrot	Lathamus discolor	479-Narrow-leaved Ironbark- Black Cypress Pine - stringybark +/- Grey Gum +/- Narrow-leaved Wattle shrubby open forest on sandstone hills in the southern Brigalow Belt South Bioregion and Sydney Basin Bioregion
		481-Rough-barked Apple - Blakely's Red Gum - Narrow-leaved Stringybark +/- Grey Gum sandstone riparian grass fern open forest on in the southern Brigalow Belt South Bioregion and Upper Hunter region
		1177-Slaty Gum woodland of the slopes of the southern Brigalow Belt South Bioregion
Turquoise Parrot	Neophema pulchella	81-Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion
		266-White Box grassy woodland in the upper slopes sub-region of the NSW South Western Slopes Bioregion
		277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
		281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
		461-Tumbledown Gum woodland on hills in the northern NSW South Western Slopes Bioregion and southern Brigalow Belt South Bioregion
		478-Red Ironbark - Black Cypress Pine - stringybark +/- Narrow-leaved Wattle shrubby open forest on sandstone in the Gulgong - Mendooran region, southern Brigalow Belt South Bioregion
		479-Narrow-leaved Ironbark- Black Cypress Pine - stringybark +/- Grey Gum +/- Narrow-leaved Wattle shrubby open forest on sandstone hills in the southern Brigalow Belt South Bioregion and Sydney Basin Bioregion
		481-Rough-barked Apple - Blakely's Red Gum - Narrow-leaved Stringybark +/- Grey Gum sandstone riparian grass fern open forest on in the southern Brigalow Belt South Bioregion and Upper Hunter region
		1177-Slaty Gum woodland of the slopes of the southern Brigalow Belt South Bioregion

Varied Sittella	Daphoenositta chrysoptera	81-Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion
		266-White Box grassy woodland in the upper slopes sub-region of the NSW South Western Slopes Bioregion
		277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
		281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
		461-Tumbledown Gum woodland on hills in the northern NSW South Western Slopes Bioregion and southern Brigalow Belt South Bioregion
		1177-Slaty Gum woodland of the slopes of the southern Brigalow Belt South Bioregion
White-bellied Sea-Eagle	Haliaeetus leucogaster	81-Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion
		266-White Box grassy woodland in the upper slopes sub-region of the NSW South Western Slopes Bioregion
		277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
		281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
White-throated Needletail	Hirundapus caudacutus	81-Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion
		266-White Box grassy woodland in the upper slopes sub-region of the NSW South Western Slopes Bioregion
		277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
		281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion

White-throated Needletail	Hirundapus caudacutus	461-Tumbledown Gum woodland on hills in the northern NSW South Western Slopes Bioregion and southern Brigalow Belt South Bioregion
		478-Red Ironbark - Black Cypress Pine - stringybark +/- Narrow-leaved Wattle shrubby open forest on sandstone in the Gulgong - Mendooran region, southern Brigalow Belt South Bioregion
		479-Narrow-leaved Ironbark- Black Cypress Pine - stringybark +/- Grey Gum +/- Narrow-leaved Wattle shrubby open forest on sandstone hills in the southern Brigalow Belt South Bioregion and Sydney Basin Bioregion
		481-Rough-barked Apple - Blakely's Red Gum - Narrow-leaved Stringybark +/- Grey Gum sandstone riparian grass fern open forest on in the southern Brigalow Belt South Bioregion and Upper Hunter region
		1177-Slaty Gum woodland of the slopes of the southern Brigalow Belt South Bioregion
Yellow-bellied Glider	Petaurus australis	1177-Slaty Gum woodland of the slopes of the southern Brigalow Belt South Bioregion
Yellow-bellied Sheathtail-bat	Saccolaimus flaviventris	81-Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion
		266-White Box grassy woodland in the upper slopes sub-region of the NSW South Western Slopes Bioregion
		277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
		281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
		461-Tumbledown Gum woodland on hills in the northern NSW South Western Slopes Bioregion and southern Brigalow Belt South Bioregion
		1177-Slaty Gum woodland of the slopes of the southern Brigalow Belt South Bioregion

Threatened species Manually Added

None added

BAM Predicted Species Report

Threatened species assessed as not within the vegetation zone(s) for the PCT(s)

Common Name	Scientific Name	Plant Community Type(s)
Major Mitchell's Cockatoo	Lophochroa leadbeateri	81-Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion
Purple-crowned Lorikeet	Glossopsitta porphyrocephala	266-White Box grassy woodland in the upper slopes sub-region of the NSW South Western Slopes Bioregion

Threatened species assessed as not within the vegetation zone(s) for the PCT(s)

Refer to BAR for detailed justification

Common Name	Scientific Name	Justification in the BAM-C
Purple-crowned Lorikeet	Glossopsitta porphyrocephala	Species is vagrant

BAM Vegetation Zones Report

Proposal Details

Assessment Id
00038208/BAAS17060/23/00038209

Assessment name
CWOREZ Inland Slopes subregion - RNI1

BAM data last updated *
22/06/2023

Assessor Name
Lukas Leslie Clews

Report Created
15/08/2023

BAM Data version *
61

Assessor Number
BAAS17060

Assessment Type
Major Projects

BAM Case Status
Open

Assessment Revision
2

Date Finalised
To be finalised

* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.

Vegetation Zones

#	Name	PCT	Condition	Area	Minimum number of plots	Management zones
1	81_DNG	81-Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion	DNG	4.36	2	A (4.36 ha)

2	81_Mod_Good	81-Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion	Mod_Good	2.45	2	A (0.42 ha) B (1.97 ha) HZ (0.06 ha)
3	81_Thinned	81-Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion	Thinned	0.45	1	A (0.05 ha) B (0.38 ha) HZ (0.02 ha)
4	266_DNG	266-White Box grassy woodland in the upper slopes sub-region of the NSW South Western Slopes Bioregion	DNG	16.65	3	A (16.65 ha)
5	266_DNS	266-White Box grassy woodland in the upper slopes sub-region of the NSW South Western Slopes Bioregion	DNS	0.49	1	A (0.49 ha)
6	266_Mod_Good	266-White Box grassy woodland in the upper slopes sub-region of the NSW South Western Slopes Bioregion	Mod_Good	5.2	3	A (1.67 ha) B (3.45 ha) HZ (0.08 ha)
7	266_Thinned	266-White Box grassy woodland in the upper slopes sub-region of the NSW South Western Slopes Bioregion	Thinned	7.14	3	A (2.5 ha) B (4.53 ha) HZ (0.11 ha)
8	277_DNG	277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion	DNG	56.9	5	A (56.9 ha)
9	277_Mod_Good	277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion	Mod_Good	6.03	3	A (1.44 ha) B (4.49 ha) HZ (0.1 ha)

10	277_Thinned	277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion	Thinned	7.92	3	A (2.56 ha) B (5.28 ha) HZ (0.08 ha)
11	281_DNG	281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion	DNG	42.99	4	A (42.99 ha)
12	281_Mod_Good	281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion	Mod_Good	4.89	2	A (3.28 ha) B (1.56 ha) HZ (0.05 ha)
13	281_Poor	281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion	Poor	0.11	1	A (0.01 ha) B (0.1 ha)
14	281_Thinned	281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion	Thinned	26.78	4	A (12.42 ha) B (14.16 ha) HZ (0.2 ha)

15	440_DNG	440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion	DNG	13.07	3	A (13.07 ha)
16	440_DNS	440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion	DNS	0.01	1	A (0.01 ha)
17	440_Mod_Good	440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion	Mod_Good	29.37	4	A (8.5 ha) B (20.39 ha) HZ (0.48 ha)
18	440_Poor	440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion	Poor	0.86	1	A (0.53 ha) B (0.33 ha)
19	440_Thinned	440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion	Thinned	7	3	A (4.31 ha) B (2.65 ha) HZ (0.04 ha)
20	461_DNG	461-Tumbledown Gum woodland on hills in the northern NSW South Western Slopes Bioregion and southern Brigalow Belt South Bioregion	DNG	0.33	1	A (0.33 ha)

21	461_Mod_Good	461-Tumbledown Gum woodland on hills in the northern NSW South Western Slopes Bioregion and southern Brigalow Belt South Bioregion	Mod_Good	6.11	3	A (1.71 ha) B (4.28 ha) HZ (0.12 ha)
22	461_Thinned	461-Tumbledown Gum woodland on hills in the northern NSW South Western Slopes Bioregion and southern Brigalow Belt South Bioregion	Thinned	0.01	1	B (0.01 ha)
23	478_Mod_Good	478-Red Ironbark - Black Cypress Pine - stringybark +/- Narrow-leaved Wattle shrubby open forest on sandstone in the Gulgong - Mendooran region, southern Brigalow Belt South Bioregion	Mod_Good	0.24	1	A (0.09 ha) B (0.15 ha)
24	478_Thinned	478-Red Ironbark - Black Cypress Pine - stringybark +/- Narrow-leaved Wattle shrubby open forest on sandstone in the Gulgong - Mendooran region, southern Brigalow Belt South Bioregion	Thinned	0.21	1	A (0.15 ha) B (0.06 ha)
25	479_DNG	479-Narrow-leaved Ironbark- Black Cypress Pine - stringybark +/- Grey Gum +/- Narrow-leaved Wattle shrubby open forest on sandstone hills in the southern Brigalow Belt South Bioregion and Sydney Basin Bioregion	DNG	3.19	2	A (3.19 ha)

26	479_Mod_Good	479-Narrow-leaved Ironbark- Black Cypress Pine - stringybark +/- Grey Gum +/- Narrow-leaved Wattle shrubby open forest on sandstone hills in the southern Brigalow Belt South Bioregion and Sydney Basin Bioregion	Mod_Good	10.31	3	A (3.26 ha) B (6.91 ha) H (0.14 ha)
27	479_Thinned	479-Narrow-leaved Ironbark- Black Cypress Pine - stringybark +/- Grey Gum +/- Narrow-leaved Wattle shrubby open forest on sandstone hills in the southern Brigalow Belt South Bioregion and Sydney Basin Bioregion	Thinned	5.01	3	A (2 ha) B (2.9 ha) HZ (0.11 ha)
28	481_Mod_Good	481-Rough-barked Apple - Blakely's Red Gum - Narrow-leaved Stringybark +/- Grey Gum sandstone riparian grass fern open forest on in the southern Brigalow Belt South Bioregion and Upper Hunter region	Mod_Good	6.27	3	A (1.73 ha) B (4.42 ha) HZ (0.12 ha)
29	481_Thinned	481-Rough-barked Apple - Blakely's Red Gum - Narrow-leaved Stringybark +/- Grey Gum sandstone riparian grass fern open forest on in the southern Brigalow Belt South Bioregion and Upper Hunter region	Thinned	3.22	2	A (0.41 ha) B (2.75 ha) HZ (0.06 ha)

30	1177_DNG	1177-Slaty Gum woodland of the slopes of the southern Brigalow Belt South Bioregion	DNG	0.93	1	A (0.93 ha)
31	1177_DNS	1177-Slaty Gum woodland of the slopes of the southern Brigalow Belt South Bioregion	DNS	1	1	A (1 ha)
32	1177_Mod_Good	1177-Slaty Gum woodland of the slopes of the southern Brigalow Belt South Bioregion	Mod_Good	37.08	4	A (11.36 ha) B (25.07 ha) HZ (0.65 ha)
33	1177_Thinned	1177-Slaty Gum woodland of the slopes of the southern Brigalow Belt South Bioregion	Thinned	2.73	2	A (0.96 ha) B (1.68 ha) HZ (0.09 ha)

BAM Biodiversity Credit Report (Like for like)

Proposal Details

Assessment Id
00038206/BAAS17060/23/00038207

Proposal Name
CWOREZ Inland Slopes subregion - Stubbo Stage

BAM data last updated *
14/04/2023

Assessor Name
Lukas Leslie Clews

Assessor Number
BAAS17060

BAM Data version *
58

Proponent Names

Report Created
15/06/2023

BAM Case Status
Open

Assessment Revision
2

Assessment Type
Major Projects

Date Finalised
To be finalised

* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.

Potential Serious and Irreversible Impacts

Name of threatened ecological community	Listing status	Name of Plant Community Type/ID
White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri	Critically Endangered Ecological Community	277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion

White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri	Critically Endangered Ecological Community	281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion

Species
Chalinolobus dwyeri / Large-eared Pied Bat
Euphrasia arguta / Euphrasia arguta

Additional Information for Approval

PCT Outside Ibra Added

PCT
277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
478-Red Ironbark - Black Cypress Pine - stringybark +/- Narrow-leaved Wattle shrubby open forest on sandstone in the Gulgong - Mendooran region, southern Brigalow Belt South Bioregion

PCTs With Customized Benchmarks

PCT
No Changes

Predicted Threatened Species Not On Site

Name
Lophochroa leadbeateri / Major Mitchell's Cockatoo
Varanus rosenbergi / Rosenberg's Goanna
Pseudomys novaehollandiae / New Holland Mouse

Ecosystem Credit Summary (Number and class of biodiversity credits to be retired)

BAM Biodiversity Credit Report (Like for like)

Name of Plant Community Type/ID	Name of threatened ecological community	Area of impact	HBT Cr	No HBT Cr	Total credits to be retired
277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri	0.5	14	0	14
281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri	4.7	119	10	129
440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion	Not a TEC	5.8	92	13	105
478-Red Ironbark - Black Cypress Pine - stringybark +/- Narrow-leaved Wattle shrubby open forest on sandstone in the Gulgong - Mendooran region, southern Brigalow Belt South Bioregion	Not a TEC	0.2	4	0	4

277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion

Like-for-like credit retirement options

Name of offset trading group	Trading group	Zone	HBT	Credits	IBRA region
White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri This includes PCT's: 74, 75, 83, 250, 266, 267, 268, 270, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 298, 302, 312, 341, 342, 347, 350, 352, 356, 367, 381, 382, 395, 401, 403, 421, 433, 434, 435, 436, 437, 451, 483, 484, 488, 492, 496, 508, 509, 510, 511,	-	277_Mod_Good	Yes	14	Inland Slopes, Bogan-Macquarie, Bondo, Capertee Uplands, Capertee Valley, Crookwell, Hill End, Kerrabee, Lower Slopes, Murray Fans, Murrumbateman, Orange, Pilliga, Talbragar Valley and Wollemi. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	528, 538, 544, 563, 567, 571, 589, 590, 597, 599, 618, 619, 622, 633, 654, 702, 703, 704, 705, 710, 711, 796, 797, 799, 847, 851, 921, 1099, 1303, 1304, 1307, 1324, 1329, 1330, 1332, 1383, 1606, 1608, 1611, 1691, 1693, 1695, 1698, 3314, 3359, 3363, 3373, 3376, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3406, 3415, 3533, 4147, 4149, 4150					
281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion	**Like-for-like credit retirement options**					
	Name of offset trading group	Trading group	Zone	HBT	Credits	IBRA region
	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt	-	281_DNG	No	10	Inland Slopes, Bogan-Macquarie, Bondo, Capertee Uplands, Capertee Valley, Crookwell, Hill End, Kerrabee, Lower Slopes, Murray Fans, Murrumbateman, Orange, Pilliga, Talbragar Valley and Wollemi. or Any IBRA subregion that is within 100

	South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri This includes PCT's: 74, 75, 83, 250, 266, 267, 268, 270, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 298, 302, 312, 341, 342, 347, 350, 352, 356, 367, 381, 382, 395, 401, 403, 421, 433, 434, 435, 436, 437, 451, 483, 484, 488, 492, 496, 508, 509, 510, 511, 528, 538, 544, 563, 567, 571, 589, 590, 597, 599, 618, 619, 622, 633, 654, 702, 703, 704, 705, 710, 711, 796, 797, 799, 847, 851, 921, 1099, 1303, 1304, 1307, 1324, 1329, 1330, 1332, 1383, 1606, 1608, 1611, 1691, 1693, 1695, 1698, 3314, 3359, 3363, 3373, 3376, 3387,					kilometers of the outer edge of the impacted site.

	3388, 3394, 3395, 3396, 3397, 3398, 3399, 3406, 3415, 3533, 4147, 4149, 4150					
	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri This includes PCT's: 74, 75, 83, 250, 266, 267, 268, 270, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 298, 302, 312, 341, 342, 347, 350, 352, 356, 367, 381, 382, 395, 401, 403, 421, 433, 434, 435, 436, 437, 451, 483, 484, 488, 492,	-	281_Mod_Good	Yes	55	Inland Slopes, Bogan-Macquarie, Bondo, Capertee Uplands, Capertee Valley, Crookwell, Hill End, Kerrabee, Lower Slopes, Murray Fans, Murrumbateman, Orange, Pilliga, Talbragar Valley and Wollemi. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	496, 508, 509, 510, 511, 528, 538, 544, 563, 567, 571, 589, 590, 597, 599, 618, 619, 622, 633, 654, 702, 703, 704, 705, 710, 711, 796, 797, 799, 847, 851, 921, 1099, 1303, 1304, 1307, 1324, 1329, 1330, 1332, 1383, 1606, 1608, 1611, 1691, 1693, 1695, 1698, 3314, 3359, 3363, 3373, 3376, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3406, 3415, 3533, 4147, 4149, 4150					
	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South	-	281_Thinned	Yes	64	Inland Slopes, Bogan-Macquarie, Bondo, Capertee Uplands, Capertee Valley, Crookwell, Hill End, Kerrabee, Lower Slopes, Murray Fans, Murrumbateman, Orange, Pilliga, Talbragar Valley and Wollemi. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	Western Slopes, South East Corner and Ri This includes PCT's: 74, 75, 83, 250, 266, 267, 268, 270, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 298, 302, 312, 341, 342, 347, 350, 352, 356, 367, 381, 382, 395, 401, 403, 421, 433, 434, 435, 436, 437, 451, 483, 484, 488, 492, 496, 508, 509, 510, 511, 528, 538, 544, 563, 567, 571, 589, 590, 597, 599, 618, 619, 622, 633, 654, 702, 703, 704, 705, 710, 711, 796, 797, 799, 847, 851, 921, 1099, 1303, 1304, 1307, 1324, 1329, 1330, 1332, 1383, 1606, 1608, 1611, 1691, 1693, 1695, 1698, 3314, 3359, 3363, 3373, 3376, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3406, 3415, 3533, 4147, 4149,					

	4150					
440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion	**Like-for-like credit retirement options**					
	Class	Trading group	Zone	HBT	Credits	IBRA region
	Western Slopes Dry Sclerophyll Forests This includes PCT's: 54, 110, 179, 217, 243, 255, 270, 273, 287, 291, 309, 321, 322, 323, 324, 325, 327, 330, 331, 333, 341, 343, 346, 348, 354, 358, 379, 387, 396, 398, 399, 401, 402, 403, 404, 405, 406, 407, 408, 409, 414, 415, 417, 419, 420, 423, 425, 430, 431, 440, 443, 449, 455, 456, 457, 459, 462, 463, 467, 468, 469, 470, 471, 472, 473, 476, 477, 478, 479, 480, 482, 515, 531, 532, 576, 577, 581, 592, 610, 617, 671, 673, 676, 712, 713, 714, 746, 863, 889, 940, 956, 1133, 1176, 1277, 1278, 1279, 1307, 1313,	Western Slopes Dry Sclerophyll Forests <50%	440_DNG	No	0	Inland Slopes, Bogan-Macquarie, Bondo, Capertee Uplands, Capertee Valley, Crookwell, Hill End, Kerrabee, Lower Slopes, Murray Fans, Murrumbateman, Orange, Pilliga, Talbragar Valley and Wollemi. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	1314, 1316, 1381, 1610, 1654, 1655, 1656, 1660, 1661, 1663, 1668, 1669, 1671, 1672, 1674, 1676, 1679, 1709, 1711, 1770, 1771, 3753, 3754, 3756, 3757, 3758, 3759, 3760, 3761, 3762, 3763, 3766, 3767, 3768, 3769, 3770, 3771, 3772, 3773, 3774, 3775, 3776, 3777, 3778, 3780, 3781, 3782, 3783, 3784, 3785, 3786, 4153					
	Western Slopes Dry Sclerophyll Forests This includes PCT's: 54, 110, 179, 217, 243, 255, 270, 273, 287, 291, 309, 321, 322, 323, 324, 325, 327, 330, 331, 333, 341, 343, 346, 348, 354, 358, 379, 387, 396, 398, 399, 401, 402, 403, 404, 405, 406, 407, 408, 409, 414, 415, 417, 419, 420, 423, 425, 430, 431, 440, 443, 449, 455, 456, 457,	Western Slopes Dry Sclerophyll Forests <50%	440_DNS	No	13	Inland Slopes, Bogan-Macquarie, Bondo, Capertee Uplands, Capertee Valley, Crookwell, Hill End, Kerrabee, Lower Slopes, Murray Fans, Murrumbateman, Orange, Pilliga, Talbragar Valley and Wollemi. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	459, 462, 463, 467, 468, 469, 470, 471, 472, 473, 476, 477, 478, 479, 480, 482, 515, 531, 532, 576, 577, 581, 592, 610, 617, 671, 673, 676, 712, 713, 714, 746, 863, 889, 940, 956, 1133, 1176, 1277, 1278, 1279, 1307, 1313, 1314, 1316, 1381, 1610, 1654, 1655, 1656, 1660, 1661, 1663, 1668, 1669, 1671, 1672, 1674, 1676, 1679, 1709, 1711, 1770, 1771, 3753, 3754, 3756, 3757, 3758, 3759, 3760, 3761, 3762, 3763, 3766, 3767, 3768, 3769, 3770, 3771, 3772, 3773, 3774, 3775, 3776, 3777, 3778, 3780, 3781, 3782, 3783, 3784, 3785, 3786, 4153					
	Western Slopes Dry Sclerophyll Forests This includes PCT's: 54, 110, 179, 217, 243, 255, 270, 273, 287, 291,	Western Slopes Dry Sclerophyll Forests <50%	440_Mod_Good	Yes	78	Inland Slopes, Bogan-Macquarie, Bondo, Capertee Uplands, Capertee Valley, Crookwell, Hill End, Kerrabee, Lower Slopes, Murray Fans, Murrumbateman, Orange, Pilliga,

	309, 321, 322, 323, 324, 325, 327, 330, 331, 333, 341, 343, 346, 348, 354, 358, 379, 387, 396, 398, 399, 401, 402, 403, 404, 405, 406, 407, 408, 409, 414, 415, 417, 419, 420, 423, 425, 430, 431, 440, 443, 449, 455, 456, 457, 459, 462, 463, 467, 468, 469, 470, 471, 472, 473, 476, 477, 478, 479, 480, 482, 515, 531, 532, 576, 577, 581, 592, 610, 617, 671, 673, 676, 712, 713, 714, 746, 863, 889, 940, 956, 1133, 1176, 1277, 1278, 1279, 1307, 1313, 1314, 1316, 1381, 1610, 1654, 1655, 1656, 1660, 1661, 1663, 1668, 1669, 1671, 1672, 1674, 1676, 1679, 1709, 1711, 1770, 1771, 3753, 3754, 3756, 3757, 3758, 3759, 3760, 3761, 3762, 3763, 3766, 3767, 3768, 3769, 3770,					Talbragar Valley and Wollemi. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	3771, 3772, 3773, 3774, 3775, 3776, 3777, 3778, 3780, 3781, 3782, 3783, 3784, 3785, 3786, 4153					
	Western Slopes Dry Sclerophyll Forests This includes PCT's: 54, 110, 179, 217, 243, 255, 270, 273, 287, 291, 309, 321, 322, 323, 324, 325, 327, 330, 331, 333, 341, 343, 346, 348, 354, 358, 379, 387, 396, 398, 399, 401, 402, 403, 404, 405, 406, 407, 408, 409, 414, 415, 417, 419, 420, 423, 425, 430, 431, 440, 443, 449, 455, 456, 457, 459, 462, 463, 467, 468, 469, 470, 471, 472, 473, 476, 477, 478, 479, 480, 482, 515, 531, 532, 576, 577, 581, 592, 610, 617, 671, 673, 676, 712, 713, 714, 746, 863, 889, 940, 956, 1133, 1176, 1277, 1278, 1279, 1307, 1313,	Western Slopes Dry Sclerophyll Forests <50%	440_Thinned	Yes	14	Inland Slopes, Bogan-Macquarie, Bondo, Capertee Uplands, Capertee Valley, Crookwell, Hill End, Kerrabee, Lower Slopes, Murray Fans, Murrumbateman, Orange, Pilliga, Talbragar Valley and Wollemi. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	1314, 1316, 1381, 1610, 1654, 1655, 1656, 1660, 1661, 1663, 1668, 1669, 1671, 1672, 1674, 1676, 1679, 1709, 1711, 1770, 1771, 3753, 3754, 3756, 3757, 3758, 3759, 3760, 3761, 3762, 3763, 3766, 3767, 3768, 3769, 3770, 3771, 3772, 3773, 3774, 3775, 3776, 3777, 3778, 3780, 3781, 3782, 3783, 3784, 3785, 3786, 4153					

478-Red Ironbark - Black Cypress Pine - stringybark +/- Narrow-leaved Wattle shrubby open forest on sandstone in the Gulgong - Mendooran region, southern Brigalow Belt South Bioregion	**Like-for-like credit retirement options**					
	Class	Trading group	Zone	HBT	Credits	IBRA region
	Western Slopes Dry Sclerophyll Forests This includes PCT's: 54, 110, 179, 217, 243, 255, 270, 273, 287, 291, 309, 321, 322, 323, 324, 325, 327, 330, 331, 333, 341, 343, 346, 348, 354,	Western Slopes Dry Sclerophyll Forests <50%	478_Mod_Good	Yes	4	Inland Slopes, Bogan-Macquarie, Bondo, Capertee Uplands, Capertee Valley, Crookwell, Hill End, Kerrabee, Lower Slopes, Murray Fans, Murrumbateman, Orange, Pilliga, Talbragar Valley and Wollemi. or Any IBRA subregion that is within 100

	358, 379, 387, 396, 398, 399, 401, 402, 403, 404, 405, 406, 407, 408, 409, 414, 415, 417, 419, 420, 423, 425, 430, 431, 440, 443, 449, 455, 456, 457, 459, 462, 463, 467, 468, 469, 470, 471, 472, 473, 476, 477, 478, 479, 480, 482, 515, 531, 532, 576, 577, 581, 592, 610, 617, 671, 673, 676, 712, 713, 714, 746, 863, 889, 940, 956, 1133, 1176, 1277, 1278, 1279, 1307, 1313, 1314, 1316, 1381, 1610, 1654, 1655, 1656, 1660, 1661, 1663, 1668, 1669, 1671, 1672, 1674, 1676, 1679, 1709, 1711, 1770, 1771, 3753, 3754, 3756, 3757, 3758, 3759, 3760, 3761, 3762, 3763, 3766, 3767, 3768, 3769, 3770, 3771, 3772, 3773, 3774, 3775, 3776, 3777, 3778, 3780, 3781, 3782, 3783,					kilometers of the outer edge of the impacted site.

	3784, 3785, 3786, 4153					

Species Credit Summary

Species	Vegetation Zone/s	Area / Count	Credits
Aprasia parapulchella / Pink-tailed Legless Lizard	**440_Mod_Good, 440_Thinned**	0.1	4.00
Calyptorhynchus lathami / Glossy Black-Cockatoo	**277_Mod_Good, 281_Mod_Good, 281_Thinned, 440_DNS, 440_Mod_Good, 440_Thinned**	3.7	81.00
Cercartetus nanus / Eastern Pygmy-possum	**440_Mod_Good, 440_Thinned**	4.3	123.00
Chalinolobus dwyeri / Large-eared Pied Bat	**281_Thinned**	0.0	1.00
Dichanthium setosum / Bluegrass	**281_Mod_Good, 281_Thinned**	0.6	13.00
Eucalyptus cannonii / Capertee Stringybark	**440_DNS, 440_Mod_Good**	2.0	4.00
Euphrasia arguta / Euphrasia arguta	**277_Mod_Good, 281_Mod_Good**	0.5	20.00
Hoplocephalus bitorquatus / Pale-headed Snake	**440_Mod_Good, 440_Thinned**	4.3	123.00
Petaurus norfolcensis / Squirrel Glider	**277_Mod_Good, 281_Mod_Good, 281_Thinned, 440_Mod_Good, 440_Thinned**	8.7	230.00

Phascolarctos cinereus / Koala	**277_Mod_Good, 281_Mod_Good, 281_Thinned, 440_Mod_Good, 440_Thinned, 478_Mod_Good**	8.9	235.00

Credit Retirement Options

Like-for-like credit retirement options

Aprasia parapulchella / Pink-tailed Legless Lizard	Spp	IBRA subregion
	Aprasia parapulchella / Pink-tailed Legless Lizard	Any in NSW
Calyptorhynchus lathami / Glossy Black-Cockatoo	Spp	IBRA subregion
	Calyptorhynchus lathami / Glossy Black-Cockatoo	Any in NSW
Cercartetus nanus / Eastern Pygmy-possum	Spp	IBRA subregion
	Cercartetus nanus / Eastern Pygmy-possum	Any in NSW
Chalinolobus dwyeri / Large-eared Pied Bat	Spp	IBRA subregion
	Chalinolobus dwyeri / Large-eared Pied Bat	Any in NSW
Dichanthium setosum / Bluegrass	Spp	IBRA subregion
	Dichanthium setosum / Bluegrass	Any in NSW

Eucalyptus cannonii / Capertee Stringybark	Spp	IBRA subregion
	Eucalyptus cannonii / Capertee Stringybark	Any in NSW
Euphrasia arguta / Euphrasia arguta	Spp	IBRA subregion
	Euphrasia arguta / Euphrasia arguta	Any in NSW
Hoplocephalus bitorquatus / Pale-headed Snake	Spp	IBRA subregion
	Hoplocephalus bitorquatus / Pale-headed Snake	Any in NSW
Petaurus norfolcensis / Squirrel Glider	Spp	IBRA subregion
	Petaurus norfolcensis / Squirrel Glider	Any in NSW
Phascolarctos cinereus / Koala	Spp	IBRA subregion
	Phascolarctos cinereus / Koala	Any in NSW

BAM Candidate Species Report

Proposal Details

Assessment Id 00038206/BAAS17060/23/00038207	Proposal Name CWOREZ Inland Slopes subregion - Stubbo Stage	BAM data last updated * 14/04/2023
Assessor Name Lukas Leslie Clews	Report Created 15/06/2023	BAM Data version * 58
Assessor Number BAAS17060	Assessment Type Major Projects	BAM Case Status Open
Assessment Revision 2	Date Finalised To be finalised	

* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.

List of Species Requiring Survey

Name	Presence	Survey Months
Acacia ausfeldii Ausfeld's Wattle	No (surveyed)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☑ Aug ☑ Sep ☑ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Aprasia parapulchella Pink-tailed Legless Lizard	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Burhinus grallarius Bush Stone-curlew	No (surveyed)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☑ Oct ☑ Nov ☑ Dec ☐ Survey month outside the specified months?

Callocephalon fimbriatum Gang-gang Cockatoo	No (surveyed)	☑ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☑ Nov ☑ Dec ☐ Survey month outside the specified months?
Calyptorhynchus lathami Glossy Black-Cockatoo	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Cercartetus nanus Eastern Pygmy-possum	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Chalinolobus dwyeri Large-eared Pied Bat	Yes (surveyed)	☑ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Dichanthium setosum Bluegrass	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Eucalyptus cannonii Capertee Stringybark	Yes (surveyed)	☐ Jan ☑ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☑ Sep ☑ Oct ☑ Nov ☐ Dec ☐ Survey month outside the specified months?

Euphrasia arguta Euphrasia arguta	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Haliaeetus leucogaster White-bellied Sea-Eagle	No (surveyed)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☑ Dec ☐ Survey month outside the specified months?
Hieraaetus morphnoides Little Eagle	No (surveyed)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☑ Sep ☑ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Homoranthus darwinioides Fairy Bells	No (surveyed)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☑ Jul ☑ Aug ☑ Sep ☑ Oct ☑ Nov ☑ Dec ☐ Survey month outside the specified months?
Hoplocephalus bitorquatus Pale-headed Snake	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Litoria booroolongensis Booroolong Frog	No (surveyed)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☑ Nov ☐ Dec ☐ Survey month outside the specified months?

Ninox connivens Barking Owl	No (surveyed)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☑ Aug ☑ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Ninox strenua Powerful Owl	No (surveyed)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☑ Jul ☑ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Petaurus norfolcensis Squirrel Glider	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Petrogale penicillata Brush-tailed Rock-wallaby	No (surveyed)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☑ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Phascolarctos cinereus Koala	Yes (surveyed)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☑ Oct ☑ Nov ☐ Dec ☐ Survey month outside the specified months?
Polytelis swainsonii Superb Parrot	No (surveyed)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☑ Sep ☑ Oct ☑ Nov ☐ Dec ☐ Survey month outside the specified months?

Pomaderris queenslandica Scant Pomaderris	No (surveyed)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☑ Jul ☑ Aug ☑ Sep ☑ Oct ☑ Nov ☑ Dec ☐ Survey month outside the specified months?
Prasophyllum petilum Tarengo Leek Orchid	No (surveyed)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☑ Sep ☑ Oct ☑ Nov ☑ Dec ☐ Survey month outside the specified months?
Swainsona recta Small Purple-pea	No (surveyed)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☑ Sep ☑ Oct ☑ Nov ☐ Dec ☐ Survey month outside the specified months?
Swainsona sericea Silky Swainson-pea	No (surveyed)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☑ Sep ☑ Oct ☑ Nov ☐ Dec ☐ Survey month outside the specified months?
Tylophora linearis Tylophora linearis	No (surveyed)	☑ Jan ☑ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☑ Oct ☑ Nov ☑ Dec ☐ Survey month outside the specified months?
Tyto novaehollandiae Masked Owl	No (surveyed)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☑ Jul ☑ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?

BAM Candidate Species Report

Threatened species Manually Added

Common Name	Scientific Name
Capertee Stringybark	Eucalyptus cannonii

Threatened species assessed as not on site

Refer to BAR for detailed justification

Common name	Scientific name	Justification in the BAM-C
Brush-tailed Phascogale	Phascogale tapoatafa	Species is vagrant
Cotoneaster Pomaderris	Pomaderris cotoneaster	Habitat degraded Geographic limitations
Golden Sun Moth	Synemon plana	Species is vagrant
Grey-headed Flying-fox	Pteropus poliocephalus	Habitat constraints
Key's Matchstick Grasshopper	Keyacris scurra	Species is vagrant
Large Bent-winged Bat	Miniopterus orianae oceanensis	Habitat constraints
Major Mitchell's Cockatoo	Lophochroa leadbeateri	Species is vagrant
Prasophyllum sp. Wybong	Prasophyllum sp. Wybong	Species is vagrant
Regent Honeyeater	Anthochaera phrygia	Habitat constraints
Small Scurf-pea	Cullen parvum	Species is vagrant
Square-tailed Kite	Lophoictinia isura	Habitat constraints
Squirrel Glider in the Wagga Wagga Local Government Area	Petaurus norfolcensis - endangered population	Refer to BAR
Striped Legless Lizard	Delma impar	Refer to BAR
Swift Parrot	Lathamus discolor	Habitat constraints
Yass Daisy	Ammobium craspedioides	Refer to BAR

BAM Credit Summary Report

Proposal Details

Assessment Id
00038206/BAAS17060/23/00038207

Proposal Name
CWOREZ Inland Slopes subregion - Stubbo Stage

BAM data last updated *
14/04/2023

Assessor Name
Lukas Leslie Clews

Report Created
15/06/2023

BAM Data version *
58

Assessor Number
BAAS17060

BAM Case Status
Open

Date Finalised
To be finalised

Assessment Revision
2

Assessment Type
Major Projects

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Ecosystem credits for plant communities types (PCT), ecological communities & threatened species habitat

Zone	Vegetation zone name	TEC name	Current Vegetation integrity score	Change in Vegetation integrity (loss / gain)	Area (ha)	Sensitivity to loss (Justification)	Species sensitivity to gain class	BC Act Listing status	EPBC Act listing status	Biodiversity risk weighting	Potential SAII	Ecosystem credits

Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion												
1	277_Mod_Good	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri	85	45.3	0.51	Population size	High Sensitivity to Gain	Critically Endangered Ecological Community	Not Listed	2.50	True	14
											Subtotal	**14**

Red Ironbark - Black Cypress Pine - stringybark +/- Narrow-leaved Wattle shrubby open forest on sandstone in the Gulgong - Mendooran region, southern Brigalow Belt South Bioregion												
9	478_Mod_Good	Not a TEC	80.6	66.2	0.15	PCT Cleared - 29%	High Sensitivity to Gain			1.50		4
											Subtotal	**4**
Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion												
5	440_DNG	Not a TEC	7.6	7.6	0.03	PCT Cleared - 34%	High Sensitivity to Gain			1.50		0
6	440_DNS	Not a TEC	23.4	23.4	1.4	PCT Cleared - 34%	High Sensitivity to Gain			1.50		13
7	440_Mod_Good	Not a TEC	90.8	58.3	3.6	PCT Cleared - 34%	High Sensitivity to Gain			1.50		78
8	440_Thinned	Not a TEC	66.5	52.5	0.73	PCT Cleared - 34%	High Sensitivity to Gain			1.50		14
											Subtotal	**105**

Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion												
2	281_DNG	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri	22.9	22.9	0.73	Population size	High Sensitivity to Gain	Critically Endangered Ecological Community	Not Listed	2.50	True	10

3	281_Mod_Good	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri	90.5	51.7	1.7	Population size	High Sensitivity to Gain	Critically Endangered Ecological Community	Not Listed	2.50	True	55

4	281_Thinned	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri	81.9	46.5	2.2	Population size	High Sensitivity to Gain	Critically Endangered Ecological Community	Not Listed	2.50	True	64
											Subtotal	**129**
											Total	**252**

Species credits for threatened species

Vegetation zone name	Habitat condition (Vegetation Integrity)	Change in habitat condition	Area (ha)/Count (no. individuals)	Sensitivity to loss (Justification)	Sensitivity to gain (Justification)	BC Act Listing status	EPBC Act listing status	Potential SAII	Species credits
Aprasia parapulchella / Pink-tailed Legless Lizard (Fauna)									
440_Mod_Good	58.3	58.3	0.07	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Vulnerable	False	2
440_Thinned	52.5	52.5	0.07	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Vulnerable	False	2
								Subtotal	**4**
Calyptorhynchus lathami / Glossy Black-Cockatoo (Fauna)									
277_Mod_Good	45.3	45.3	0.49	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Vulnerable	False	11
281_Mod_Good	51.7	51.7	1.1	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Vulnerable	False	29
281_Thinned	46.5	46.5	0.31	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Vulnerable	False	7

440_DNS	23.4	23.4	1	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Vulnerable	False	12
440_Mod_Good	58.3	58.3	0.45	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Vulnerable	False	13
440_Thinned	52.5	52.5	0.34	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Vulnerable	False	9
								Subtotal	**81**
Cercartetus nanus / Eastern Pygmy-possum (Fauna)									
440_Mod_Good	58.3	58.3	3.6	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Not Listed	False	104
440_Thinned	52.5	52.5	0.73	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Not Listed	False	19
								Subtotal	**123**

Chalinolobus dwyeri / Large-eared Pied Bat (Fauna)									
281_Thinned	46.5	46.5	0.03	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Vulnerable	True	1
								Subtotal	**1**
Dichanthium setosum / Bluegrass (Flora)									
281_Mod_Good	51.7	51.7	0.19	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Vulnerable	False	5
281_Thinned	46.5	46.5	0.36	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Vulnerable	False	8
								Subtotal	**13**
Eucalyptus cannonii / Capertee Stringybark (Flora)									
440_DNS	N/A	N/A	1	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Not Listed	False	2

440_Mod_Good	N/A	N/A	1	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Not Listed	False	2
								Subtotal	**4**
Euphrasia arguta / Euphrasia arguta (Flora)									
277_Mod_Good	45.3	45.3	0.11	Biodiversity Conservation Act listing status	Ecology or response to management is poorly known	Critically Endangered	Critically Endangered	True	4
281_Mod_Good	51.7	51.7	0.4	Biodiversity Conservation Act listing status	Ecology or response to management is poorly known	Critically Endangered	Critically Endangered	True	16
								Subtotal	**20**
Hoplocephalus bitorquatus / Pale-headed Snake (Fauna)									
440_Mod_Good	58.3	58.3	3.6	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	104
440_Thinned	52.5	52.5	0.73	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	19

								Subtotal	**123**
Petaurus norfolcensis / Squirrel Glider (Fauna)									
277_Mod_Good	45.3	45.3	0.5	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	11
281_Mod_Good	51.7	51.7	1.7	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	44
281_Thinned	46.5	46.5	2.2	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	52
440_Mod_Good	58.3	58.3	3.6	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	104
440_Thinned	52.5	52.5	0.73	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	19
								Subtotal	**230**
Phascolarctos cinereus / Koala (Fauna)									
277_Mod_Good	45.3	45.3	0.5	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Endangered	False	11

281_Mod_Good	51.7	51.7	1.7	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Endangered	False	44
281_Thinned	46.5	46.5	2.2	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Endangered	False	52
440_Mod_Good	58.3	58.3	3.6	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Endangered	False	104
440_Thinned	52.5	52.5	0.73	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Endangered	False	19
478_Mod_Good	66.2	66.2	0.15	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Endangered	False	5
								Subtotal	**235**

BAM Predicted Species Report

Proposal Details

Assessment Id	Proposal Name	BAM data last updated *
00038206/BAAS17060/23/00038207	CWOREZ Inland Slopes subregion - Stubbo Stage	14/04/2023
Assessor Name	**Report Created**	**BAM Data version ***
Lukas Leslie Clews	15/06/2023	58
Assessor Number	**Assessment Type**	**BAM Case Status**
BAAS17060	Major Projects	Open
Assessment Revision		**Date Finalised**
2		To be finalised

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Threatened species reliably predicted to utilise the site. No surveys are required for these species. Ecosystem credits apply to these species.

Common Name	Scientific Name	Vegetation Types(s)
Barking Owl	Ninox connivens	277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
		281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
		478-Red Ironbark - Black Cypress Pine - stringybark +/- Narrow-leaved Wattle shrubby open forest on sandstone in the Gulgong - Mendooran region, southern Brigalow Belt South Bioregion
Black Falcon	Falco subniger	277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
		281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion

Black-chinned Honeyeater (eastern subspecies)	Melithreptus gularis gularis	277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
		281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
Brown Treecreeper (eastern subspecies)	Climacteris picumnus victoriae	277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
		281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
Corben's Long-eared Bat	Nyctophilus corbeni	440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
Diamond Firetail	Stagonopleura guttata	277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
		281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
Dusky Woodswallow	Artamus cyanopterus cyanopterus	277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
		281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
		478-Red Ironbark - Black Cypress Pine - stringybark +/- Narrow-leaved Wattle shrubby open forest on sandstone in the Gulgong - Mendooran region, southern Brigalow Belt South Bioregion

Eastern False Pipistrelle	Falsistrellus tasmaniensis	277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
Flame Robin	Petroica phoenicea	277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
		281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
Gang-gang Cockatoo	Callocephalon fimbriatum	277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
		281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
Gilbert's Whistler	Pachycephala inornata	440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
Glossy Black-Cockatoo	Calyptorhynchus lathami	440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
Grey-crowned Babbler (eastern subspecies)	Pomatostomus temporalis temporalis	277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
		281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
Grey-headed Flying-fox	Pteropus poliocephalus	277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
		281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
Hooded Robin (south-eastern form)	Melanodryas cucullata cucullata	277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion

Hooded Robin (south-eastern form)	Melanodryas cucullata cucullata	281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
Large Bent-winged Bat	Miniopterus orianae oceanensis	277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
		281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
Little Eagle	Hieraaetus morphnoides	277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
		281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
Little Lorikeet	Glossopsitta pusilla	277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
		281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
		478-Red Ironbark - Black Cypress Pine - stringybark +/- Narrow-leaved Wattle shrubby open forest on sandstone in the Gulgong - Mendooran region, southern Brigalow Belt South Bioregion
Little Pied Bat	Chalinolobus picatus	281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion

Little Pied Bat	Chalinolobus picatus	440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
Masked Owl	Tyto novaehollandiae	277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
		281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
Painted Honeyeater	Grantiella picta	277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
		281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
		478-Red Ironbark - Black Cypress Pine - stringybark +/- Narrow-leaved Wattle shrubby open forest on sandstone in the Gulgong - Mendooran region, southern Brigalow Belt South Bioregion
Powerful Owl	Ninox strenua	281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
Regent Honeyeater	Anthochaera phrygia	277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
		281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
Scarlet Robin	Petroica boodang	277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
		281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion

Scarlet Robin	Petroica boodang	440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
Speckled Warbler	Chthonicola sagittata	277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
		281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
Spotted Harrier	Circus assimilis	277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
		281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
Spotted-tailed Quoll	Dasyurus maculatus	277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
		281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
Square-tailed Kite	Lophoictinia isura	277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
		281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
Superb Parrot	Polytelis swainsonii	277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion

Superb Parrot	Polytelis swainsonii	281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
Swift Parrot	Lathamus discolor	277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
		281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
		478-Red Ironbark - Black Cypress Pine - stringybark +/- Narrow-leaved Wattle shrubby open forest on sandstone in the Gulgong - Mendooran region, southern Brigalow Belt South Bioregion
Turquoise Parrot	Neophema pulchella	277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
		281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
		478-Red Ironbark - Black Cypress Pine - stringybark +/- Narrow-leaved Wattle shrubby open forest on sandstone in the Gulgong - Mendooran region, southern Brigalow Belt South Bioregion
Varied Sittella	Daphoenositta chrysoptera	277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
		281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion

White-bellied Sea-Eagle	Haliaeetus leucogaster	277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
		281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
White-throated Needletail	Hirundapus caudacutus	277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
		281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
		478-Red Ironbark - Black Cypress Pine - stringybark +/- Narrow-leaved Wattle shrubby open forest on sandstone in the Gulgong - Mendooran region, southern Brigalow Belt South Bioregion
Yellow-bellied Sheathtail-bat	Saccolaimus flaviventris	277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
		281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion

Threatened species Manually Added

None added

Threatened species assessed as not within the vegetation zone(s) for the PCT(s)

Common Name	Scientific Name	Plant Community Type(s)
Major Mitchell's Cockatoo	Lophochroa leadbeateri	440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
New Holland Mouse	Pseudomys novaehollandiae	440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion

Rosenberg's Goanna	Varanus rosenbergi	281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion

Threatened species assessed as not within the vegetation zone(s) for the PCT(s)

Refer to BAR for detailed justification

Common Name	Scientific Name	Justification in the BAM-C
Major Mitchell's Cockatoo	Lophochroa leadbeateri	Species is vagrant
New Holland Mouse	Pseudomys novaehollandiae	Refer to BAR
Rosenberg's Goanna	Varanus rosenbergi	Refer to BAR

BAM Vegetation Zones Report

Proposal Details

Assessment Id
00038206/BAAS17060/23/00038207

Assessment name
CWOREZ Inland Slopes subregion - Stubbo Stage

BAM data last updated *
14/04/2023

Assessor Name
Lukas Leslie Clews

Report Created
15/06/2023

BAM Data version *
58

Assessor Number
BAAS17060

Assessment Type
Major Projects

BAM Case Status
Open

Assessment Revision
2

Date Finalised
To be finalised

* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.

Vegetation Zones

#	Name	PCT	Condition	Area	Minimum number of plots	Management zones
1	277_Mod_Good	277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion	Mod_Good	0.51	1	A (0.11 ha) B (0.39 ha) HZ (0.01 ha)

2	281_DNG	281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion	DNG	0.73	1	A (0.73 ha)
3	281_Mod_Good	281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion	Mod_Good	1.71	1	A (0.4 ha) B (1.29 ha) HZ (0.02 ha)
4	281_Thinned	281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion	Thinned	2.22	2	A (0.38 ha) B (1.84 ha)
5	440_DNG	440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion	DNG	0.03	1	A (0.03 ha)
6	440_DNS	440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion	DNS	1.45	1	A (1.45 ha)

7	440_Mod_Good	440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion	Mod_Good	3.55	2	A (0.68 ha) B (2.8 ha) HZ (0.07 ha)
8	440_Thinned	440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion	Thinned	0.73	1	A (0.37 ha) B (0.35 ha) HZ (0.01 ha)
9	478_Mod_Good	478-Red Ironbark - Black Cypress Pine - stringybark +/- Narrow-leaved Wattle shrubby open forest on sandstone in the Gulgong - Mendooran region, southern Brigalow Belt South Bioregion	Mod_Good	0.15	1	A (0.09 ha) B (0.05 ha) HZ (0.01 ha)

BAM Biodiversity Credit Report (Like for like)

Proposal Details

Assessment Id
00038218/BAAS17060/23/00038219

Proposal Name
CWOREZ Kerrabee subregion - Liverpool Range

BAM data last updated *
14/04/2023

Assessor Name
Lukas Leslie Clews

Assessor Number
BAAS17060

BAM Data version *
58

Proponent Names

Report Created
13/06/2023

BAM Case Status
Open

Assessment Revision
4

Assessment Type
Major Projects

Date Finalised
To be finalised

* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.

Potential Serious and Irreversible Impacts

Name of threatened ecological community	Listing status	Name of Plant Community Type/ID
White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri	Critically Endangered Ecological Community	281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion

White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri	Critically Endangered Ecological Community	483-Grey Box x White Box grassy open woodland on basalt hills in the Merriwa region, upper Hunter Valley

Species
Nil

Additional Information for Approval

PCT Outside Ibra Added

PCT
281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
477-Inland Scribbly Gum - Red Stringybark - Black Cypress Pine - Red Ironbark open forest on sandstone hills in the southern Brigalow Belt South Bioregion and northern NSW South Western Slopes Bioregion
479-Narrow-leaved Ironbark- Black Cypress Pine - stringybark +/- Grey Gum +/- Narrow-leaved Wattle shrubby open forest on sandstone hills in the southern Brigalow Belt South Bioregion and Sydney Basin Bioregion
483-Grey Box x White Box grassy open woodland on basalt hills in the Merriwa region, upper Hunter Valley
1661-Narrow-leaved Ironbark - Black Pine - Sifton Bush heathy open forest on sandstone ranges of the upper Hunter and Sydney Basin

PCTs With Customized Benchmarks

PCT
No Changes

Predicted Threatened Species Not On Site

Name
No Changes

Ecosystem Credit Summary (Number and class of biodiversity credits to be retired)

Name of Plant Community Type/ID	Name of threatened ecological community	Area of impact	HBT Cr	No HBT Cr	Total credits to be retired
281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri	1.8	13	24	37
440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion	Not a TEC	1.4	26	0	26
477-Inland Scribbly Gum - Red Stringybark - Black Cypress Pine - Red Ironbark open forest on sandstone hills in the southern Brigalow Belt South Bioregion and northern NSW South Western Slopes Bioregion	Not a TEC	15.4	264	13	277

479-Narrow-leaved Ironbark- Black Cypress Pine - stringybark +/- Grey Gum +/- Narrow-leaved Wattle shrubby open forest on sandstone hills in the southern Brigalow Belt South Bioregion and Sydney Basin Bioregion	Not a TEC	23.3	502	0	502
483-Grey Box x White Box grassy open woodland on basalt hills in the Merriwa region, upper Hunter Valley	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri	0.9	15	0	15
1661-Narrow-leaved Ironbark - Black Pine - Sifton Bush heathy open forest on sandstone ranges of the upper Hunter and Sydney Basin	Not a TEC	2.8	11	0	11

281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion

Like-for-like credit retirement options

Name of offset trading group	Trading group	Zone	HBT	Credits	IBRA region
White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt	-	281_DNG	No	24	Kerrabee, Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri This includes PCT's: 74, 75, 83, 250, 266, 267, 268, 270, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 298, 302, 312, 341, 342, 347, 350, 352, 356, 367, 381, 382, 395, 401, 403, 421, 433, 434, 435, 436, 437, 451, 483, 484, 488, 492, 496, 508, 509, 510, 511, 528, 538, 544, 563, 567, 571, 589, 590, 597, 599, 618, 619, 622, 633, 654, 702, 703, 704, 705, 710, 711, 796, 797, 799, 847, 851, 921, 1099, 1303, 1304, 1307, 1324, 1329, 1330, 1332, 1383, 1606, 1608, 1611, 1691, 1693, 1695, 1698, 3314, 3359, 3363, 3373, 3376, 3387,					

	3388, 3394, 3395, 3396, 3397, 3398, 3399, 3406, 3415, 3533, 4147, 4149, 4150					
	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri This includes PCT's: 74, 75, 83, 250, 266, 267, 268, 270, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 298, 302, 312, 341, 342, 347, 350, 352, 356, 367, 381, 382, 395, 401, 403, 421, 433, 434, 435, 436, 437, 451, 483, 484, 488, 492,	-	281_Thinned	Yes	13	Kerrabee, Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	496, 508, 509, 510, 511, 528, 538, 544, 563, 567, 571, 589, 590, 597, 599, 618, 619, 622, 633, 654, 702, 703, 704, 705, 710, 711, 796, 797, 799, 847, 851, 921, 1099, 1303, 1304, 1307, 1324, 1329, 1330, 1332, 1383, 1606, 1608, 1611, 1691, 1693, 1695, 1698, 3314, 3359, 3363, 3373, 3376, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3406, 3415, 3533, 4147, 4149, 4150					
440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion	**Like-for-like credit retirement options**					
	Class	Trading group	Zone	HBT	Credits	IBRA region
	Western Slopes Dry Sclerophyll Forests This includes PCT's: 54, 110, 179, 217, 243, 255, 270, 273, 287, 291, 309, 321, 322, 323, 324, 325, 327, 330, 331, 333, 341, 343, 346, 348, 354,	Western Slopes Dry Sclerophyll Forests <50%	440_DNG	No	0	Kerrabee, Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	358, 379, 387, 396, 398, 399, 401, 402, 403, 404, 405, 406, 407, 408, 409, 414, 415, 417, 419, 420, 423, 425, 430, 431, 440, 443, 449, 455, 456, 457, 459, 462, 463, 467, 468, 469, 470, 471, 472, 473, 476, 477, 478, 479, 480, 482, 515, 531, 532, 576, 577, 581, 592, 610, 617, 671, 673, 676, 712, 713, 714, 746, 863, 889, 940, 956, 1133, 1176, 1277, 1278, 1279, 1307, 1313, 1314, 1316, 1381, 1610, 1654, 1655, 1656, 1660, 1661, 1663, 1668, 1669, 1671, 1672, 1674, 1676, 1679, 1709, 1711, 1770, 1771, 3753, 3754, 3756, 3757, 3758, 3759, 3760, 3761, 3762, 3763, 3766, 3767, 3768, 3769, 3770, 3771, 3772, 3773, 3774, 3775, 3776, 3777, 3778, 3780, 3781, 3782, 3783,					

	3784, 3785, 3786, 4153					
	Western Slopes Dry Sclerophyll Forests This includes PCT's: 54, 110, 179, 217, 243, 255, 270, 273, 287, 291, 309, 321, 322, 323, 324, 325, 327, 330, 331, 333, 341, 343, 346, 348, 354, 358, 379, 387, 396, 398, 399, 401, 402, 403, 404, 405, 406, 407, 408, 409, 414, 415, 417, 419, 420, 423, 425, 430, 431, 440, 443, 449, 455, 456, 457, 459, 462, 463, 467, 468, 469, 470, 471, 472, 473, 476, 477, 478, 479, 480, 482, 515, 531, 532, 576, 577, 581, 592, 610, 617, 671, 673, 676, 712, 713, 714, 746, 863, 889, 940, 956, 1133, 1176, 1277, 1278, 1279, 1307, 1313, 1314, 1316, 1381, 1610, 1654, 1655, 1656, 1660, 1661, 1663, 1668, 1669,	Western Slopes Dry Sclerophyll Forests <50%	440_Mod_Good	Yes	25	Kerrabee, Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	1671, 1672, 1674, 1676, 1679, 1709, 1711, 1770, 1771, 3753, 3754, 3756, 3757, 3758, 3759, 3760, 3761, 3762, 3763, 3766, 3767, 3768, 3769, 3770, 3771, 3772, 3773, 3774, 3775, 3776, 3777, 3778, 3780, 3781, 3782, 3783, 3784, 3785, 3786, 4153					
	Western Slopes Dry Sclerophyll Forests This includes PCT's: 54, 110, 179, 217, 243, 255, 270, 273, 287, 291, 309, 321, 322, 323, 324, 325, 327, 330, 331, 333, 341, 343, 346, 348, 354, 358, 379, 387, 396, 398, 399, 401, 402, 403, 404, 405, 406, 407, 408, 409, 414, 415, 417, 419, 420, 423, 425, 430, 431, 440, 443, 449, 455, 456, 457, 459, 462, 463, 467, 468, 469, 470, 471, 472, 473, 476, 477, 478, 479, 480,	Western Slopes Dry Sclerophyll Forests <50%	440_Thinned	Yes	1	Kerrabee, Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	482, 515, 531, 532, 576, 577, 581, 592, 610, 617, 671, 673, 676, 712, 713, 714, 746, 863, 889, 940, 956, 1133, 1176, 1277, 1278, 1279, 1307, 1313, 1314, 1316, 1381, 1610, 1654, 1655, 1656, 1660, 1661, 1663, 1668, 1669, 1671, 1672, 1674, 1676, 1679, 1709, 1711, 1770, 1771, 3753, 3754, 3756, 3757, 3758, 3759, 3760, 3761, 3762, 3763, 3766, 3767, 3768, 3769, 3770, 3771, 3772, 3773, 3774, 3775, 3776, 3777, 3778, 3780, 3781, 3782, 3783, 3784, 3785, 3786, 4153					

477-Inland Scribbly Gum - Red Stringybark - Black Cypress Pine - Red Ironbark open forest on sandstone hills in the southern Brigalow Belt South Bioregion and northern NSW South Western Slopes Bioregion	Like-for-like credit retirement options					
	Class	Trading group	Zone	HBT	Credits	IBRA region
	Western Slopes Dry Sclerophyll Forests This includes PCT's: 54, 110, 179, 217, 243, 255, 270, 273, 287, 291, 309, 321, 322, 323, 324, 325, 327, 330, 331, 333, 341, 343, 346, 348, 354, 358, 379, 387, 396, 398, 399, 401, 402, 403, 404, 405, 406, 407, 408, 409, 414, 415, 417, 419, 420, 423, 425, 430, 431, 440, 443, 449, 455, 456, 457, 459, 462, 463, 467, 468, 469, 470, 471, 472, 473, 476, 477, 478, 479, 480, 482, 515, 531, 532, 576, 577, 581, 592, 610, 617, 671, 673, 676, 712, 713, 714, 746, 863, 889, 940, 956, 1133, 1176, 1277, 1278, 1279, 1307, 1313, 1314, 1316, 1381, 1610,	Western Slopes Dry Sclerophyll Forests <50%	477_DNG	No	13	Kerrabee, Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	1654, 1655, 1656, 1660, 1661, 1663, 1668, 1669, 1671, 1672, 1674, 1676, 1679, 1709, 1711, 1770, 1771, 3753, 3754, 3756, 3757, 3758, 3759, 3760, 3761, 3762, 3763, 3766, 3767, 3768, 3769, 3770, 3771, 3772, 3773, 3774, 3775, 3776, 3777, 3778, 3780, 3781, 3782, 3783, 3784, 3785, 3786, 4153					
	Western Slopes Dry Sclerophyll Forests This includes PCT's: 54, 110, 179, 217, 243, 255, 270, 273, 287, 291, 309, 321, 322, 323, 324, 325, 327, 330, 331, 333, 341, 343, 346, 348, 354, 358, 379, 387, 396, 398, 399, 401, 402, 403, 404, 405, 406, 407, 408, 409, 414, 415, 417, 419, 420, 423, 425, 430, 431, 440, 443, 449, 455, 456, 457, 459, 462, 463, 467, 468,	Western Slopes Dry Sclerophyll Forests <50%	477_Mod_Good	Yes	226	Kerrabee, Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	469, 470, 471, 472, 473, 476, 477, 478, 479, 480, 482, 515, 531, 532, 576, 577, 581, 592, 610, 617, 671, 673, 676, 712, 713, 714, 746, 863, 889, 940, 956, 1133, 1176, 1277, 1278, 1279, 1307, 1313, 1314, 1316, 1381, 1610, 1654, 1655, 1656, 1660, 1661, 1663, 1668, 1669, 1671, 1672, 1674, 1676, 1679, 1709, 1711, 1770, 1771, 3753, 3754, 3756, 3757, 3758, 3759, 3760, 3761, 3762, 3763, 3766, 3767, 3768, 3769, 3770, 3771, 3772, 3773, 3774, 3775, 3776, 3777, 3778, 3780, 3781, 3782, 3783, 3784, 3785, 3786, 4153					
	Western Slopes Dry Sclerophyll Forests This includes PCT's: 54, 110, 179, 217, 243, 255, 270, 273, 287, 291, 309, 321, 322, 323, 324,	Western Slopes Dry Sclerophyll Forests <50%	477_Thinned	Yes	38	Kerrabee, Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the

	325, 327, 330, 331, 333, 341, 343, 346, 348, 354, 358, 379, 387, 396, 398, 399, 401, 402, 403, 404, 405, 406, 407, 408, 409, 414, 415, 417, 419, 420, 423, 425, 430, 431, 440, 443, 449, 455, 456, 457, 459, 462, 463, 467, 468, 469, 470, 471, 472, 473, 476, 477, 478, 479, 480, 482, 515, 531, 532, 576, 577, 581, 592, 610, 617, 671, 673, 676, 712, 713, 714, 746, 863, 889, 940, 956, 1133, 1176, 1277, 1278, 1279, 1307, 1313, 1314, 1316, 1381, 1610, 1654, 1655, 1656, 1660, 1661, 1663, 1668, 1669, 1671, 1672, 1674, 1676, 1679, 1709, 1711, 1770, 1771, 3753, 3754, 3756, 3757, 3758, 3759, 3760, 3761, 3762, 3763, 3766, 3767, 3768, 3769, 3770, 3771, 3772, 3773, 3774,					impacted site.

	3775, 3776, 3777, 3778, 3780, 3781, 3782, 3783, 3784, 3785, 3786, 4153					

479-Narrow-leaved Ironbark-Black Cypress Pine - stringybark +/- Grey Gum +/- Narrow-leaved Wattle shrubby open forest on sandstone hills in the southern Brigalow Belt South Bioregion and Sydney Basin Bioregion	**Like-for-like credit retirement options**					
	Class	Trading group	Zone	HBT	Credits	IBRA region
	Western Slopes Dry Sclerophyll Forests This includes PCT's: 54, 110, 179, 217, 243, 255, 270, 273, 287, 291, 309, 321, 322, 323, 324, 325, 327, 330, 331, 333, 341, 343, 346, 348, 354, 358, 379, 387, 396, 398, 399, 401, 402, 403, 404, 405, 406, 407, 408, 409, 414, 415, 417, 419, 420, 423, 425, 430, 431, 440, 443, 449, 455, 456, 457, 459, 462, 463, 467, 468, 469, 470, 471, 472, 473, 476, 477, 478, 479, 480, 482, 515, 531, 532, 576,	Western Slopes Dry Sclerophyll Forests <50%	479_DNG	No	0	Kerrabee, Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	577, 581, 592, 610, 617, 671, 673, 676, 712, 713, 714, 746, 863, 889, 940, 956, 1133, 1176, 1277, 1278, 1279, 1307, 1313, 1314, 1316, 1381, 1610, 1654, 1655, 1656, 1660, 1661, 1663, 1668, 1669, 1671, 1672, 1674, 1676, 1679, 1709, 1711, 1770, 1771, 3753, 3754, 3756, 3757, 3758, 3759, 3760, 3761, 3762, 3763, 3766, 3767, 3768, 3769, 3770, 3771, 3772, 3773, 3774, 3775, 3776, 3777, 3778, 3780, 3781, 3782, 3783, 3784, 3785, 3786, 4153					
	Western Slopes Dry Sclerophyll Forests This includes PCT's: 54, 110, 179, 217, 243, 255, 270, 273, 287, 291, 309, 321, 322, 323, 324, 325, 327, 330, 331, 333, 341, 343, 346, 348, 354, 358, 379, 387, 396, 398,	Western Slopes Dry Sclerophyll Forests <50%	479_Mod_Good	Yes	502	Kerrabee, Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	399, 401, 402, 403, 404, 405, 406, 407, 408, 409, 414, 415, 417, 419, 420, 423, 425, 430, 431, 440, 443, 449, 455, 456, 457, 459, 462, 463, 467, 468, 469, 470, 471, 472, 473, 476, 477, 478, 479, 480, 482, 515, 531, 532, 576, 577, 581, 592, 610, 617, 671, 673, 676, 712, 713, 714, 746, 863, 889, 940, 956, 1133, 1176, 1277, 1278, 1279, 1307, 1313, 1314, 1316, 1381, 1610, 1654, 1655, 1656, 1660, 1661, 1663, 1668, 1669, 1671, 1672, 1674, 1676, 1679, 1709, 1711, 1770, 1771, 3753, 3754, 3756, 3757, 3758, 3759, 3760, 3761, 3762, 3763, 3766, 3767, 3768, 3769, 3770, 3771, 3772, 3773, 3774, 3775, 3776, 3777, 3778, 3780, 3781, 3782, 3783, 3784, 3785, 3786, 4153					

483-Grey Box x White Box grassy open woodland on basalt hills in the Merriwa region, upper Hunter Valley

Like-for-like credit retirement options

Name of offset trading group	Trading group	Zone	HBT	Credits	IBRA region
White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri This includes PCT's: 74, 75, 83, 250, 266, 267, 268, 270, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 298, 302, 312, 341, 342, 347, 350, 352, 356, 367, 381,	-	483_DNG	Yes	15	Kerrabee, Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	382, 395, 401, 403, 421, 433, 434, 435, 436, 437, 451, 483, 484, 488, 492, 496, 508, 509, 510, 511, 528, 538, 544, 563, 567, 571, 589, 590, 597, 599, 618, 619, 622, 633, 654, 702, 703, 704, 705, 710, 711, 796, 797, 799, 847, 851, 921, 1099, 1303, 1304, 1307, 1324, 1329, 1330, 1332, 1383, 1606, 1608, 1611, 1691, 1693, 1695, 1698, 3314, 3359, 3363, 3373, 3376, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3406, 3415, 3533, 4147, 4149, 4150					
1661-Narrow-leaved Ironbark - Black Pine - Sifton Bush heathy open forest on sandstone ranges of the upper Hunter and Sydney Basin	**Like-for-like credit retirement options**					
	Class	Trading group	Zone	HBT	Credits	IBRA region

	Western Slopes Dry Sclerophyll Forests This includes PCT's: 54, 110, 217, 255, 273, 287, 330, 333, 341, 343, 346, 348, 358, 403, 455, 456, 472, 577, 581, 592, 617, 673, 676, 713, 940, 956, 1277, 1279, 1313, 1316, 1381, 1610, 1661, 1668, 1709, 3753, 3754, 3756, 3768, 3769, 4153	Western Slopes Dry Sclerophyll Forests >=50% and <70%	1661_DNG	No	0	Kerrabee, Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
	Western Slopes Dry Sclerophyll Forests This includes PCT's: 54, 110, 217, 255, 273, 287, 330, 333, 341, 343, 346, 348, 358, 403, 455, 456, 472, 577, 581, 592, 617, 673, 676, 713, 940, 956, 1277, 1279, 1313, 1316, 1381, 1610, 1661, 1668, 1709, 3753, 3754, 3756, 3768, 3769, 4153	Western Slopes Dry Sclerophyll Forests >=50% and <70%	1661_Thinned	Yes	11	Kerrabee, Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

Species Credit Summary

Species	Vegetation Zone/s	Area / Count	Credits
Acacia ausfeldii / Ausfeld's Wattle	**281_Thinned**	0.2	6.00
Calyptorhynchus lathami / Glossy Black-Cockatoo	**281_DNG, 477_Mod_Good**	4.2	85.00
Cercartetus nanus / Eastern Pygmy-possum	**477_Mod_Good, 477_Thinned, 440_Mod_Good, 440_Thinned**	15.7	386.00
Commersonia procumbens / Commersonia procumbens	**440_Thinned, 479_Mod_Good**	3.2	93.00
Homoranthus darwinioides / Fairy Bells	**477_Mod_Good, 477_Thinned**	4.6	111.00
Hoplocephalus bitorquatus / Pale-headed Snake	**477_Mod_Good, 477_Thinned, 440_Mod_Good, 440_Thinned**	15.7	387.00
Monotaxis macrophylla / Large-leafed Monotaxis	**477_Mod_Good, 477_Thinned**	4.6	111.00
Petaurus norfolcensis / Squirrel Glider	**281_Thinned, 440_Mod_Good, 440_Thinned, 477_Mod_Good, 477_Thinned, 479_Mod_Good**	32.9	887.00

Phascolarctos cinereus / Koala	**281_Thinned, 440_Mod_Good, 440_Thinned, 477_Mod_Good, 477_Thinned, 479_Mod_Good, 1661_Thinned**	27.6	784.00
Tylophora linearis / Tylophora linearis	**477_Mod_Good, 477_Thinned, 479_Mod_Good**	11.3	318.00

Credit Retirement Options

Like-for-like credit retirement options

Acacia ausfeldii / Ausfeld's Wattle	Spp	IBRA subregion
	Acacia ausfeldii / Ausfeld's Wattle	Any in NSW
Calyptorhynchus lathami / Glossy Black-Cockatoo	Spp	IBRA subregion
	Calyptorhynchus lathami / Glossy Black-Cockatoo	Any in NSW
Cercartetus nanus / Eastern Pygmy-possum	Spp	IBRA subregion
	Cercartetus nanus / Eastern Pygmy-possum	Any in NSW
Commersonia procumbens / Commersonia procumbens	Spp	IBRA subregion

	Commersonia procumbens / Commersonia procumbens	Any in NSW
Homoranthus darwinioides / Fairy Bells	Spp	IBRA subregion
	Homoranthus darwinioides / Fairy Bells	Any in NSW
Hoplocephalus bitorquatus / Pale-headed Snake	Spp	IBRA subregion
	Hoplocephalus bitorquatus / Pale-headed Snake	Any in NSW
Monotaxis macrophylla / Large-leafed Monotaxis	Spp	IBRA subregion
	Monotaxis macrophylla / Large-leafed Monotaxis	Any in NSW
Petaurus norfolcensis / Squirrel Glider	Spp	IBRA subregion
	Petaurus norfolcensis / Squirrel Glider	Any in NSW
Phascolarctos cinereus / Koala	Spp	IBRA subregion
	Phascolarctos cinereus / Koala	Any in NSW
Tylophora linearis / Tylophora linearis	Spp	IBRA subregion
	Tylophora linearis / Tylophora linearis	Any in NSW

BAM Biodiversity Credit Report (Variations)

Proposal Details

Assessment Id
00038218/BAAS17060/23/00038219

Proposal Name
CWOREZ Kerrabee subregion - Liverpool Range

BAM data last updated *
14/04/2023

Assessor Name
Lukas Leslie Clews

Assessor Number
BAAS17060

BAM Data version *
58

Proponent Name(s)

Report Created
13/06/2023

BAM Case Status
Open

Assessment Revision
4

Assessment Type
Major Projects

Date Finalised
To be finalised

* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.

Potential Serious and Irreversible Impacts

Name of threatened ecological community	Listing status	Name of Plant Community Type/ID
White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri	Critically Endangered Ecological Community	281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion

White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri	Critically Endangered Ecological Community	483-Grey Box x White Box grassy open woodland on basalt hills in the Merriwa region, upper Hunter Valley

Species
Nil

Additional Information for Approval

PCT Outside Ibra Added

PCT
281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
477-Inland Scribbly Gum - Red Stringybark - Black Cypress Pine - Red Ironbark open forest on sandstone hills in the southern Brigalow Belt South Bioregion and northern NSW South Western Slopes Bioregion
479-Narrow-leaved Ironbark- Black Cypress Pine - stringybark +/- Grey Gum +/- Narrow-leaved Wattle shrubby open forest on sandstone hills in the southern Brigalow Belt South Bioregion and Sydney Basin Bioregion
483-Grey Box x White Box grassy open woodland on basalt hills in the Merriwa region, upper Hunter Valley
1661-Narrow-leaved Ironbark - Black Pine - Sifton Bush heathy open forest on sandstone ranges of the upper Hunter and Sydney Basin

PCTs With Customized Benchmarks

PCT
No Changes

Predicted Threatened Species Not On Site

BAM Biodiversity Credit Report (Variations)

Name
No Changes

Ecosystem Credit Summary (Number and class of biodiversity credits to be retired)

Name of Plant Community Type/ID	Name of threatened ecological community	Area of impact	HBT Cr	No HBT Cr	Total credits to be retired
281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri	1.8	13	24	37.00
440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion	Not a TEC	1.4	26	0	26.00
477-Inland Scribbly Gum - Red Stringybark - Black Cypress Pine - Red Ironbark open forest on sandstone hills in the southern Brigalow Belt South Bioregion and northern NSW South Western Slopes Bioregion	Not a TEC	15.4	264	13	277.00
479-Narrow-leaved Ironbark- Black Cypress Pine - stringybark +/- Grey Gum +/- Narrow-leaved Wattle shrubby open forest on sandstone hills in the southern Brigalow Belt South Bioregion and Sydney Basin Bioregion	Not a TEC	23.3	502	0	502.00

483-Grey Box x White Box grassy open woodland on basalt hills in the Merriwa region, upper Hunter Valley	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri	0.9	15	0	15.00
1661-Narrow-leaved Ironbark - Black Pine - Sifton Bush heathy open forest on sandstone ranges of the upper Hunter and Sydney Basin	Not a TEC	2.8	11	0	11.00

281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion

Like-for-like credit retirement options

Class	Trading group	Zone	HBT	Credits	IBRA region
White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri This includes PCT's: 74, 75, 83, 250, 266, 267, 268, 270, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 298, 302, 312, 341, 342, 347,	-	281_DNG	No	24	Kerrabee,Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	350, 352, 356, 367, 381, 382, 395, 401, 403, 421, 433, 434, 435, 436, 437, 451, 483, 484, 488, 492, 496, 508, 509, 510, 511, 528, 538, 544, 563, 567, 571, 589, 590, 597, 599, 618, 619, 622, 633, 654, 702, 703, 704, 705, 710, 711, 796, 797, 799, 847, 851, 921, 1099, 1303, 1304, 1307, 1324, 1329, 1330, 1332, 1383, 1606, 1608, 1611, 1691, 1693, 1695, 1698, 3314, 3359, 3363, 3373, 3376, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3406, 3415, 3533, 4147, 4149, 4150					
	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner	-	281_Thinned	Yes	13	Kerrabee,Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	and Ri This includes PCT's: 74, 75, 83, 250, 266, 267, 268, 270, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 298, 302, 312, 341, 342, 347, 350, 352, 356, 367, 381, 382, 395, 401, 403, 421, 433, 434, 435, 436, 437, 451, 483, 484, 488, 492, 496, 508, 509, 510, 511, 528, 538, 544, 563, 567, 571, 589, 590, 597, 599, 618, 619, 622, 633, 654, 702, 703, 704, 705, 710, 711, 796, 797, 799, 847, 851, 921, 1099, 1303, 1304, 1307, 1324, 1329, 1330, 1332, 1383, 1606, 1608, 1611, 1691, 1693, 1695, 1698, 3314, 3359, 3363, 3373, 3376, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3406, 3415, 3533, 4147, 4149, 4150					

440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion	Like-for-like credit retirement options					
	Class	Trading group	Zone	HBT	Credits	IBRA region
	Western Slopes Dry Sclerophyll Forests This includes PCT's: 54, 110, 179, 217, 243, 255, 270, 273, 287, 291, 309, 321, 322, 323, 324, 325, 327, 330, 331, 333, 341, 343, 346, 348, 354, 358, 379, 387, 396, 398, 399, 401, 402, 403, 404, 405, 406, 407, 408, 409, 414, 415, 417, 419, 420, 423, 425, 430, 431, 440, 443, 449, 455, 456, 457, 459, 462, 463, 467, 468, 469, 470, 471, 472, 473, 476, 477, 478, 479, 480, 482, 515, 531, 532, 576, 577, 581, 592, 610, 617, 671, 673, 676, 712, 713, 714, 746, 863, 889, 940, 956, 1133, 1176, 1277, 1278, 1279, 1307, 1313, 1314, 1316, 1381, 1610, 1654, 1655, 1656, 1660, 1661, 1663, 1668, 1669, 1671, 1672, 1674, 1676, 1679, 1709, 1711, 1770,	Western Slopes Dry Sclerophyll Forests <50%	440_DNG	No	0	Kerrabee,Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	1771, 3753, 3754, 3756, 3757, 3758, 3759, 3760, 3761, 3762, 3763, 3766, 3767, 3768, 3769, 3770, 3771, 3772, 3773, 3774, 3775, 3776, 3777, 3778, 3780, 3781, 3782, 3783, 3784, 3785, 3786, 4153					
	Western Slopes Dry Sclerophyll Forests This includes PCT's: 54, 110, 179, 217, 243, 255, 270, 273, 287, 291, 309, 321, 322, 323, 324, 325, 327, 330, 331, 333, 341, 343, 346, 348, 354, 358, 379, 387, 396, 398, 399, 401, 402, 403, 404, 405, 406, 407, 408, 409, 414, 415, 417, 419, 420, 423, 425, 430, 431, 440, 443, 449, 455, 456, 457, 459, 462, 463, 467, 468, 469, 470, 471, 472, 473, 476, 477, 478, 479, 480, 482, 515, 531, 532, 576, 577, 581, 592, 610, 617, 671, 673, 676, 712, 713, 714, 746, 863, 889, 940, 956, 1133, 1176, 1277, 1278, 1279, 1307, 1313,	Western Slopes Dry Sclerophyll Forests <50%	440_Mod_ Good	Yes	25	Kerrabee,Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	1314, 1316, 1381, 1610, 1654, 1655, 1656, 1660, 1661, 1663, 1668, 1669, 1671, 1672, 1674, 1676, 1679, 1709, 1711, 1770, 1771, 3753, 3754, 3756, 3757, 3758, 3759, 3760, 3761, 3762, 3763, 3766, 3767, 3768, 3769, 3770, 3771, 3772, 3773, 3774, 3775, 3776, 3777, 3778, 3780, 3781, 3782, 3783, 3784, 3785, 3786, 4153					
	Western Slopes Dry Sclerophyll Forests This includes PCT's: 54, 110, 179, 217, 243, 255, 270, 273, 287, 291, 309, 321, 322, 323, 324, 325, 327, 330, 331, 333, 341, 343, 346, 348, 354, 358, 379, 387, 396, 398, 399, 401, 402, 403, 404, 405, 406, 407, 408, 409, 414, 415, 417, 419, 420, 423, 425, 430, 431, 440, 443, 449, 455, 456, 457, 459, 462, 463, 467, 468, 469, 470, 471, 472, 473, 476, 477, 478, 479, 480, 482, 515, 531, 532, 576,	Western Slopes Dry Sclerophyll Forests <50%	440_Thinned	Yes	1	Kerrabee,Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

577, 581, 592, 610, 617, 671, 673, 676, 712, 713, 714, 746, 863, 889, 940, 956, 1133, 1176, 1277, 1278, 1279, 1307, 1313, 1314, 1316, 1381, 1610, 1654, 1655, 1656, 1660, 1661, 1663, 1668, 1669, 1671, 1672, 1674, 1676, 1679, 1709, 1711, 1770, 1771, 3753, 3754, 3756, 3757, 3758, 3759, 3760, 3761, 3762, 3763, 3766, 3767, 3768, 3769, 3770, 3771, 3772, 3773, 3774, 3775, 3776, 3777, 3778, 3780, 3781, 3782, 3783, 3784, 3785, 3786, 4153					

Variation options

Formation	Trading group	Zone	HBT	Credits	IBRA region
Dry Sclerophyll Forests (Shrubby sub-formation)	Tier 4 or higher threat status	440_DNG	No	0	IBRA Region: Sydney Basin, or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Dry Sclerophyll Forests (Shrubby sub-formation)	Tier 4 or higher threat status	440_Mod_Good	Yes (including artificial)	25	IBRA Region: Sydney Basin, or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	Dry Sclerophyll Forests (Shrubby sub-formation)	Tier 4 or higher threat status	440_Thinned	Yes (including artificial)	1	IBRA Region: Sydney Basin, or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
477-Inland Scribbly Gum - Red Stringybark - Black Cypress Pine - Red Ironbark open forest on sandstone hills in the southern Brigalow Belt South Bioregion and northern NSW South Western Slopes Bioregion	**Like-for-like credit retirement options**					
	Class	Trading group	Zone	HBT	Credits	IBRA region
	Western Slopes Dry Sclerophyll Forests This includes PCT's: 54, 110, 179, 217, 243, 255, 270, 273, 287, 291, 309, 321, 322, 323, 324, 325, 327, 330, 331, 333, 341, 343, 346, 348, 354, 358, 379, 387, 396, 398, 399, 401, 402, 403, 404, 405, 406, 407, 408, 409, 414, 415, 417, 419, 420, 423, 425, 430, 431, 440, 443, 449, 455, 456, 457, 459, 462, 463, 467, 468, 469, 470, 471, 472, 473, 476, 477, 478, 479, 480, 482, 515, 531, 532, 576, 577, 581, 592, 610, 617, 671, 673, 676, 712, 713, 714, 746, 863, 889, 940, 956, 1133, 1176, 1277, 1278, 1279, 1307, 1313,	Western Slopes Dry Sclerophyll Forests <50%	477_DNG	No	13	Kerrabee,Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	1314, 1316, 1381, 1610, 1654, 1655, 1656, 1660, 1661, 1663, 1668, 1669, 1671, 1672, 1674, 1676, 1679, 1709, 1711, 1770, 1771, 3753, 3754, 3756, 3757, 3758, 3759, 3760, 3761, 3762, 3763, 3766, 3767, 3768, 3769, 3770, 3771, 3772, 3773, 3774, 3775, 3776, 3777, 3778, 3780, 3781, 3782, 3783, 3784, 3785, 3786, 4153					
	Western Slopes Dry Sclerophyll Forests This includes PCT's: 54, 110, 179, 217, 243, 255, 270, 273, 287, 291, 309, 321, 322, 323, 324, 325, 327, 330, 331, 333, 341, 343, 346, 348, 354, 358, 379, 387, 396, 398, 399, 401, 402, 403, 404, 405, 406, 407, 408, 409, 414, 415, 417, 419, 420, 423, 425, 430, 431, 440, 443, 449, 455, 456, 457, 459, 462, 463, 467, 468, 469, 470, 471, 472, 473, 476, 477, 478, 479, 480, 482, 515, 531, 532, 576,	Western Slopes Dry Sclerophyll Forests <50%	477_Mod_ Good	Yes	226	Kerrabee,Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	577, 581, 592, 610, 617, 671, 673, 676, 712, 713, 714, 746, 863, 889, 940, 956, 1133, 1176, 1277, 1278, 1279, 1307, 1313, 1314, 1316, 1381, 1610, 1654, 1655, 1656, 1660, 1661, 1663, 1668, 1669, 1671, 1672, 1674, 1676, 1679, 1709, 1711, 1770, 1771, 3753, 3754, 3756, 3757, 3758, 3759, 3760, 3761, 3762, 3763, 3766, 3767, 3768, 3769, 3770, 3771, 3772, 3773, 3774, 3775, 3776, 3777, 3778, 3780, 3781, 3782, 3783, 3784, 3785, 3786, 4153					
	Western Slopes Dry Sclerophyll Forests This includes PCT's: 54, 110, 179, 217, 243, 255, 270, 273, 287, 291, 309, 321, 322, 323, 324, 325, 327, 330, 331, 333, 341, 343, 346, 348, 354, 358, 379, 387, 396, 398, 399, 401, 402, 403, 404, 405, 406, 407, 408, 409, 414, 415, 417, 419, 420, 423, 425, 430, 431, 440,	Western Slopes Dry Sclerophyll Forests <50%	477_Thinned	Yes	38	Kerrabee,Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

443, 449, 455, 456, 457, 459, 462, 463, 467, 468, 469, 470, 471, 472, 473, 476, 477, 478, 479, 480, 482, 515, 531, 532, 576, 577, 581, 592, 610, 617, 671, 673, 676, 712, 713, 714, 746, 863, 889, 940, 956, 1133, 1176, 1277, 1278, 1279, 1307, 1313, 1314, 1316, 1381, 1610, 1654, 1655, 1656, 1660, 1661, 1663, 1668, 1669, 1671, 1672, 1674, 1676, 1679, 1709, 1711, 1770, 1771, 3753, 3754, 3756, 3757, 3758, 3759, 3760, 3761, 3762, 3763, 3766, 3767, 3768, 3769, 3770, 3771, 3772, 3773, 3774, 3775, 3776, 3777, 3778, 3780, 3781, 3782, 3783, 3784, 3785, 3786, 4153					

Variation options

Formation	Trading group	Zone	HBT	Credits	IBRA region
Dry Sclerophyll Forests (Shrubby sub-formation)	Tier 4 or higher threat status	477_DNG	No	13	IBRA Region: Sydney Basin, or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	Dry Sclerophyll Forests (Shrubby sub-formation)	Tier 4 or higher threat status	477_Mod_Good	Yes (including artificial)	226	IBRA Region: Sydney Basin, or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
	Dry Sclerophyll Forests (Shrubby sub-formation)	Tier 4 or higher threat status	477_Thinned	Yes (including artificial)	38	IBRA Region: Sydney Basin, or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
479-Narrow-leaved Ironbark-Black Cypress Pine - stringybark +/- Grey Gum +/- Narrow-leaved Wattle shrubby open forest on sandstone hills in the southern Brigalow Belt South Bioregion and Sydney Basin Bioregion	**Like-for-like credit retirement options**					
	Class	Trading group	Zone	HBT	Credits	IBRA region
	Western Slopes Dry Sclerophyll Forests This includes PCT's: 54, 110, 179, 217, 243, 255, 270, 273, 287, 291, 309, 321, 322, 323, 324, 325, 327, 330, 331, 333, 341, 343, 346, 348, 354, 358, 379, 387, 396, 398, 399, 401, 402, 403, 404, 405, 406, 407, 408, 409, 414, 415, 417, 419, 420, 423, 425, 430, 431, 440, 443, 449, 455, 456, 457, 459, 462, 463, 467, 468, 469, 470, 471, 472, 473, 476, 477, 478, 479, 480, 482, 515, 531, 532, 576,	Western Slopes Dry Sclerophyll Forests <50%	479_DNG	No	0	Kerrabee,Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	577, 581, 592, 610, 617, 671, 673, 676, 712, 713, 714, 746, 863, 889, 940, 956, 1133, 1176, 1277, 1278, 1279, 1307, 1313, 1314, 1316, 1381, 1610, 1654, 1655, 1656, 1660, 1661, 1663, 1668, 1669, 1671, 1672, 1674, 1676, 1679, 1709, 1711, 1770, 1771, 3753, 3754, 3756, 3757, 3758, 3759, 3760, 3761, 3762, 3763, 3766, 3767, 3768, 3769, 3770, 3771, 3772, 3773, 3774, 3775, 3776, 3777, 3778, 3780, 3781, 3782, 3783, 3784, 3785, 3786, 4153					
	Western Slopes Dry Sclerophyll Forests This includes PCT's: 54, 110, 179, 217, 243, 255, 270, 273, 287, 291, 309, 321, 322, 323, 324, 325, 327, 330, 331, 333, 341, 343, 346, 348, 354, 358, 379, 387, 396, 398, 399, 401, 402, 403, 404, 405, 406, 407, 408, 409, 414, 415, 417, 419, 420, 423, 425, 430, 431, 440,	Western Slopes Dry Sclerophyll Forests <50%	479_Mod_ Good	Yes	502	Kerrabee,Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	443, 449, 455, 456, 457, 459, 462, 463, 467, 468, 469, 470, 471, 472, 473, 476, 477, 478, 479, 480, 482, 515, 531, 532, 576, 577, 581, 592, 610, 617, 671, 673, 676, 712, 713, 714, 746, 863, 889, 940, 956, 1133, 1176, 1277, 1278, 1279, 1307, 1313, 1314, 1316, 1381, 1610, 1654, 1655, 1656, 1660, 1661, 1663, 1668, 1669, 1671, 1672, 1674, 1676, 1679, 1709, 1711, 1770, 1771, 3753, 3754, 3756, 3757, 3758, 3759, 3760, 3761, 3762, 3763, 3766, 3767, 3768, 3769, 3770, 3771, 3772, 3773, 3774, 3775, 3776, 3777, 3778, 3780, 3781, 3782, 3783, 3784, 3785, 3786, 4153					
	Variation options					
	Formation	Trading group	Zone	HBT	Credits	IBRA region
	Dry Sclerophyll Forests (Shrubby sub-formation)	Tier 4 or higher threat status	479_DNG	No	0	IBRA Region: Sydney Basin, or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	Dry Sclerophyll Forests (Shrubby sub-formation)	Tier 4 or higher threat status	479_Mod_Good	Yes (including artificial)	502	IBRA Region: Sydney Basin, or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
483-Grey Box x White Box grassy open woodland on basalt hills in the Merriwa region, upper Hunter Valley	**Like-for-like credit retirement options**					
	Class	Trading group	Zone	HBT	Credits	IBRA region
	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri This includes PCT's: 74, 75, 83, 250, 266, 267, 268, 270, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 298, 302, 312, 341, 342, 347, 350, 352, 356, 367, 381, 382, 395, 401, 403, 421, 433, 434, 435, 436, 437, 451, 483, 484, 488, 492, 496, 508, 509, 510, 511,	-	483_DNG	Yes	15	Kerrabee,Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	528, 538, 544, 563, 567, 571, 589, 590, 597, 599, 618, 619, 622, 633, 654, 702, 703, 704, 705, 710, 711, 796, 797, 799, 847, 851, 921, 1099, 1303, 1304, 1307, 1324, 1329, 1330, 1332, 1383, 1606, 1608, 1611, 1691, 1693, 1695, 1698, 3314, 3359, 3363, 3373, 3376, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3406, 3415, 3533, 4147, 4149, 4150					
1661-Narrow-leaved Ironbark - Black Pine - Sifton Bush heathy open forest on sandstone ranges of the upper Hunter and Sydney Basin	**Like-for-like credit retirement options**					
	Class	Trading group	Zone	HBT	Credits	IBRA region
	Western Slopes Dry Sclerophyll Forests This includes PCT's: 54, 110, 217, 255, 273, 287, 330, 333, 341, 343, 346, 348, 358, 403, 455, 456, 472, 577, 581, 592, 617, 673, 676, 713, 940, 956, 1277, 1279, 1313, 1316, 1381, 1610, 1661, 1668, 1709, 3753, 3754, 3756, 3768, 3769, 4153	Western Slopes Dry Sclerophyll Forests >=50% and <70%	1661_DNG	No	0	Kerrabee,Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

Western Slopes Dry Sclerophyll Forests This includes PCT's: 54, 110, 217, 255, 273, 287, 330, 333, 341, 343, 346, 348, 358, 403, 455, 456, 472, 577, 581, 592, 617, 673, 676, 713, 940, 956, 1277, 1279, 1313, 1316, 1381, 1610, 1661, 1668, 1709, 3753, 3754, 3756, 3768, 3769, 4153	Western Slopes Dry Sclerophyll Forests >=50% and <70%	1661_Thinned	Yes	11	Kerrabee,Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

Variation options

Formation	Trading group	Zone	HBT	Credits	IBRA region
Dry Sclerophyll Forests (Shrubby sub-formation)	Tier 3 or higher threat status	1661_DNG	No	0	IBRA Region: Sydney Basin, or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Dry Sclerophyll Forests (Shrubby sub-formation)	Tier 3 or higher threat status	1661_Thinned	Yes (including artificial)	11	IBRA Region: Sydney Basin, or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

Species Credit Summary

Species	Vegetation Zone/s	Area / Count	Credits
Acacia ausfeldii / Ausfeld's Wattle	**281_Thinned**	0.2	6.00
Calyptorhynchus lathami / Glossy Black-Cockatoo	**281_DNG, 477_Mod_Good**	4.2	85.00

Cercartetus nanus / Eastern Pygmy-possum	**477_Mod_Good, 477_Thinned, 440_Mod_Good, 440_Thinned**	15.7	386.00
Commersonia procumbens / Commersonia procumbens	**440_Thinned, 479_Mod_Good**	3.2	93.00
Homoranthus darwinioides / Fairy Bells	**477_Mod_Good, 477_Thinned**	4.6	111.00
Hoplocephalus bitorquatus / Pale-headed Snake	**477_Mod_Good, 477_Thinned, 440_Mod_Good, 440_Thinned**	15.7	387.00
Monotaxis macrophylla / Large-leafed Monotaxis	**477_Mod_Good, 477_Thinned**	4.6	111.00
Petaurus norfolcensis / Squirrel Glider	**281_Thinned, 440_Mod_Good, 440_Thinned, 477_Mod_Good, 477_Thinned, 479_Mod_Good**	32.9	887.00
Phascolarctos cinereus / Koala	**281_Thinned, 440_Mod_Good, 440_Thinned, 477_Mod_Good, 477_Thinned, 479_Mod_Good, 1661_Thinned**	27.6	784.00
Tylophora linearis / Tylophora linearis	**477_Mod_Good, 477_Thinned, 479_Mod_Good**	11.3	318.00

Credit Retirement Options

Like-for-like options

Acacia ausfeldii/ Ausfeld's Wattle

Spp	IBRA region
Acacia ausfeldii/Ausfeld's Wattle	Any in NSW

Variation options

Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act shown below	IBRA region

	Flora	Vulnerable	Kerrabee, Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Calyptorhynchus lathami/ Glossy Black-Cockatoo	Spp	IBRA region	
	Calyptorhynchus lathami/Glossy Black-Cockatoo	Any in NSW	
	Variation options		
	Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act shown below	IBRA region
	Fauna	Vulnerable	Kerrabee, Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Cercartetus nanus/ Eastern Pygmy-possum	Spp	IBRA region	
	Cercartetus nanus/Eastern Pygmy-possum	Any in NSW	
	Variation options		
	Kingdom	Any species with same or higher category of listing	IBRA region

		under Part 4 of the BC Act shown below	
	Fauna	Vulnerable	Kerrabee, Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Commersonia procumbens/ Commersonia procumbens	Spp	IBRA region	
	Commersonia procumbens/Commersonia procumbens	Any in NSW	
	Variation options		
	Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act shown below	IBRA region
	Flora	Vulnerable	Kerrabee, Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Homoranthus darwinioides/ Fairy Bells	Spp	IBRA region	
	Homoranthus darwinioides/Fairy Bells	Any in NSW	
	Variation options		

	Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act shown below	IBRA region
	Flora	Vulnerable	Kerrabee, Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Hoplocephalus bitorquatus/ Pale-headed Snake	Spp	IBRA region	
	Hoplocephalus bitorquatus/Pale-headed Snake	Any in NSW	
	Variation options		
	Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act shown below	IBRA region
	Fauna	Vulnerable	Kerrabee, Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Monotaxis macrophylla/ Large-leafed Monotaxis	Spp	IBRA region	

	Monotaxis macrophylla/Large-leafed Monotaxis	Any in NSW	
	Variation options		
	Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act shown below	IBRA region
	Flora	Endangered	Kerrabee, Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Petaurus norfolcensis/ Squirrel Glider	Spp	IBRA region	
	Petaurus norfolcensis/Squirrel Glider	Any in NSW	
	Variation options		
	Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act shown below	IBRA region

	Fauna	Vulnerable	Kerrabee, Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Phascolarctos cinereus/ Koala	Spp	IBRA region	
	Phascolarctos cinereus/Koala	Any in NSW	
	Variation options		
	Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act shown below	IBRA region
	Fauna	Endangered	Kerrabee, Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Tylophora linearis/ Tylophora linearis	Spp	IBRA region	
	Tylophora linearis/Tylophora linearis	Any in NSW	
	Variation options		
	Kingdom	Any species with same or higher category of listing	IBRA region

		under Part 4 of the BC Act shown below	
	Flora	Vulnerable	Kerrabee, Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

BAM Candidate Species Report

Proposal Details

Assessment Id 00038218/BAAS17060/23/00038219	Proposal Name CWOREZ Kerrabee subregion - Liverpool Range	BAM data last updated * 14/04/2023
Assessor Name Lukas Leslie Clews	Report Created 13/06/2023	BAM Data version * 58
Assessor Number BAAS17060	Assessment Type Major Projects	BAM Case Status Open
Assessment Revision 4	Date Finalised To be finalised	

* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.

List of Species Requiring Survey

Name	Presence	Survey Months
Acacia ausfeldii Ausfeld's Wattle	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Aprasia parapulchella Pink-tailed Legless Lizard	No (surveyed)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☑ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Burhinus grallarius Bush Stone-curlew	No (surveyed)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☑ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?

Callocephalon fimbriatum Gang-gang Cockatoo	No (surveyed) *Survey months are outside of the months specified in Bionet.	☑ Jan ☑ Feb ☑ Mar ☑ Apr ☑ May ☑ Jun ☑ Jul ☑ Aug ☑ Sep ☑ Oct ☑ Nov ☑ Dec ☑ Survey month outside the specified months?
Calyptorhynchus lathami Glossy Black-Cockatoo	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Cercartetus nanus Eastern Pygmy-possum	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Commersonia procumbens Commersonia procumbens	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Delma impar Striped Legless Lizard	No (surveyed)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☑ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Diuris tricolor Pine Donkey Orchid	No (surveyed)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☑ Sep ☑ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?

Homoranthus darwinioides Fairy Bells	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Hoplocephalus bitorquatus Pale-headed Snake	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Monotaxis macrophylla Large-leafed Monotaxis	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Ninox connivens Barking Owl	No (surveyed)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☑ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Ninox strenua Powerful Owl	No (surveyed) *Survey months are outside of the months specified in Bionet.	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☑ May ☐ Jun ☐ Jul ☑ Aug ☐ Sep ☑ Oct ☑ Nov ☑ Dec ☑ Survey month outside the specified months?
Petaurus norfolcensis Squirrel Glider	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?

Phascolarctos cinereus Koala	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Pomaderris queenslandica Scant Pomaderris	No (surveyed)	☐ Jan ☐ Feb ☑ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Tylophora linearis Tylophora linearis	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Tyto novaehollandiae Masked Owl	No (surveyed)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☑ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?

Threatened species Manually Added

None added

Threatened species assessed as not on site

Refer to BAR for detailed justification

Common name	Scientific name	Justification in the BAM-C
Brush-tailed Phascogale	Phascogale tapoatafa	Species is vagrant
Brush-tailed Rock-wallaby	Petrogale penicillata	Habitat constraints
Eastern Cave Bat	Vespadelus troughtoni	Habitat constraints
Grey-headed Flying-fox	Pteropus poliocephalus	Habitat constraints

Large Bent-winged Bat	Miniopterus orianae oceanensis	Habitat constraints
Large-eared Pied Bat	Chalinolobus dwyeri	Habitat constraints
Little Eagle	Hieraaetus morphnoides	Habitat constraints
Prasophyllum sp. Wybong	Prasophyllum sp. Wybong	Species is vagrant
Regent Honeyeater	Anthochaera phrygia	Habitat constraints
Square-tailed Kite	Lophoictinia isura	Habitat constraints
Swift Parrot	Lathamus discolor	Habitat constraints
Tarengo Leek Orchid	Prasophyllum petilum	Habitat degraded
White-bellied Sea-Eagle	Haliaeetus leucogaster	Habitat constraints

BAM Credit Summary Report

Proposal Details

Assessment Id
00038218/BAAS17060/23/00038219

Proposal Name
CWOREZ Kerrabee subregion - Liverpool Range

BAM data last updated *
14/04/2023

Assessor Name
Lukas Leslie Clews

Report Created
13/06/2023

BAM Data version *
58

Assessor Number
BAAS17060

BAM Case Status
Open

Date Finalised
To be finalised

Assessment Revision
4

Assessment Type
Major Projects

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Ecosystem credits for plant communities types (PCT), ecological communities & threatened species habitat

Zone	Vegetation zone name	TEC name	Current Vegetation integrity score	Change in Vegetation integrity (loss / gain)	Area (ha)	Sensitivity to loss (Justification)	Species sensitivity to gain class	BC Act Listing status	EPBC Act listing status	Biodiversity risk weighting	Potential SAII	Ecosystem credits

Grey Box x White Box grassy open woodland on basalt hills in the Merriwa region, upper Hunter Valley												
11	483_DNG	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri	27.2	27.2	0.87	Population size	High Sensitivity to Gain	Critically Endangered Ecological Community	Not Listed	2.50	True	15
											Subtotal	**15**

Inland Scribbly Gum - Red Stringybark - Black Cypress Pine - Red Ironbark open forest on sandstone hills in the southern Brigalow Belt South Bioregion and northern NSW South Western Slopes Bioregion												
6	477_DNG	Not a TEC	36.2	36.2	0.94	PCT Cleared - 40%	High Sensitivity to Gain			1.50		13
7	477_Mod_Good	Not a TEC	68.1	48.5	12.4	PCT Cleared - 40%	High Sensitivity to Gain			1.50		226
8	477_Thinned	Not a TEC	68.1	50.1	2	PCT Cleared - 40%	High Sensitivity to Gain			1.50		38
											Subtotal	**277**
Narrow-leaved Ironbark - Black Pine - Sifton Bush heathy open forest on sandstone ranges of the upper Hunter and Sydney Basin												
12	1661_DNG	Not a TEC	12	12.0	2	PCT Cleared - 50%	High Sensitivity to Gain			1.75		0
13	1661_Thinned	Not a TEC	51.7	31.8	0.76	PCT Cleared - 50%	High Sensitivity to Gain			1.75		11
											Subtotal	**11**
Narrow-leaved Ironbark- Black Cypress Pine - stringybark +/- Grey Gum +/- Narrow-leaved Wattle shrubby open forest on sandstone hills in the southern Brigalow Belt South Bioregion and Sydney Basin Bioregion												
9	479_DNG	Not a TEC	8.8	8.8	0.44	PCT Cleared - 40%	High Sensitivity to Gain			1.50		0

10	479_Mod_Good	Not a TEC	75.8	58.5	22.9	PCT Cleared - 40%	High Sensitivity to Gain			1.50		502
											Subtotal	**502**
Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion												
3	440_DNG	Not a TEC	7	7.0	0.15	PCT Cleared - 34%	High Sensitivity to Gain			1.50		0
4	440_Mod_Good	Not a TEC	72.1	53.6	1.3	PCT Cleared - 34%	High Sensitivity to Gain			1.50		25
5	440_Thinned	Not a TEC	60.4	60.4	0.03	PCT Cleared - 34%	High Sensitivity to Gain			1.50		1
											Subtotal	**26**

Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion												
1	281_DNG	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri	26.3	26.3	1.4	Population size	High Sensitivity to Gain	Critically Endangered Ecological Community	Not Listed	2.50	True	24

2	281_Thinned	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri	84	53.3	0.38	Population size	High Sensitivity to Gain	Critically Endangered Ecological Community	Not Listed	2.50	True	13
											Subtotal	**37**
											Total	**868**

Species credits for threatened species

Vegetation zone name	Habitat condition (Vegetation Integrity)	Change in habitat condition	Area (ha)/Count (no. individuals)	Sensitivity to loss (Justification)	Sensitivity to gain (Justification)	BC Act Listing status	EPBC Act listing status	Potential SAII	Species credits
Acacia ausfeldii / Ausfeld's Wattle (Flora)									
281_Thinned	53.3	53.3	0.21	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Not Listed	False	6
								Subtotal	**6**
Calyptorhynchus lathami / Glossy Black-Cockatoo (Fauna)									
281_DNG	26.3	26.3	1.4	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Vulnerable	False	19
477_Mod_Good	48.5	48.5	2.7	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Vulnerable	False	66
								Subtotal	**85**
Cercartetus nanus / Eastern Pygmy-possum (Fauna)									
477_Mod_Good	48.5	48.5	12.4	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Not Listed	False	301

477_Thinned	50.1	50.1	2	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Not Listed	False	51
440_Mod_Good	53.6	53.6	1.2	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Not Listed	False	33
440_Thinned	60.4	60.4	0.03	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Not Listed	False	1
								Subtotal	**386**
Commersonia procumbens / Commersonia procumbens (Flora)									
440_Thinned	60.4	60.4	0.03	Biodiversity Conservation Act listing status	Ability to colonise improved habitat	Vulnerable	Vulnerable	False	1
479_Mod_Good	58.5	58.5	3.2	Biodiversity Conservation Act listing status	Ability to colonise improved habitat	Vulnerable	Vulnerable	False	92
								Subtotal	**93**

Homoranthus darwinioides / Fairy Bells (Flora)									
477_Mod_Good	48.5	48.5	3.8	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Vulnerable	False	92
477_Thinned	50.1	50.1	0.74	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Vulnerable	False	19
								Subtotal	**111**
Hoplocephalus bitorquatus / Pale-headed Snake (Fauna)									
477_Mod_Good	48.5	48.5	12.4	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	301
477_Thinned	50.1	50.1	2	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	51
440_Mod_Good	53.6	53.6	1.3	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	34
440_Thinned	60.4	60.4	0.03	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	1

								Subtotal	**387**
Monotaxis macrophylla / Large-leafed Monotaxis (Flora)									
477_Mod_Good	48.5	48.5	3.8	Biodiversity Conservation Act listing status	Ability to colonise improved habitat	Endangered	Not Listed	False	92
477_Thinned	50.1	50.1	0.74	Biodiversity Conservation Act listing status	Ability to colonise improved habitat	Endangered	Not Listed	False	19
								Subtotal	**111**
Petaurus norfolcensis / Squirrel Glider (Fauna)									
281_Thinned	53.3	53.3	0.26	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	7
440_Mod_Good	53.6	53.6	1.3	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	34
440_Thinned	60.4	60.4	0.03	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	1
477_Mod_Good	48.5	48.5	12.4	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	301

477_Thinned	50.1	50.1	2	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	51
479_Mod_Good	58.5	58.5	16.9	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	493
								Subtotal	**887**
Phascolarctos cinereus / Koala (Fauna)									
281_Thinned	53.3	53.3	0.26	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Endangered	False	7
440_Mod_Good	53.6	53.6	1.3	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Endangered	False	34
440_Thinned	60.4	60.4	0.03	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Endangered	False	1

477_Mod_Good	48.5	48.5	0.56	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Endangered	False	14
477_Thinned	50.1	50.1	1.9	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Endangered	False	47
479_Mod_Good	58.5	58.5	22.9	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Endangered	False	670
1661_Thinned	31.8	31.8	0.69	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Endangered	False	11
								Subtotal	**784**
Tylophora linearis / Tylophora linearis (Flora)									
477_Mod_Good	48.5	48.5	1.6	Biodiversity Conservation Act listing status	Quantity class of viable seeds produced	Vulnerable	Endangered	False	39

477_Thinned	50.1	50.1	0.74	Biodiversity Conservation Act listing status	Quantity class of viable seeds produced	Vulnerable	Endangered	False	19
479_Mod_Good	58.5	58.5	8.9	Biodiversity Conservation Act listing status	Quantity class of viable seeds produced	Vulnerable	Endangered	False	260
								Subtotal	**318**

BAM Predicted Species Report

Proposal Details

Assessment Id	Proposal Name	BAM data last updated *
00038218/BAAS17060/23/00038219	CWOREZ Kerrabee subregion - Liverpool Range	14/04/2023
Assessor Name	**Report Created**	**BAM Data version ***
Lukas Leslie Clews	13/06/2023	58
Assessor Number	**Assessment Type**	**BAM Case Status**
BAAS17060	Major Projects	Open
Assessment Revision		**Date Finalised**
4		To be finalised

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Threatened species reliably predicted to utilise the site. No surveys are required for these species. Ecosystem credits apply to these species.

Common Name	Scientific Name	Vegetation Types(s)
Barking Owl	Ninox connivens	281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
		477-Inland Scribbly Gum - Red Stringybark - Black Cypress Pine - Red Ironbark open forest on sandstone hills in the southern Brigalow Belt South Bioregion and northern NSW South Western Slopes Bioregion
		479-Narrow-leaved Ironbark- Black Cypress Pine - stringybark +/- Grey Gum +/- Narrow-leaved Wattle shrubby open forest on sandstone hills in the southern Brigalow Belt South Bioregion and Sydney Basin Bioregion
		483-Grey Box x White Box grassy open woodland on basalt hills in the Merriwa region, upper Hunter Valley
		1661-Narrow-leaved Ironbark - Black Pine - Sifton Bush heathy open forest on sandstone ranges of the upper Hunter and Sydney Basin

Black Falcon	Falco subniger	281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		1661-Narrow-leaved Ironbark - Black Pine - Sifton Bush heathy open forest on sandstone ranges of the upper Hunter and Sydney Basin
Black-chinned Honeyeater (eastern subspecies)	Melithreptus gularis gularis	281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
Brown Treecreeper (eastern subspecies)	Climacteris picumnus victoriae	281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
		477-Inland Scribbly Gum - Red Stringybark - Black Cypress Pine - Red Ironbark open forest on sandstone hills in the southern Brigalow Belt South Bioregion and northern NSW South Western Slopes Bioregion
		1661-Narrow-leaved Ironbark - Black Pine - Sifton Bush heathy open forest on sandstone ranges of the upper Hunter and Sydney Basin
Corben's Long-eared Bat	Nyctophilus corbeni	440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
		477-Inland Scribbly Gum - Red Stringybark - Black Cypress Pine - Red Ironbark open forest on sandstone hills in the southern Brigalow Belt South Bioregion and northern NSW South Western Slopes Bioregion
		1661-Narrow-leaved Ironbark - Black Pine - Sifton Bush heathy open forest on sandstone ranges of the upper Hunter and Sydney Basin
Diamond Firetail	Stagonopleura guttata	281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion

Diamond Firetail	Stagonopleura guttata	477-Inland Scribbly Gum - Red Stringybark - Black Cypress Pine - Red Ironbark open forest on sandstone hills in the southern Brigalow Belt South Bioregion and northern NSW South Western Slopes Bioregion
Dusky Woodswallow	Artamus cyanopterus cyanopterus	281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
		477-Inland Scribbly Gum - Red Stringybark - Black Cypress Pine - Red Ironbark open forest on sandstone hills in the southern Brigalow Belt South Bioregion and northern NSW South Western Slopes Bioregion
		479-Narrow-leaved Ironbark- Black Cypress Pine - stringybark +/- Grey Gum +/- Narrow-leaved Wattle shrubby open forest on sandstone hills in the southern Brigalow Belt South Bioregion and Sydney Basin Bioregion
Flame Robin	Petroica phoenicea	281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
		477-Inland Scribbly Gum - Red Stringybark - Black Cypress Pine - Red Ironbark open forest on sandstone hills in the southern Brigalow Belt South Bioregion and northern NSW South Western Slopes Bioregion
		1661-Narrow-leaved Ironbark - Black Pine - Sifton Bush heathy open forest on sandstone ranges of the upper Hunter and Sydney Basin
Gang-gang Cockatoo	Callocephalon fimbriatum	281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
Glossy Black-Cockatoo	Calyptorhynchus lathami	440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion

Glossy Black-Cockatoo	Calyptorhynchus lathami	477-Inland Scribbly Gum - Red Stringybark - Black Cypress Pine - Red Ironbark open forest on sandstone hills in the southern Brigalow Belt South Bioregion and northern NSW South Western Slopes Bioregion
Grey-crowned Babbler (eastern subspecies)	Pomatostomus temporalis temporalis	281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
Grey-headed Flying-fox	Pteropus poliocephalus	281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
		477-Inland Scribbly Gum - Red Stringybark - Black Cypress Pine - Red Ironbark open forest on sandstone hills in the southern Brigalow Belt South Bioregion and northern NSW South Western Slopes Bioregion
Hooded Robin (south-eastern form)	Melanodryas cucullata cucullata	281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
		477-Inland Scribbly Gum - Red Stringybark - Black Cypress Pine - Red Ironbark open forest on sandstone hills in the southern Brigalow Belt South Bioregion and northern NSW South Western Slopes Bioregion
		1661-Narrow-leaved Ironbark - Black Pine - Sifton Bush heathy open forest on sandstone ranges of the upper Hunter and Sydney Basin
Large Bent-winged Bat	Miniopterus orianae oceanensis	281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion

Large Bent-winged Bat	Miniopterus orianae oceanensis	477-Inland Scribbly Gum - Red Stringybark - Black Cypress Pine - Red Ironbark open forest on sandstone hills in the southern Brigalow Belt South Bioregion and northern NSW South Western Slopes Bioregion
Little Eagle	Hieraaetus morphnoides	281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
		477-Inland Scribbly Gum - Red Stringybark - Black Cypress Pine - Red Ironbark open forest on sandstone hills in the southern Brigalow Belt South Bioregion and northern NSW South Western Slopes Bioregion
Little Lorikeet	Glossopsitta pusilla	281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
		477-Inland Scribbly Gum - Red Stringybark - Black Cypress Pine - Red Ironbark open forest on sandstone hills in the southern Brigalow Belt South Bioregion and northern NSW South Western Slopes Bioregion
		479-Narrow-leaved Ironbark- Black Cypress Pine - stringybark +/- Grey Gum +/- Narrow-leaved Wattle shrubby open forest on sandstone hills in the southern Brigalow Belt South Bioregion and Sydney Basin Bioregion
Malleefowl	Leipoa ocellata	477-Inland Scribbly Gum - Red Stringybark - Black Cypress Pine - Red Ironbark open forest on sandstone hills in the southern Brigalow Belt South Bioregion and northern NSW South Western Slopes Bioregion
Masked Owl	Tyto novaehollandiae	281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion

Masked Owl	Tyto novaehollandiae	477-Inland Scribbly Gum - Red Stringybark - Black Cypress Pine - Red Ironbark open forest on sandstone hills in the southern Brigalow Belt South Bioregion and northern NSW South Western Slopes Bioregion
New Holland Mouse	Pseudomys novaehollandiae	440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
		477-Inland Scribbly Gum - Red Stringybark - Black Cypress Pine - Red Ironbark open forest on sandstone hills in the southern Brigalow Belt South Bioregion and northern NSW South Western Slopes Bioregion
Painted Honeyeater	Grantiella picta	281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
		477-Inland Scribbly Gum - Red Stringybark - Black Cypress Pine - Red Ironbark open forest on sandstone hills in the southern Brigalow Belt South Bioregion and northern NSW South Western Slopes Bioregion
		479-Narrow-leaved Ironbark- Black Cypress Pine - stringybark +/- Grey Gum +/- Narrow-leaved Wattle shrubby open forest on sandstone hills in the southern Brigalow Belt South Bioregion and Sydney Basin Bioregion
Powerful Owl	Ninox strenua	281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
Regent Honeyeater	Anthochaera phrygia	281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		479-Narrow-leaved Ironbark- Black Cypress Pine - stringybark +/- Grey Gum +/- Narrow-leaved Wattle shrubby open forest on sandstone hills in the southern Brigalow Belt South Bioregion and Sydney Basin Bioregion
Rosenberg's Goanna	Varanus rosenbergi	281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion

Scarlet Robin	Petroica boodang	281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
		477-Inland Scribbly Gum - Red Stringybark - Black Cypress Pine - Red Ironbark open forest on sandstone hills in the southern Brigalow Belt South Bioregion and northern NSW South Western Slopes Bioregion
		1661-Narrow-leaved Ironbark - Black Pine - Sifton Bush heathy open forest on sandstone ranges of the upper Hunter and Sydney Basin
Speckled Warbler	Chthonicola sagittata	281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
		477-Inland Scribbly Gum - Red Stringybark - Black Cypress Pine - Red Ironbark open forest on sandstone hills in the southern Brigalow Belt South Bioregion and northern NSW South Western Slopes Bioregion
		1661-Narrow-leaved Ironbark - Black Pine - Sifton Bush heathy open forest on sandstone ranges of the upper Hunter and Sydney Basin
Spotted Harrier	Circus assimilis	281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
		477-Inland Scribbly Gum - Red Stringybark - Black Cypress Pine - Red Ironbark open forest on sandstone hills in the southern Brigalow Belt South Bioregion and northern NSW South Western Slopes Bioregion

Spotted-tailed Quoll	Dasyurus maculatus	281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
		477-Inland Scribbly Gum - Red Stringybark - Black Cypress Pine - Red Ironbark open forest on sandstone hills in the southern Brigalow Belt South Bioregion and northern NSW South Western Slopes Bioregion
		1661-Narrow-leaved Ironbark - Black Pine - Sifton Bush heathy open forest on sandstone ranges of the upper Hunter and Sydney Basin
Square-tailed Kite	Lophoictinia isura	281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
		477-Inland Scribbly Gum - Red Stringybark - Black Cypress Pine - Red Ironbark open forest on sandstone hills in the southern Brigalow Belt South Bioregion and northern NSW South Western Slopes Bioregion
		1661-Narrow-leaved Ironbark - Black Pine - Sifton Bush heathy open forest on sandstone ranges of the upper Hunter and Sydney Basin
Swift Parrot	Lathamus discolor	281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
		477-Inland Scribbly Gum - Red Stringybark - Black Cypress Pine - Red Ironbark open forest on sandstone hills in the southern Brigalow Belt South Bioregion and northern NSW South Western Slopes Bioregion

Swift Parrot	Lathamus discolor	479-Narrow-leaved Ironbark- Black Cypress Pine - stringybark +/- Grey Gum +/- Narrow-leaved Wattle shrubby open forest on sandstone hills in the southern Brigalow Belt South Bioregion and Sydney Basin Bioregion
		483-Grey Box x White Box grassy open woodland on basalt hills in the Merriwa region, upper Hunter Valley
		1661-Narrow-leaved Ironbark - Black Pine - Sifton Bush heathy open forest on sandstone ranges of the upper Hunter and Sydney Basin
Turquoise Parrot	Neophema pulchella	281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
		477-Inland Scribbly Gum - Red Stringybark - Black Cypress Pine - Red Ironbark open forest on sandstone hills in the southern Brigalow Belt South Bioregion and northern NSW South Western Slopes Bioregion
		479-Narrow-leaved Ironbark- Black Cypress Pine - stringybark +/- Grey Gum +/- Narrow-leaved Wattle shrubby open forest on sandstone hills in the southern Brigalow Belt South Bioregion and Sydney Basin Bioregion
		483-Grey Box x White Box grassy open woodland on basalt hills in the Merriwa region, upper Hunter Valley
		1661-Narrow-leaved Ironbark - Black Pine - Sifton Bush heathy open forest on sandstone ranges of the upper Hunter and Sydney Basin
Varied Sittella	Daphoenositta chrysoptera	281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
		477-Inland Scribbly Gum - Red Stringybark - Black Cypress Pine - Red Ironbark open forest on sandstone hills in the southern Brigalow Belt South Bioregion and northern NSW South Western Slopes Bioregion

Varied Sittella	Daphoenositta chrysoptera	1661-Narrow-leaved Ironbark - Black Pine - Sifton Bush heathy open forest on sandstone ranges of the upper Hunter and Sydney Basin
White-bellied Sea-Eagle	Haliaeetus leucogaster	281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
White-throated Needletail	Hirundapus caudacutus	281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
		477-Inland Scribbly Gum - Red Stringybark - Black Cypress Pine - Red Ironbark open forest on sandstone hills in the southern Brigalow Belt South Bioregion and northern NSW South Western Slopes Bioregion
		479-Narrow-leaved Ironbark- Black Cypress Pine - stringybark +/- Grey Gum +/- Narrow-leaved Wattle shrubby open forest on sandstone hills in the southern Brigalow Belt South Bioregion and Sydney Basin Bioregion
		483-Grey Box x White Box grassy open woodland on basalt hills in the Merriwa region, upper Hunter Valley
		1661-Narrow-leaved Ironbark - Black Pine - Sifton Bush heathy open forest on sandstone ranges of the upper Hunter and Sydney Basin
Yellow-bellied Sheathtail-bat	Saccolaimus flaviventris	281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
		477-Inland Scribbly Gum - Red Stringybark - Black Cypress Pine - Red Ironbark open forest on sandstone hills in the southern Brigalow Belt South Bioregion and northern NSW South Western Slopes Bioregion

Threatened species Manually Added

None added

BAM Predicted Species Report

Threatened species assessed as not within the vegetation zone(s) for the PCT(s)

Common Name	Scientific Name	Plant Community Type(s)
Little Lorikeet	Glossopsitta pusilla	483-Grey Box x White Box grassy open woodland on basalt hills in the Merriwa region, upper Hunter Valley
Painted Honeyeater	Grantiella picta	483-Grey Box x White Box grassy open woodland on basalt hills in the Merriwa region, upper Hunter Valley
Regent Honeyeater	Anthochaera phrygia	483-Grey Box x White Box grassy open woodland on basalt hills in the Merriwa region, upper Hunter Valley

Threatened species assessed as not within the vegetation zone(s) for the PCT(s)

Refer to BAR for detailed justification

Common Name	Scientific Name	Justification in the BAM-C

BAM Vegetation Zones Report

Proposal Details

Assessment Id
00038218/BAAS17060/23/00038219

Assessment name
CWOREZ Kerrabee subregion - Liverpool Range

BAM data last updated *
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Assessor Name
Lukas Leslie Clews

Report Created
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58

Assessor Number
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Assessment Type
Major Projects

BAM Case Status
Open

Assessment Revision
4

Date Finalised
To be finalised

* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.

Vegetation Zones

#	Name	PCT	Condition	Area	Minimum number of plots	Management zones

1	281_DNG	281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion	DNG	1.44	1	A (1.44 ha)
2	281_Thinned	281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion	Thinned	0.38	1	A (0.09 ha) B (0.29 ha)
3	440_DNG	440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion	DNG	0.15	1	A (0.15 ha)
4	440_Mod_Good	440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion	Mod_Good	1.26	1	A (0.4 ha) B (0.86 ha)
5	440_Thinned	440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion	Thinned	0.03	1	A (0.03 ha)

6	477_DNG	477-Inland Scribbly Gum - Red Stringybark - Black Cypress Pine - Red Ironbark open forest on sandstone hills in the southern Brigalow Belt South Bioregion and northern NSW South Western Slopes Bioregion	DNG	0.94	1	A (0.94 ha)
7	477_Mod_Good	477-Inland Scribbly Gum - Red Stringybark - Black Cypress Pine - Red Ironbark open forest on sandstone hills in the southern Brigalow Belt South Bioregion and northern NSW South Western Slopes Bioregion	Mod_Good	12.41	3	A (3.81 ha) B (8.6 ha)
8	477_Thinned	477-Inland Scribbly Gum - Red Stringybark - Black Cypress Pine - Red Ironbark open forest on sandstone hills in the southern Brigalow Belt South Bioregion and northern NSW South Western Slopes Bioregion	Thinned	2.04	2	A (0.74 ha) B (1.3 ha)
9	479_DNG	479-Narrow-leaved Ironbark- Black Cypress Pine - stringybark +/- Grey Gum +/- Narrow-leaved Wattle shrubby open forest on sandstone hills in the southern Brigalow Belt South Bioregion and Sydney Basin Bioregion	DNG	0.44	1	A (0.44 ha)

10	479_Mod_Good	479-Narrow-leaved Ironbark- Black Cypress Pine - stringybark +/- Grey Gum +/- Narrow-leaved Wattle shrubby open forest on sandstone hills in the southern Brigalow Belt South Bioregion and Sydney Basin Bioregion	Mod_Good	22.89	4	A (8.9 ha) B (13.99 ha)
11	483_DNG	483-Grey Box x White Box grassy open woodland on basalt hills in the Merriwa region, upper Hunter Valley	DNG	0.87	1	A (0.87 ha)
12	1661_DNG	1661-Narrow-leaved Ironbark - Black Pine - Sifton Bush heathy open forest on sandstone ranges of the upper Hunter and Sydney Basin	DNG	2	2	A (2 ha)
13	1661_Thinned	1661-Narrow-leaved Ironbark - Black Pine - Sifton Bush heathy open forest on sandstone ranges of the upper Hunter and Sydney Basin	Thinned	0.76	1	A (0.15 ha) B (0.61 ha)

BAM Biodiversity Credit Report (Like for like)

Proposal Details

Assessment Id
00038556/BAAS17060/23/00038557

Proposal Name
CWOREZ Kerrabee subregion - RNI1

BAM data last updated *
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Assessor Name
Lukas Leslie Clews

Assessor Number
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61

Proponent Names

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Open

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Assessment Type
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Date Finalised
To be finalised

* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.

Potential Serious and Irreversible Impacts

Name of threatened ecological community	Listing status	Name of Plant Community Type/ID
White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla	Critically Endangered Ecological Community	277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion

White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla	Critically Endangered Ecological Community	281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla	Critically Endangered Ecological Community	483-Grey Box x White Box grassy open woodland on basalt hills in the Merriwa region, upper Hunter Valley
White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla	Critically Endangered Ecological Community	618-White Box x Grey Box - red gum - Rough-barked Apple grassy woodland on rich soils on hills in the upper Hunter Valley

Species
Chalinolobus dwyeri / Large-eared Pied Bat
Petrogale penicillata / Brush-tailed Rock-wallaby
Vespadelus troughtoni / Eastern Cave Bat
Anthochaera phrygia / Regent Honeyeater
Hoplocephalus bungaroides / Broad-headed Snake
Commersonia rosea / Commersonia rosea

Additional Information for Approval

PCT Outside Ibra Added

PCT
277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
461-Tumbledown Gum woodland on hills in the northern NSW South Western Slopes Bioregion and southern Brigalow Belt South Bioregion
468-Narrow-leaved Ironbark - Black Cypress Pine +/- Blakely's Red Gum shrubby open forest on sandstone low hills in the southern Brigalow Belt South Bioregion (including Goonoo)
477-Inland Scribbly Gum - Red Stringybark - Black Cypress Pine - Red Ironbark open forest on sandstone hills in the southern Brigalow Belt South Bioregion and northern NSW South Western Slopes Bioregion
478-Red Ironbark - Black Cypress Pine - stringybark +/- Narrow-leaved Wattle shrubby open forest on sandstone in the Gulgong - Mendooran region, southern Brigalow Belt South Bioregion
479-Narrow-leaved Ironbark- Black Cypress Pine - stringybark +/- Grey Gum +/- Narrow-leaved Wattle shrubby open forest on sandstone hills in the southern Brigalow Belt South Bioregion and Sydney Basin Bioregion
481-Rough-barked Apple - Blakely's Red Gum - Narrow-leaved Stringybark +/- Grey Gum sandstone riparian grass fern open forest on in the southern Brigalow Belt South Bioregion and Upper Hunter region
483-Grey Box x White Box grassy open woodland on basalt hills in the Merriwa region, upper Hunter Valley
618-White Box x Grey Box - red gum - Rough-barked Apple grassy woodland on rich soils on hills in the upper Hunter Valley
1176-Slaty Box - Grey Gum shrubby woodland on footslopes of the upper Hunter Valley, Sydney Basin Bioregion
1610-White Box - Black Cypress Pine shrubby woodland of the Western Slopes
1674-Red Ironbark - Brown Bloodwood - Black Pine heathy open forest on sandstone ranges of the Sydney Basin

PCTs With Customized Benchmarks

PCT
No Changes

Predicted Threatened Species Not On Site

Name
No Changes

Ecosystem Credit Summary (Number and class of biodiversity credits to be retired)

Name of Plant Community Type/ID	Name of threatened ecological community	Area of impact	HBT Cr	No HBT Cr	Total credits to be retired
277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla	1.0	6	25	31
281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla	110.7	2844	460	3304
440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion	Not a TEC	3.9	41	0	41

461-Tumbledown Gum woodland on hills in the northern NSW South Western Slopes Bioregion and southern Brigalow Belt South Bioregion	Not a TEC	30.4	583	1	584
477-Inland Scribbly Gum - Red Stringybark - Black Cypress Pine - Red Ironbark open forest on sandstone hills in the southern Brigalow Belt South Bioregion and northern NSW South Western Slopes Bioregion	Not a TEC	0.1	1	0	1
478-Red Ironbark - Black Cypress Pine - stringybark +/- Narrow-leaved Wattle shrubby open forest on sandstone in the Gulgong - Mendooran region, southern Brigalow Belt South Bioregion	Not a TEC	7.0	109	0	109
479-Narrow-leaved Ironbark- Black Cypress Pine - stringybark +/- Grey Gum +/- Narrow-leaved Wattle shrubby open forest on sandstone hills in the southern Brigalow Belt South Bioregion and Sydney Basin Bioregion	Not a TEC	33.7	488	2	490
481-Rough-barked Apple - Blakely's Red Gum - Narrow-leaved Stringybark +/- Grey Gum sandstone riparian grass fern open forest on in the southern Brigalow Belt South Bioregion and Upper Hunter region	Not a TEC	11.7	223	0	223
483-Grey Box x White Box grassy open woodland on basalt hills in the Merriwa region, upper Hunter Valley	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla	4.2	106	0	106

618-White Box x Grey Box - red gum - Rough-barked Apple grassy woodland on rich soils on hills in the upper Hunter Valley	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla	60.1	327	435	762
1176-Slaty Box - Grey Gum shrubby woodland on footslopes of the upper Hunter Valley, Sydney Basin Bioregion	Hunter Valley Footslopes Slaty Gum Woodland in the Sydney Basin Bioregion	2.0	20	0	20
1610-White Box - Black Cypress Pine shrubby woodland of the Western Slopes	Not a TEC	62.0	1264	12	1276
1674-Red Ironbark - Brown Bloodwood - Black Pine heathy open forest on sandstone ranges of the Sydney Basin	Not a TEC	10.8	0	104	104

277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion

Like-for-like credit retirement options

Name of offset trading group	Trading group	Zone	HBT	Credits	IBRA region
White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin,	-	277_Mod_Good	Yes	6	Kerrabee, Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	South Eastern Highla This includes PCT's: 74, 75, 83, 250, 266, 267, 268, 270, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 298, 302, 312, 341, 342, 347, 350, 352, 356, 367, 381, 382, 395, 401, 403, 421, 433, 434, 435, 436, 437, 451, 483, 484, 488, 492, 496, 508, 509, 510, 511, 528, 538, 544, 563, 567, 571, 589, 590, 597, 599, 618, 619, 622, 633, 654, 702, 703, 704, 705, 710, 711, 796, 797, 799, 840, 847, 851, 921, 1099, 1103, 1303, 1304, 1307, 1324, 1329, 1330, 1331, 1332, 1333, 1334, 1383, 1401, 1512, 1606, 1608, 1611, 1691, 1693, 1695, 1698, 3314, 3359, 3363, 3373, 3376, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3406, 3415,					

	3533, 4147, 4149, 4150					
	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla This includes PCT's: 74, 75, 83, 250, 266, 267, 268, 270, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 298, 302, 312, 341, 342, 347, 350, 352, 356, 367, 381, 382, 395, 401, 403, 421, 433, 434, 435, 436, 437, 451, 483, 484, 488, 492, 496, 508, 509, 510, 511, 528, 538, 544, 563, 567, 571, 589, 590, 597, 599, 618, 619, 622, 633, 654, 702, 703, 704, 705, 710, 711, 796, 797, 799, 840,	-	277_Thinned	No	25	Kerrabee, Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	847, 851, 921, 1099, 1103, 1303, 1304, 1307, 1324, 1329, 1330, 1331, 1332, 1333, 1334, 1383, 1401, 1512, 1606, 1608, 1611, 1691, 1693, 1695, 1698, 3314, 3359, 3363, 3373, 3376, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3406, 3415, 3533, 4147, 4149, 4150					
281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion	**Like-for-like credit retirement options**					
	Name of offset trading group	Trading group	Zone	HBT	Credits	IBRA region
	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla This includes PCT's: 74, 75, 83, 250, 266, 267,	-	281_DNG	No	435	Kerrabee, Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	268, 270, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 298, 302, 312, 341, 342, 347, 350, 352, 356, 367, 381, 382, 395, 401, 403, 421, 433, 434, 435, 436, 437, 451, 483, 484, 488, 492, 496, 508, 509, 510, 511, 528, 538, 544, 563, 567, 571, 589, 590, 597, 599, 618, 619, 622, 633, 654, 702, 703, 704, 705, 710, 711, 796, 797, 799, 840, 847, 851, 921, 1099, 1103, 1303, 1304, 1307, 1324, 1329, 1330, 1331, 1332, 1333, 1334, 1383, 1401, 1512, 1606, 1608, 1611, 1691, 1693, 1695, 1698, 3314, 3359, 3363, 3373, 3376, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3406, 3415, 3533, 4147, 4149, 4150					
	White Box - Yellow Box - Blakely's Red Gum	-	281_DNS	No	25	Kerrabee, Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and

	Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla This includes PCT's: 74, 75, 83, 250, 266, 267, 268, 270, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 298, 302, 312, 341, 342, 347, 350, 352, 356, 367, 381, 382, 395, 401, 403, 421, 433, 434, 435, 436, 437, 451, 483, 484, 488, 492, 496, 508, 509, 510, 511, 528, 538, 544, 563, 567, 571, 589, 590, 597, 599, 618, 619, 622, 633, 654, 702, 703, 704, 705, 710, 711, 796, 797, 799, 840, 847, 851, 921, 1099, 1103, 1303, 1304, 1307, 1324, 1329, 1330, 1331,					Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	1332, 1333, 1334, 1383, 1401, 1512, 1606, 1608, 1611, 1691, 1693, 1695, 1698, 3314, 3359, 3363, 3373, 3376, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3406, 3415, 3533, 4147, 4149, 4150					
	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla This includes PCT's: 74, 75, 83, 250, 266, 267, 268, 270, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 298, 302, 312, 341, 342, 347, 350, 352, 356, 367, 381, 382, 395, 401, 403, 421, 433, 434, 435, 436, 437,	-	281_Mod_Good	Yes	1405	Kerrabee, Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	451, 483, 484, 488, 492, 496, 508, 509, 510, 511, 528, 538, 544, 563, 567, 571, 589, 590, 597, 599, 618, 619, 622, 633, 654, 702, 703, 704, 705, 710, 711, 796, 797, 799, 840, 847, 851, 921, 1099, 1103, 1303, 1304, 1307, 1324, 1329, 1330, 1331, 1332, 1333, 1334, 1383, 1401, 1512, 1606, 1608, 1611, 1691, 1693, 1695, 1698, 3314, 3359, 3363, 3373, 3376, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3406, 3415, 3533, 4147, 4149, 4150					
	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin,	-	281_Poor	Yes	1	Kerrabee, Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	South Eastern Highla This includes PCT's: 74, 75, 83, 250, 266, 267, 268, 270, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 298, 302, 312, 341, 342, 347, 350, 352, 356, 367, 381, 382, 395, 401, 403, 421, 433, 434, 435, 436, 437, 451, 483, 484, 488, 492, 496, 508, 509, 510, 511, 528, 538, 544, 563, 567, 571, 589, 590, 597, 599, 618, 619, 622, 633, 654, 702, 703, 704, 705, 710, 711, 796, 797, 799, 840, 847, 851, 921, 1099, 1103, 1303, 1304, 1307, 1324, 1329, 1330, 1331, 1332, 1333, 1334, 1383, 1401, 1512, 1606, 1608, 1611, 1691, 1693, 1695, 1698, 3314, 3359, 3363, 3373, 3376, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3406, 3415,					

	3533, 4147, 4149, 4150					
	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla This includes PCT's: 74, 75, 83, 250, 266, 267, 268, 270, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 298, 302, 312, 341, 342, 347, 350, 352, 356, 367, 381, 382, 395, 401, 403, 421, 433, 434, 435, 436, 437, 451, 483, 484, 488, 492, 496, 508, 509, 510, 511, 528, 538, 544, 563, 567, 571, 589, 590, 597, 599, 618, 619, 622, 633, 654, 702, 703, 704, 705, 710, 711, 796, 797, 799, 840,	-	281_Thinned	Yes	1438	Kerrabee, Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	847, 851, 921, 1099, 1103, 1303, 1304, 1307, 1324, 1329, 1330, 1331, 1332, 1333, 1334, 1383, 1401, 1512, 1606, 1608, 1611, 1691, 1693, 1695, 1698, 3314, 3359, 3363, 3373, 3376, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3406, 3415, 3533, 4147, 4149, 4150					
440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion	**Like-for-like credit retirement options**					
	Class	Trading group	Zone	HBT	Credits	IBRA region
	Western Slopes Dry Sclerophyll Forests This includes PCT's: 54, 110, 179, 217, 243, 255, 270, 273, 287, 291, 309, 321, 322, 323, 324, 325, 327, 330, 331, 333, 341, 343, 346, 348, 354, 358, 379, 387, 396, 398, 399, 401, 402, 403, 404, 405, 406, 407, 408, 409, 414, 415, 417, 419, 420, 423, 425, 430, 431, 440,	Western Slopes Dry Sclerophyll Forests <50%	440_DNG	No	0	Kerrabee, Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	443, 449, 455, 456, 457, 459, 462, 463, 467, 468, 469, 470, 471, 472, 473, 476, 477, 478, 479, 480, 482, 515, 531, 532, 576, 577, 581, 592, 610, 617, 671, 673, 676, 712, 713, 714, 746, 863, 889, 940, 956, 1133, 1176, 1277, 1278, 1279, 1307, 1313, 1314, 1316, 1381, 1398, 1610, 1629, 1654, 1655, 1656, 1657, 1660, 1661, 1663, 1668, 1669, 1671, 1672, 1674, 1676, 1677, 1678, 1679, 1680, 1709, 1711, 1770, 1771, 3753, 3754, 3756, 3757, 3758, 3759, 3760, 3761, 3762, 3763, 3766, 3767, 3768, 3769, 3770, 3771, 3772, 3773, 3774, 3775, 3776, 3777, 3778, 3780, 3781, 3782, 3783, 3784, 3785, 3786, 4153					
	Western Slopes Dry Sclerophyll Forests	Western Slopes Dry Sclerophyll Forests	440_Mod_Good	Yes	41	Kerrabee, Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and

	This includes PCT's: 54, 110, 179, 217, 243, 255, 270, 273, 287, 291, 309, 321, 322, 323, 324, 325, 327, 330, 331, 333, 341, 343, 346, 348, 354, 358, 379, 387, 396, 398, 399, 401, 402, 403, 404, 405, 406, 407, 408, 409, 414, 415, 417, 419, 420, 423, 425, 430, 431, 440, 443, 449, 455, 456, 457, 459, 462, 463, 467, 468, 469, 470, 471, 472, 473, 476, 477, 478, 479, 480, 482, 515, 531, 532, 576, 577, 581, 592, 610, 617, 671, 673, 676, 712, 713, 714, 746, 863, 889, 940, 956, 1133, 1176, 1277, 1278, 1279, 1307, 1313, 1314, 1316, 1381, 1398, 1610, 1629, 1654, 1655, 1656, 1657, 1660, 1661, 1663, 1668, 1669, 1671, 1672, 1674, 1676, 1677, 1678, 1679, 1680, 1709,	<50%				Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	1711, 1770, 1771, 3753, 3754, 3756, 3757, 3758, 3759, 3760, 3761, 3762, 3763, 3766, 3767, 3768, 3769, 3770, 3771, 3772, 3773, 3774, 3775, 3776, 3777, 3778, 3780, 3781, 3782, 3783, 3784, 3785, 3786, 4153					
461-Tumbledown Gum woodland on hills in the northern NSW South Western Slopes Bioregion and southern Brigalow Belt South Bioregion	**Like-for-like credit retirement options**					
	Class	Trading group	Zone	HBT	Credits	IBRA region

	Western Slopes Grassy Woodlands This includes PCT's: 201, 202, 266, 267, 268, 272, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 301, 316, 326, 337, 347, 383, 421, 426, 433, 434, 437, 441, 444, 461, 483, 509, 516, 544, 589, 590, 593, 599, 847, 955, 1303, 1304, 1315, 1329, 1383, 1401, 1609, 1693, 1695, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3401, 3403, 3404, 3405, 3406, 3485, 4147	Western Slopes Grassy Woodlands >=50% and <70%	461_Mod_Good	Yes	583	Kerrabee, Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	Western Slopes Grassy Woodlands This includes PCT's: 201, 202, 266, 267, 268, 272, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 301, 316, 326, 337, 347, 383, 421, 426, 433, 434, 437, 441, 444, 461, 483, 509, 516, 544, 589, 590, 593, 599, 847, 955, 1303, 1304, 1315, 1329, 1383, 1401, 1609, 1693, 1695, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3401, 3403, 3404, 3405, 3406, 3485, 4147	Western Slopes Grassy Woodlands >=50% and <70%	461_Thinned	No	1	Kerrabee, Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

477-Inland Scribbly Gum - Red Stringybark - Black Cypress Pine - Red Ironbark open forest on sandstone hills in the southern Brigalow Belt South Bioregion and northern NSW South Western Slopes Bioregion	Like-for-like credit retirement options					
	Class	Trading group	Zone	HBT	Credits	IBRA region
	Western Slopes Dry Sclerophyll Forests This includes PCT's: 54, 110, 179, 217, 243, 255, 270, 273, 287, 291, 309, 321, 322, 323, 324, 325, 327, 330, 331, 333, 341, 343, 346, 348, 354, 358, 379, 387, 396, 398, 399, 401, 402, 403, 404, 405, 406, 407, 408, 409, 414, 415, 417, 419, 420, 423, 425, 430, 431, 440, 443, 449, 455, 456, 457, 459, 462, 463, 467, 468, 469, 470, 471, 472, 473, 476, 477, 478, 479, 480, 482, 515, 531, 532, 576, 577, 581, 592, 610, 617, 671, 673, 676, 712, 713, 714, 746, 863, 889, 940, 956, 1133, 1176, 1277, 1278, 1279, 1307, 1313, 1314, 1316, 1381, 1398,	Western Slopes Dry Sclerophyll Forests <50%	477_Thinned	Yes	1	Kerrabee, Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	1610, 1629, 1654, 1655, 1656, 1657, 1660, 1661, 1663, 1668, 1669, 1671, 1672, 1674, 1676, 1677, 1678, 1679, 1680, 1709, 1711, 1770, 1771, 3753, 3754, 3756, 3757, 3758, 3759, 3760, 3761, 3762, 3763, 3766, 3767, 3768, 3769, 3770, 3771, 3772, 3773, 3774, 3775, 3776, 3777, 3778, 3780, 3781, 3782, 3783, 3784, 3785, 3786, 4153					

478-Red Ironbark - Black Cypress Pine - stringybark +/- Narrow-leaved Wattle shrubby open forest on sandstone in the Gulgong - Mendooran region, southern Brigalow Belt South Bioregion	**Like-for-like credit retirement options**					
	Class	Trading group	Zone	HBT	Credits	IBRA region
	Western Slopes Dry Sclerophyll Forests This includes PCT's: 54, 110, 179, 217, 243, 255, 270, 273, 287, 291, 309, 321, 322, 323, 324, 325, 327, 330, 331, 333,	Western Slopes Dry Sclerophyll Forests <50%	478_DNG	No	0	Kerrabee, Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	341, 343, 346, 348, 354, 358, 379, 387, 396, 398, 399, 401, 402, 403, 404, 405, 406, 407, 408, 409, 414, 415, 417, 419, 420, 423, 425, 430, 431, 440, 443, 449, 455, 456, 457, 459, 462, 463, 467, 468, 469, 470, 471, 472, 473, 476, 477, 478, 479, 480, 482, 515, 531, 532, 576, 577, 581, 592, 610, 617, 671, 673, 676, 712, 713, 714, 746, 863, 889, 940, 956, 1133, 1176, 1277, 1278, 1279, 1307, 1313, 1314, 1316, 1381, 1398, 1610, 1629, 1654, 1655, 1656, 1657, 1660, 1661, 1663, 1668, 1669, 1671, 1672, 1674, 1676, 1677, 1678, 1679, 1680, 1709, 1711, 1770, 1771, 3753, 3754, 3756, 3757, 3758, 3759, 3760, 3761, 3762, 3763, 3766, 3767, 3768, 3769, 3770, 3771, 3772,					

	3773, 3774, 3775, 3776, 3777, 3778, 3780, 3781, 3782, 3783, 3784, 3785, 3786, 4153					
	Western Slopes Dry Sclerophyll Forests This includes PCT's: 54, 110, 179, 217, 243, 255, 270, 273, 287, 291, 309, 321, 322, 323, 324, 325, 327, 330, 331, 333, 341, 343, 346, 348, 354, 358, 379, 387, 396, 398, 399, 401, 402, 403, 404, 405, 406, 407, 408, 409, 414, 415, 417, 419, 420, 423, 425, 430, 431, 440, 443, 449, 455, 456, 457, 459, 462, 463, 467, 468, 469, 470, 471, 472, 473, 476, 477, 478, 479, 480, 482, 515, 531, 532, 576, 577, 581, 592, 610, 617, 671, 673, 676, 712, 713, 714, 746, 863, 889, 940, 956, 1133, 1176, 1277, 1278, 1279, 1307, 1313,	Western Slopes Dry Sclerophyll Forests <50%	478_Mod_Good	Yes	107	Kerrabee, Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	1314, 1316, 1381, 1398, 1610, 1629, 1654, 1655, 1656, 1657, 1660, 1661, 1663, 1668, 1669, 1671, 1672, 1674, 1676, 1677, 1678, 1679, 1680, 1709, 1711, 1770, 1771, 3753, 3754, 3756, 3757, 3758, 3759, 3760, 3761, 3762, 3763, 3766, 3767, 3768, 3769, 3770, 3771, 3772, 3773, 3774, 3775, 3776, 3777, 3778, 3780, 3781, 3782, 3783, 3784, 3785, 3786, 4153					
	Western Slopes Dry Sclerophyll Forests This includes PCT's: 54, 110, 179, 217, 243, 255, 270, 273, 287, 291, 309, 321, 322, 323, 324, 325, 327, 330, 331, 333, 341, 343, 346, 348, 354, 358, 379, 387, 396, 398, 399, 401, 402, 403, 404, 405, 406, 407, 408, 409, 414, 415, 417, 419, 420,	Western Slopes Dry Sclerophyll Forests <50%	478_Thinned	Yes	2	Kerrabee, Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	423, 425, 430, 431, 440, 443, 449, 455, 456, 457, 459, 462, 463, 467, 468, 469, 470, 471, 472, 473, 476, 477, 478, 479, 480, 482, 515, 531, 532, 576, 577, 581, 592, 610, 617, 671, 673, 676, 712, 713, 714, 746, 863, 889, 940, 956, 1133, 1176, 1277, 1278, 1279, 1307, 1313, 1314, 1316, 1381, 1398, 1610, 1629, 1654, 1655, 1656, 1657, 1660, 1661, 1663, 1668, 1669, 1671, 1672, 1674, 1676, 1677, 1678, 1679, 1680, 1709, 1711, 1770, 1771, 3753, 3754, 3756, 3757, 3758, 3759, 3760, 3761, 3762, 3763, 3766, 3767, 3768, 3769, 3770, 3771, 3772, 3773, 3774, 3775, 3776, 3777, 3778, 3780, 3781, 3782, 3783, 3784, 3785, 3786, 4153					

479-Narrow-leaved Ironbark-Black Cypress Pine - stringybark +/- Grey Gum +/- Narrow-leaved Wattle shrubby open forest on sandstone hills in the southern Brigalow Belt South Bioregion and Sydney Basin Bioregion	**Like-for-like credit retirement options**					
	Class	Trading group	Zone	HBT	Credits	IBRA region
	Western Slopes Dry Sclerophyll Forests This includes PCT's: 54, 110, 179, 217, 243, 255, 270, 273, 287, 291, 309, 321, 322, 323, 324, 325, 327, 330, 331, 333, 341, 343, 346, 348, 354, 358, 379, 387, 396, 398, 399, 401, 402, 403, 404, 405, 406, 407, 408, 409, 414, 415, 417, 419, 420, 423, 425, 430, 431, 440, 443, 449, 455, 456, 457, 459, 462, 463, 467, 468, 469, 470, 471, 472, 473, 476, 477, 478, 479, 480, 482, 515, 531, 532, 576, 577, 581, 592, 610, 617, 671, 673, 676, 712, 713, 714, 746, 863, 889, 940, 956, 1133, 1176, 1277,	Western Slopes Dry Sclerophyll Forests <50%	479_DNG	No	0	Kerrabee, Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	1278, 1279, 1307, 1313, 1314, 1316, 1381, 1398, 1610, 1629, 1654, 1655, 1656, 1657, 1660, 1661, 1663, 1668, 1669, 1671, 1672, 1674, 1676, 1677, 1678, 1679, 1680, 1709, 1711, 1770, 1771, 3753, 3754, 3756, 3757, 3758, 3759, 3760, 3761, 3762, 3763, 3766, 3767, 3768, 3769, 3770, 3771, 3772, 3773, 3774, 3775, 3776, 3777, 3778, 3780, 3781, 3782, 3783, 3784, 3785, 3786, 4153					
	Western Slopes Dry Sclerophyll Forests This includes PCT's: 54, 110, 179, 217, 243, 255, 270, 273, 287, 291, 309, 321, 322, 323, 324, 325, 327, 330, 331, 333, 341, 343, 346, 348, 354, 358, 379, 387, 396, 398, 399, 401, 402, 403, 404, 405, 406, 407, 408, 409,	Western Slopes Dry Sclerophyll Forests <50%	479_DNS	No	2	Kerrabee, Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	414, 415, 417, 419, 420, 423, 425, 430, 431, 440, 443, 449, 455, 456, 457, 459, 462, 463, 467, 468, 469, 470, 471, 472, 473, 476, 477, 478, 479, 480, 482, 515, 531, 532, 576, 577, 581, 592, 610, 617, 671, 673, 676, 712, 713, 714, 746, 863, 889, 940, 956, 1133, 1176, 1277, 1278, 1279, 1307, 1313, 1314, 1316, 1381, 1398, 1610, 1629, 1654, 1655, 1656, 1657, 1660, 1661, 1663, 1668, 1669, 1671, 1672, 1674, 1676, 1677, 1678, 1679, 1680, 1709, 1711, 1770, 1771, 3753, 3754, 3756, 3757, 3758, 3759, 3760, 3761, 3762, 3763, 3766, 3767, 3768, 3769, 3770, 3771, 3772, 3773, 3774, 3775, 3776, 3777, 3778, 3780, 3781, 3782, 3783, 3784, 3785, 3786, 4153					

	Western Slopes Dry Sclerophyll Forests This includes PCT's: 54, 110, 179, 217, 243, 255, 270, 273, 287, 291, 309, 321, 322, 323, 324, 325, 327, 330, 331, 333, 341, 343, 346, 348, 354, 358, 379, 387, 396, 398, 399, 401, 402, 403, 404, 405, 406, 407, 408, 409, 414, 415, 417, 419, 420, 423, 425, 430, 431, 440, 443, 449, 455, 456, 457, 459, 462, 463, 467, 468, 469, 470, 471, 472, 473, 476, 477, 478, 479, 480, 482, 515, 531, 532, 576, 577, 581, 592, 610, 617, 671, 673, 676, 712, 713, 714, 746, 863, 889, 940, 956, 1133, 1176, 1277, 1278, 1279, 1307, 1313, 1314, 1316, 1381, 1398, 1610, 1629, 1654, 1655, 1656, 1657, 1660, 1661, 1663, 1668, 1669, 1671,	Western Slopes Dry Sclerophyll Forests <50%	479_Mod_Good	Yes	195	Kerrabee, Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	1672, 1674, 1676, 1677, 1678, 1679, 1680, 1709, 1711, 1770, 1771, 3753, 3754, 3756, 3757, 3758, 3759, 3760, 3761, 3762, 3763, 3766, 3767, 3768, 3769, 3770, 3771, 3772, 3773, 3774, 3775, 3776, 3777, 3778, 3780, 3781, 3782, 3783, 3784, 3785, 3786, 4153					
	Western Slopes Dry Sclerophyll Forests This includes PCT's: 54, 110, 179, 217, 243, 255, 270, 273, 287, 291, 309, 321, 322, 323, 324, 325, 327, 330, 331, 333, 341, 343, 346, 348, 354, 358, 379, 387, 396, 398, 399, 401, 402, 403, 404, 405, 406, 407, 408, 409, 414, 415, 417, 419, 420, 423, 425, 430, 431, 440, 443, 449, 455, 456, 457, 459, 462, 463, 467, 468, 469, 470, 471, 472, 473,	Western Slopes Dry Sclerophyll Forests <50%	479_Thinned	Yes	293	Kerrabee, Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	476, 477, 478, 479, 480, 482, 515, 531, 532, 576, 577, 581, 592, 610, 617, 671, 673, 676, 712, 713, 714, 746, 863, 889, 940, 956, 1133, 1176, 1277, 1278, 1279, 1307, 1313, 1314, 1316, 1381, 1398, 1610, 1629, 1654, 1655, 1656, 1657, 1660, 1661, 1663, 1668, 1669, 1671, 1672, 1674, 1676, 1677, 1678, 1679, 1680, 1709, 1711, 1770, 1771, 3753, 3754, 3756, 3757, 3758, 3759, 3760, 3761, 3762, 3763, 3766, 3767, 3768, 3769, 3770, 3771, 3772, 3773, 3774, 3775, 3776, 3777, 3778, 3780, 3781, 3782, 3783, 3784, 3785, 3786, 4153					

481-Rough-barked Apple - Blakely's Red Gum - Narrow-leaved Stringybark +/- Grey Gum sandstone riparian grass fern open forest on in the southern Brigalow Belt South Bioregion and Upper Hunter region	Like-for-like credit retirement options					
	Class	Trading group	Zone	HBT	Credits	IBRA region
	North Coast Dry Sclerophyll Forests This includes PCT's: 481, 646, 647, 658, 682, 683, 688, 696, 974, 975, 976, 1072, 1136, 2247, 2250, 3557, 3558, 3559, 3560, 3561, 3563, 3564, 3565, 3566, 3567, 3568, 3569, 3570, 3571, 3572, 3573, 3574, 3575, 3576, 3577	North Coast Dry Sclerophyll Forests <50%	481_Mod_Good	Yes	38	Kerrabee, Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
	North Coast Dry Sclerophyll Forests This includes PCT's: 481, 646, 647, 658, 682, 683, 688, 696, 974, 975, 976, 1072, 1136, 2247, 2250, 3557, 3558, 3559, 3560, 3561, 3563, 3564, 3565, 3566, 3567, 3568, 3569, 3570, 3571, 3572, 3573, 3574, 3575, 3576, 3577	North Coast Dry Sclerophyll Forests <50%	481_Thinned	Yes	185	Kerrabee, Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

481-Rough-barked Apple - Blakely's Red Gum - Narrow-leaved Stringybark +/- Grey Gum sandstone riparian grass fern open forest on in the southern Brigalow Belt South Bioregion and Upper Hunter region	
483-Grey Box x White Box grassy open woodland on basalt hills in the Merriwa region, upper Hunter Valley	**Like-for-like credit retirement options**

Name of offset trading group	Trading group	Zone	HBT	Credits	IBRA region
White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla This includes PCT's: 74, 75, 83, 250, 266, 267, 268, 270, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 298,	-	483_DNG	Yes	25	Kerrabee, Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	302, 312, 341, 342, 347, 350, 352, 356, 367, 381, 382, 395, 401, 403, 421, 433, 434, 435, 436, 437, 451, 483, 484, 488, 492, 496, 508, 509, 510, 511, 528, 538, 544, 563, 567, 571, 589, 590, 597, 599, 618, 619, 622, 633, 654, 702, 703, 704, 705, 710, 711, 796, 797, 799, 840, 847, 851, 921, 1099, 1103, 1303, 1304, 1307, 1324, 1329, 1330, 1331, 1332, 1333, 1334, 1383, 1401, 1512, 1606, 1608, 1611, 1691, 1693, 1695, 1698, 3314, 3359, 3363, 3373, 3376, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3406, 3415, 3533, 4147, 4149, 4150					
	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW	-	483_Thinned	Yes	81	Kerrabee, Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100

	North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla This includes PCT's: 74, 75, 83, 250, 266, 267, 268, 270, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 298, 302, 312, 341, 342, 347, 350, 352, 356, 367, 381, 382, 395, 401, 403, 421, 433, 434, 435, 436, 437, 451, 483, 484, 488, 492, 496, 508, 509, 510, 511, 528, 538, 544, 563, 567, 571, 589, 590, 597, 599, 618, 619, 622, 633, 654, 702, 703, 704, 705, 710, 711, 796, 797, 799, 840, 847, 851, 921, 1099, 1103, 1303, 1304, 1307, 1324, 1329, 1330, 1331, 1332, 1333, 1334, 1383, 1401, 1512, 1606, 1608, 1611, 1691, 1693, 1695,					kilometers of the outer edge of the impacted site.

	1698, 3314, 3359, 3363, 3373, 3376, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3406, 3415, 3533, 4147, 4149, 4150					
618-White Box x Grey Box - red gum - Rough-barked Apple grassy woodland on rich soils on hills in the upper Hunter Valley	**Like-for-like credit retirement options**					
	Name of offset trading group	Trading group	Zone	HBT	Credits	IBRA region
	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla This includes PCT's: 74, 75, 83, 250, 266, 267, 268, 270, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 298, 302, 312, 341, 342, 347, 350, 352, 356, 367, 381, 382, 395, 401, 403, 421,	-	618_DNG	No	435	Kerrabee, Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	433, 434, 435, 436, 437, 451, 483, 484, 488, 492, 496, 508, 509, 510, 511, 528, 538, 544, 563, 567, 571, 589, 590, 597, 599, 618, 619, 622, 633, 654, 702, 703, 704, 705, 710, 711, 796, 797, 799, 840, 847, 851, 921, 1099, 1103, 1303, 1304, 1307, 1324, 1329, 1330, 1331, 1332, 1333, 1334, 1383, 1401, 1512, 1606, 1608, 1611, 1691, 1693, 1695, 1698, 3314, 3359, 3363, 3373, 3376, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3406, 3415, 3533, 4147, 4149, 4150					
	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt	-	618_Mod_Good	Yes	177	Kerrabee, Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	South, Sydney Basin, South Eastern Highla This includes PCT's: 74, 75, 83, 250, 266, 267, 268, 270, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 298, 302, 312, 341, 342, 347, 350, 352, 356, 367, 381, 382, 395, 401, 403, 421, 433, 434, 435, 436, 437, 451, 483, 484, 488, 492, 496, 508, 509, 510, 511, 528, 538, 544, 563, 567, 571, 589, 590, 597, 599, 618, 619, 622, 633, 654, 702, 703, 704, 705, 710, 711, 796, 797, 799, 840, 847, 851, 921, 1099, 1103, 1303, 1304, 1307, 1324, 1329, 1330, 1331, 1332, 1333, 1334, 1383, 1401, 1512, 1606, 1608, 1611, 1691, 1693, 1695, 1698, 3314, 3359, 3363, 3373, 3376, 3387, 3388, 3394, 3395, 3396, 3397,					

	3398, 3399, 3406, 3415, 3533, 4147, 4149, 4150					
	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla This includes PCT's: 74, 75, 83, 250, 266, 267, 268, 270, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 298, 302, 312, 341, 342, 347, 350, 352, 356, 367, 381, 382, 395, 401, 403, 421, 433, 434, 435, 436, 437, 451, 483, 484, 488, 492, 496, 508, 509, 510, 511, 528, 538, 544, 563, 567, 571, 589, 590, 597, 599, 618, 619, 622, 633, 654, 702, 703, 704, 705, 710,	-	618_Thinned	Yes	150	Kerrabee, Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	711, 796, 797, 799, 840, 847, 851, 921, 1099, 1103, 1303, 1304, 1307, 1324, 1329, 1330, 1331, 1332, 1333, 1334, 1383, 1401, 1512, 1606, 1608, 1611, 1691, 1693, 1695, 1698, 3314, 3359, 3363, 3373, 3376, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3406, 3415, 3533, 4147, 4149, 4150					
1176-Slaty Box - Grey Gum shrubby woodland on footslopes of the upper Hunter Valley, Sydney Basin Bioregion	**Like-for-like credit retirement options**					
	Name of offset trading group	Trading group	Zone	HBT	Credits	IBRA region
	Hunter Valley Footslopes Slaty Gum Woodland in the Sydney Basin Bioregion This includes PCT's: 1176, 1655, 3490	-	1176_Thinned	Yes	20	Kerrabee, Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

1610-White Box - Black Cypress Pine shrubby woodland of the Western Slopes

Like-for-like credit retirement options

Class	Trading group	Zone	HBT	Credits	IBRA region
Western Slopes Dry Sclerophyll Forests This includes PCT's: 54, 110, 217, 255, 273, 287, 330, 333, 341, 343, 346, 348, 358, 403, 455, 456, 472, 577, 581, 592, 617, 673, 676, 713, 940, 956, 1277, 1279, 1313, 1316, 1381, 1610, 1661, 1668, 1709, 3753, 3754, 3756, 3768, 3769, 4153	Western Slopes Dry Sclerophyll Forests >=50% and <70%	1610_DNG	No	12	Kerrabee, Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	Western Slopes Dry Sclerophyll Forests This includes PCT's: 54, 110, 217, 255, 273, 287, 330, 333, 341, 343, 346, 348, 358, 403, 455, 456, 472, 577, 581, 592, 617, 673, 676, 713, 940, 956, 1277, 1279, 1313, 1316, 1381, 1610, 1661, 1668, 1709, 3753, 3754, 3756, 3768, 3769, 4153	Western Slopes Dry Sclerophyll Forests >=50% and <70%	1610_Mod_Good	Yes	1172	Kerrabee, Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
	Western Slopes Dry Sclerophyll Forests This includes PCT's: 54, 110, 217, 255, 273, 287, 330, 333, 341, 343, 346, 348, 358, 403, 455, 456, 472, 577, 581, 592, 617, 673, 676, 713, 940, 956, 1277, 1279, 1313, 1316, 1381, 1610, 1661, 1668, 1709, 3753, 3754, 3756, 3768, 3769, 4153	Western Slopes Dry Sclerophyll Forests >=50% and <70%	1610_Thinned	Yes	92	Kerrabee, Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

1674-Red Ironbark - Brown Bloodwood - Black Pine heathy open forest on sandstone ranges of the Sydney Basin	Like-for-like credit retirement options					
	Class	Trading group	Zone	HBT	Credits	IBRA region
	Western Slopes Dry Sclerophyll Forests This includes PCT's: 54, 110, 179, 217, 243, 255, 270, 273, 287, 291, 309, 321, 322, 323, 324, 325, 327, 330, 331, 333, 341, 343, 346, 348, 354, 358, 379, 387, 396, 398, 399, 401, 402, 403, 404, 405, 406, 407, 408, 409, 414, 415, 417, 419, 420, 423, 425, 430, 431, 440, 443, 449, 455, 456, 457, 459, 462, 463, 467, 468, 469, 470, 471, 472, 473, 476, 477, 478, 479, 480, 482, 515, 531, 532, 576, 577, 581, 592, 610, 617, 671, 673, 676, 712, 713, 714, 746, 863, 889, 940, 956, 1133, 1176, 1277, 1278, 1279, 1307, 1313, 1314, 1316, 1381, 1398,	Western Slopes Dry Sclerophyll Forests <50%	1674_DNG	No	1	Kerrabee, Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	1610, 1629, 1654, 1655, 1656, 1657, 1660, 1661, 1663, 1668, 1669, 1671, 1672, 1674, 1676, 1677, 1678, 1679, 1680, 1709, 1711, 1770, 1771, 3753, 3754, 3756, 3757, 3758, 3759, 3760, 3761, 3762, 3763, 3766, 3767, 3768, 3769, 3770, 3771, 3772, 3773, 3774, 3775, 3776, 3777, 3778, 3780, 3781, 3782, 3783, 3784, 3785, 3786, 4153					
	Western Slopes Dry Sclerophyll Forests This includes PCT's: 54, 110, 179, 217, 243, 255, 270, 273, 287, 291, 309, 321, 322, 323, 324, 325, 327, 330, 331, 333, 341, 343, 346, 348, 354, 358, 379, 387, 396, 398, 399, 401, 402, 403, 404, 405, 406, 407, 408, 409, 414, 415, 417, 419, 420, 423, 425, 430, 431, 440,	Western Slopes Dry Sclerophyll Forests <50%	1674_Mod_Good	No	103	Kerrabee, Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	443, 449, 455, 456, 457, 459, 462, 463, 467, 468, 469, 470, 471, 472, 473, 476, 477, 478, 479, 480, 482, 515, 531, 532, 576, 577, 581, 592, 610, 617, 671, 673, 676, 712, 713, 714, 746, 863, 889, 940, 956, 1133, 1176, 1277, 1278, 1279, 1307, 1313, 1314, 1316, 1381, 1398, 1610, 1629, 1654, 1655, 1656, 1657, 1660, 1661, 1663, 1668, 1669, 1671, 1672, 1674, 1676, 1677, 1678, 1679, 1680, 1709, 1711, 1770, 1771, 3753, 3754, 3756, 3757, 3758, 3759, 3760, 3761, 3762, 3763, 3766, 3767, 3768, 3769, 3770, 3771, 3772, 3773, 3774, 3775, 3776, 3777, 3778, 3780, 3781, 3782, 3783, 3784, 3785, 3786, 4153					

Species Credit Summary

Species	Vegetation Zone/s	Area / Count	Credits
Acacia ausfeldii / Ausfeld's Wattle	**281_DNG, 281_Mod_Good, 281_Thinned, 479_DNG, 479_Mod_Good, 479_Thinned, 481_Mod_Good, 481_Thinned**	4.9	117.00
Anthochaera phrygia / Regent Honeyeater	**277_Thinned, 277_Mod_Good, 281_DNS, 281_Mod_Good, 281_Thinned, 478_Mod_Good, 618_Mod_Good, 618_Thinned, 1176_Thinned, 1610_Mod_Good, 1674_Mod_Good**	93.4	3176.00
Aprasia parapulchella / Pink-tailed Legless Lizard	**440_Mod_Good, 477_Thinned**	0.8	20.00
Calyptorhynchus lathami / Glossy Black-Cockatoo	**461_Mod_Good**	5.5	121.00
Cercartetus nanus / Eastern Pygmy-possum	**440_Mod_Good, 461_Mod_Good, 461_Thinned, 477_Thinned, 1674_Mod_Good**	43.4	861.00

Chalinolobus dwyeri / Large-eared Pied Bat	**277_Thinned, 277_Mod_Good, 281_Mod_Good, 281_Poor, 281_Thinned, 461_Mod_Good, 461_Thinned, 1674_Mod_Good**	86.8	3099.00
Commersonia rosea / Commersonia rosea	**1674_Mod_Good**	3.3	63.00
Delma impar / Striped Legless Lizard	**277_Mod_Good, 277_Thinned, 618_DNG, 618_Mod_Good, 618_Thinned**	47.5	322.00
Eucalyptus camaldulensis - endangered population / Eucalyptus camaldulensis population in the Hunter catchment	**281_DNG, 281_Mod_Good, 281_Thinned**	1.4	26.00
Homoranthus darwinioides / Fairy Bells	**477_Thinned, 1674_Mod_Good**	3.3	44.00
Hoplocephalus bitorquatus / Pale-headed Snake	**440_Mod_Good, 477_Thinned, 1674_Mod_Good**	13.0	194.00
Hoplocephalus bungaroides / Broad-headed Snake	**1674_DNG, 1674_Mod_Good**	10.8	208.00
Leucochrysum albicans subsp. tricolor / Hoary Sunray	**461_Mod_Good, 481_Thinned**	5.0	10.00
Monotaxis macrophylla / Large-leafed Monotaxis	**1610_Mod_Good, 1610_Thinned**	18.8	446.00
Ozothamnus tesselatus / Ozothamnus tesselatus	**1674_Mod_Good**	3.3	31.00

Petaurus norfolcensis / Squirrel Glider	**277_Mod_Good, 277_Thinned, 281_Mod_Good, 281_Poor, 281_Thinned, 440_Mod_Good, 461_Mod_Good, 461_Thinned, 477_Thinned, 1674_Mod_Good**	126.9	3147.00
Petrogale penicillata / Brush-tailed Rock-wallaby	**277_Mod_Good, 277_Thinned, 281_Mod_Good, 281_Thinned, 461_Mod_Good, 461_Thinned, 1674_DNG, 1674_Mod_Good**	1.3	48.00

Phascolarctos cinereus / Koala	**277_Mod_Good, 277_Thinned, 281_Mod_Good, 281_Poor, 281_Thinned, 440_Mod_Good, 461_Mod_Good, 461_Thinned, 477_Thinned, 478_Mod_Good, 478_Thinned, 479_Mod_Good, 479_Thinned, 481_Mod_Good, 481_Thinned, 483_Thinned, 618_Mod_Good, 618_Thinned, 1610_Mod_Good, 1610_Thinned, 1674_Mod_Good**	252.4	6002.00
Pomaderris cotoneaster / Cotoneaster Pomaderris	**478_Mod_Good, 1610_Mod_Good, 1610_Thinned**	21.2	500.00
Vespadelus troughtoni / Eastern Cave Bat	**461_Mod_Good, 461_Thinned, 1674_Mod_Good**	38.5	1122.00

Credit Retirement Options

Like-for-like credit retirement options

Acacia ausfeldii / Ausfeld's Wattle	Spp	IBRA subregion
	Acacia ausfeldii / Ausfeld's Wattle	Any in NSW
Anthochaera phrygia / Regent Honeyeater	Spp	IBRA subregion
	Anthochaera phrygia / Regent Honeyeater	Any in NSW
Aprasia parapulchella / Pink-tailed Legless Lizard	Spp	IBRA subregion
	Aprasia parapulchella / Pink-tailed Legless Lizard	Any in NSW
Calyptorhynchus lathami / Glossy Black-Cockatoo	Spp	IBRA subregion
	Calyptorhynchus lathami / Glossy Black-Cockatoo	Any in NSW
Cercartetus nanus / Eastern Pygmy-possum	Spp	IBRA subregion
	Cercartetus nanus / Eastern Pygmy-possum	Any in NSW
Chalinolobus dwyeri / Large-eared Pied Bat	Spp	IBRA subregion
	Chalinolobus dwyeri / Large-eared Pied Bat	Any in NSW
Commersonia rosea / Commersonia rosea	Spp	IBRA subregion

	Commersonia rosea / Commersonia rosea	Any in NSW
Delma impar / Striped Legless Lizard	Spp	IBRA subregion
	Delma impar / Striped Legless Lizard	Any in NSW
Eucalyptus camaldulensis - endangered population / Eucalyptus camaldulensis population in the Hunter catchment	Spp	IBRA subregion
	Eucalyptus camaldulensis - endangered population / Eucalyptus camaldulensis population in the Hunter catchment	Any in NSW
Homoranthus darwinioides / Fairy Bells	Spp	IBRA subregion
	Homoranthus darwinioides / Fairy Bells	Any in NSW
Hoplocephalus bitorquatus / Pale-headed Snake	Spp	IBRA subregion
	Hoplocephalus bitorquatus / Pale-headed Snake	Any in NSW
Hoplocephalus bungaroides / Broad-headed Snake	Spp	IBRA subregion
	Hoplocephalus bungaroides / Broad-headed Snake	Any in NSW
Leucochrysum albicans subsp. tricolor / Hoary Sunray	Spp	IBRA subregion
	Leucochrysum albicans subsp. tricolor / Hoary Sunray	Any in NSW

Monotaxis macrophylla / Large-leafed Monotaxis	Spp	IBRA subregion
	Monotaxis macrophylla / Large-leafed Monotaxis	Any in NSW
Ozothamnus tesselatus / Ozothamnus tesselatus	Spp	IBRA subregion
	Ozothamnus tesselatus / Ozothamnus tesselatus	Any in NSW
Petaurus norfolcensis / Squirrel Glider	Spp	IBRA subregion
	Petaurus norfolcensis / Squirrel Glider	Any in NSW
Petrogale penicillata / Brush-tailed Rock-wallaby	Spp	IBRA subregion
	Petrogale penicillata / Brush-tailed Rock-wallaby	Any in NSW
Phascolarctos cinereus / Koala	Spp	IBRA subregion
	Phascolarctos cinereus / Koala	Any in NSW
Pomaderris cotoneaster / Cotoneaster Pomaderris	Spp	IBRA subregion
	Pomaderris cotoneaster / Cotoneaster Pomaderris	Any in NSW
Vespadelus troughtoni / Eastern Cave Bat	Spp	IBRA subregion

	Vespadelus troughtoni / Eastern Cave Bat	Any in NSW

BAM Biodiversity Credit Report (Variations)

Proposal Details

Assessment Id
00038556/BAAS17060/23/00038557

Proposal Name
CWOREZ Kerrabee subregion - RNI1

BAM data last updated *
22/06/2023

Assessor Name
Lukas Leslie Clews

Assessor Number
BAAS17060

BAM Data version *
61

Proponent Name(s)

Report Created
16/08/2023

BAM Case Status
Open

Assessment Revision
1

Assessment Type
Major Projects

Date Finalised
To be finalised

* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.

Potential Serious and Irreversible Impacts

Name of threatened ecological community	Listing status	Name of Plant Community Type/ID
White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla	Critically Endangered Ecological Community	277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla	Critically Endangered Ecological Community	281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion

White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla	Critically Endangered Ecological Community	483-Grey Box x White Box grassy open woodland on basalt hills in the Merriwa region, upper Hunter Valley
White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla	Critically Endangered Ecological Community	618-White Box x Grey Box - red gum - Rough-barked Apple grassy woodland on rich soils on hills in the upper Hunter Valley

Species
Chalinolobus dwyeri / Large-eared Pied Bat
Petrogale penicillata / Brush-tailed Rock-wallaby
Vespadelus troughtoni / Eastern Cave Bat
Anthochaera phrygia / Regent Honeyeater
Hoplocephalus bungaroides / Broad-headed Snake
Commersonia rosea / Commersonia rosea

Additional Information for Approval

PCT Outside Ibra Added

PCT
277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
461-Tumbledown Gum woodland on hills in the northern NSW South Western Slopes Bioregion and southern Brigalow Belt South Bioregion

468-Narrow-leaved Ironbark - Black Cypress Pine +/- Blakely's Red Gum shrubby open forest on sandstone low hills in the southern Brigalow Belt South Bioregion (including Goonoo)
477-Inland Scribbly Gum - Red Stringybark - Black Cypress Pine - Red Ironbark open forest on sandstone hills in the southern Brigalow Belt South Bioregion and northern NSW South Western Slopes Bioregion
478-Red Ironbark - Black Cypress Pine - stringybark +/- Narrow-leaved Wattle shrubby open forest on sandstone in the Gulgong - Mendooran region, southern Brigalow Belt South Bioregion
479-Narrow-leaved Ironbark- Black Cypress Pine - stringybark +/- Grey Gum +/- Narrow-leaved Wattle shrubby open forest on sandstone hills in the southern Brigalow Belt South Bioregion and Sydney Basin Bioregion
481-Rough-barked Apple - Blakely's Red Gum - Narrow-leaved Stringybark +/- Grey Gum sandstone riparian grass fern open forest on in the southern Brigalow Belt South Bioregion and Upper Hunter region
483-Grey Box x White Box grassy open woodland on basalt hills in the Merriwa region, upper Hunter Valley
618-White Box x Grey Box - red gum - Rough-barked Apple grassy woodland on rich soils on hills in the upper Hunter Valley
1176-Slaty Box - Grey Gum shrubby woodland on footslopes of the upper Hunter Valley, Sydney Basin Bioregion
1610-White Box - Black Cypress Pine shrubby woodland of the Western Slopes
1674-Red Ironbark - Brown Bloodwood - Black Pine heathy open forest on sandstone ranges of the Sydney Basin

PCTs With Customized Benchmarks

PCT
No Changes

Predicted Threatened Species Not On Site

Name
No Changes

Ecosystem Credit Summary (Number and class of biodiversity credits to be retired)

BAM Biodiversity Credit Report (Variations)

Name of Plant Community Type/ID	Name of threatened ecological community	Area of impact	HBT Cr	No HBT Cr	Total credits to be retired
277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla	1.0	6	25	31.00
281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla	110.7	2844	460	3304.00
440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion	Not a TEC	3.9	41	0	41.00
461-Tumbledown Gum woodland on hills in the northern NSW South Western Slopes Bioregion and southern Brigalow Belt South Bioregion	Not a TEC	30.4	583	1	584.00
477-Inland Scribbly Gum - Red Stringybark - Black Cypress Pine - Red Ironbark open forest on sandstone hills in the southern Brigalow Belt South Bioregion and northern NSW South Western Slopes Bioregion	Not a TEC	0.1	1	0	1.00
478-Red Ironbark - Black Cypress Pine - stringybark +/- Narrow-leaved Wattle shrubby open forest on sandstone in the Gulgong - Mendooran region, southern Brigalow Belt South Bioregion	Not a TEC	7.0	109	0	109.00

479-Narrow-leaved Ironbark- Black Cypress Pine - stringybark +/- Grey Gum +/- Narrow-leaved Wattle shrubby open forest on sandstone hills in the southern Brigalow Belt South Bioregion and Sydney Basin Bioregion	Not a TEC	33.7	488	2	490.00
481-Rough-barked Apple - Blakely's Red Gum - Narrow-leaved Stringybark +/- Grey Gum sandstone riparian grass fern open forest on in the southern Brigalow Belt South Bioregion and Upper Hunter region	Not a TEC	11.7	223	0	223.00
483-Grey Box x White Box grassy open woodland on basalt hills in the Merriwa region, upper Hunter Valley	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla	4.2	106	0	106.00
618-White Box x Grey Box - red gum - Rough-barked Apple grassy woodland on rich soils on hills in the upper Hunter Valley	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla	60.1	327	435	762.00
1176-Slaty Box - Grey Gum shrubby woodland on footslopes of the upper Hunter Valley, Sydney Basin Bioregion	Hunter Valley Footslopes Slaty Gum Woodland in the Sydney Basin Bioregion	2.0	20	0	20.00
1610-White Box - Black Cypress Pine shrubby woodland of the Western Slopes	Not a TEC	62.0	1264	12	1276.00
1674-Red Ironbark - Brown Bloodwood - Black Pine heathy open forest on sandstone ranges of the Sydney Basin	Not a TEC	10.8	0	104	104.00

277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion	Like-for-like credit retirement options					
	Class	Trading group	Zone	HBT	Credits	IBRA region
	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla This includes PCT's: 74, 75, 83, 250, 266, 267, 268, 270, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 298, 302, 312, 341, 342, 347, 350, 352, 356, 367, 381, 382, 395, 401, 403, 421, 433, 434, 435, 436, 437, 451, 483, 484, 488, 492, 496, 508, 509, 510, 511, 528, 538, 544, 563, 567, 571, 589, 590, 597, 599, 618, 619, 622, 633, 654, 702, 703, 704, 705, 710, 711, 796, 797, 799, 840, 847, 851, 921, 1099, 1103, 1303, 1304, 1307, 1324, 1329, 1330, 1331, 1332,	-	277_Mod_ Good	Yes	6	Kerrabee,Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	1333, 1334, 1383, 1401, 1512, 1606, 1608, 1611, 1691, 1693, 1695, 1698, 3314, 3359, 3363, 3373, 3376, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3406, 3415, 3533, 4147, 4149, 4150					
	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla This includes PCT's: 74, 75, 83, 250, 266, 267, 268, 270, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 298, 302, 312, 341, 342, 347, 350, 352, 356, 367, 381, 382, 395, 401, 403, 421, 433, 434, 435, 436, 437, 451, 483, 484, 488, 492, 496, 508, 509, 510, 511, 528, 538, 544, 563, 567, 571, 589, 590, 597, 599, 618, 619, 622, 633, 654,	-	277_Thinned	No	25	Kerrabee,Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	702, 703, 704, 705, 710, 711, 796, 797, 799, 840, 847, 851, 921, 1099, 1103, 1303, 1304, 1307, 1324, 1329, 1330, 1331, 1332, 1333, 1334, 1383, 1401, 1512, 1606, 1608, 1611, 1691, 1693, 1695, 1698, 3314, 3359, 3363, 3373, 3376, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3406, 3415, 3533, 4147, 4149, 4150					
281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion	**Like-for-like credit retirement options**					
	Class	Trading group	Zone	HBT	Credits	IBRA region
	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla This includes PCT's: 74, 75, 83, 250, 266, 267, 268, 270, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 298, 302, 312, 341, 342, 347,	-	281_DNG	No	435	Kerrabee,Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	350, 352, 356, 367, 381, 382, 395, 401, 403, 421, 433, 434, 435, 436, 437, 451, 483, 484, 488, 492, 496, 508, 509, 510, 511, 528, 538, 544, 563, 567, 571, 589, 590, 597, 599, 618, 619, 622, 633, 654, 702, 703, 704, 705, 710, 711, 796, 797, 799, 840, 847, 851, 921, 1099, 1103, 1303, 1304, 1307, 1324, 1329, 1330, 1331, 1332, 1333, 1334, 1383, 1401, 1512, 1606, 1608, 1611, 1691, 1693, 1695, 1698, 3314, 3359, 3363, 3373, 3376, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3406, 3415, 3533, 4147, 4149, 4150					
	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla This includes PCT's:	-	281_DNS	No	25	Kerrabee,Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	74, 75, 83, 250, 266, 267, 268, 270, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 298, 302, 312, 341, 342, 347, 350, 352, 356, 367, 381, 382, 395, 401, 403, 421, 433, 434, 435, 436, 437, 451, 483, 484, 488, 492, 496, 508, 509, 510, 511, 528, 538, 544, 563, 567, 571, 589, 590, 597, 599, 618, 619, 622, 633, 654, 702, 703, 704, 705, 710, 711, 796, 797, 799, 840, 847, 851, 921, 1099, 1103, 1303, 1304, 1307, 1324, 1329, 1330, 1331, 1332, 1333, 1334, 1383, 1401, 1512, 1606, 1608, 1611, 1691, 1693, 1695, 1698, 3314, 3359, 3363, 3373, 3376, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3406, 3415, 3533, 4147, 4149, 4150					
	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New	-	281_Mod_ Good	Yes	1405	Kerrabee,Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the

	England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla This includes PCT's: 74, 75, 83, 250, 266, 267, 268, 270, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 298, 302, 312, 341, 342, 347, 350, 352, 356, 367, 381, 382, 395, 401, 403, 421, 433, 434, 435, 436, 437, 451, 483, 484, 488, 492, 496, 508, 509, 510, 511, 528, 538, 544, 563, 567, 571, 589, 590, 597, 599, 618, 619, 622, 633, 654, 702, 703, 704, 705, 710, 711, 796, 797, 799, 840, 847, 851, 921, 1099, 1103, 1303, 1304, 1307, 1324, 1329, 1330, 1331, 1332, 1333, 1334, 1383, 1401, 1512, 1606, 1608, 1611, 1691, 1693, 1695, 1698, 3314, 3359, 3363, 3373, 3376, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3406, 3415, 3533, 4147, 4149, 4150					impacted site.

	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla This includes PCT's: 74, 75, 83, 250, 266, 267, 268, 270, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 298, 302, 312, 341, 342, 347, 350, 352, 356, 367, 381, 382, 395, 401, 403, 421, 433, 434, 435, 436, 437, 451, 483, 484, 488, 492, 496, 508, 509, 510, 511, 528, 538, 544, 563, 567, 571, 589, 590, 597, 599, 618, 619, 622, 633, 654, 702, 703, 704, 705, 710, 711, 796, 797, 799, 840, 847, 851, 921, 1099, 1103, 1303, 1304, 1307, 1324, 1329, 1330, 1331, 1332, 1333, 1334, 1383, 1401, 1512, 1606, 1608, 1611, 1691, 1693, 1695, 1698,	-	281_Poor	Yes	1	Kerrabee,Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	3314, 3359, 3363, 3373, 3376, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3406, 3415, 3533, 4147, 4149, 4150					
	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla This includes PCT's: 74, 75, 83, 250, 266, 267, 268, 270, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 298, 302, 312, 341, 342, 347, 350, 352, 356, 367, 381, 382, 395, 401, 403, 421, 433, 434, 435, 436, 437, 451, 483, 484, 488, 492, 496, 508, 509, 510, 511, 528, 538, 544, 563, 567, 571, 589, 590, 597, 599, 618, 619, 622, 633, 654, 702, 703, 704, 705, 710, 711, 796, 797, 799, 840, 847, 851, 921, 1099, 1103,	-	281_Thinned	Yes	1438	Kerrabee,Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	1303, 1304, 1307, 1324, 1329, 1330, 1331, 1332, 1333, 1334, 1383, 1401, 1512, 1606, 1608, 1611, 1691, 1693, 1695, 1698, 3314, 3359, 3363, 3373, 3376, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3406, 3415, 3533, 4147, 4149, 4150					
440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion	**Like-for-like credit retirement options**					
	Class	Trading group	Zone	HBT	Credits	IBRA region
	Western Slopes Dry Sclerophyll Forests This includes PCT's: 54, 110, 179, 217, 243, 255, 270, 273, 287, 291, 309, 321, 322, 323, 324, 325, 327, 330, 331, 333, 341, 343, 346, 348, 354, 358, 379, 387, 396, 398, 399, 401, 402, 403, 404, 405, 406, 407, 408, 409, 414, 415, 417, 419, 420, 423, 425, 430, 431, 440, 443, 449, 455, 456, 457, 459, 462, 463, 467, 468, 469, 470, 471, 472, 473, 476, 477, 478, 479, 480, 482, 515, 531, 532, 576,	Western Slopes Dry Sclerophyll Forests <50%	440_DNG	No	0	Kerrabee,Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	577, 581, 592, 610, 617, 671, 673, 676, 712, 713, 714, 746, 863, 889, 940, 956, 1133, 1176, 1277, 1278, 1279, 1307, 1313, 1314, 1316, 1381, 1398, 1610, 1629, 1654, 1655, 1656, 1657, 1660, 1661, 1663, 1668, 1669, 1671, 1672, 1674, 1676, 1677, 1678, 1679, 1680, 1709, 1711, 1770, 1771, 3753, 3754, 3756, 3757, 3758, 3759, 3760, 3761, 3762, 3763, 3766, 3767, 3768, 3769, 3770, 3771, 3772, 3773, 3774, 3775, 3776, 3777, 3778, 3780, 3781, 3782, 3783, 3784, 3785, 3786, 4153					
	Western Slopes Dry Sclerophyll Forests This includes PCT's: 54, 110, 179, 217, 243, 255, 270, 273, 287, 291, 309, 321, 322, 323, 324, 325, 327, 330, 331, 333, 341, 343, 346, 348, 354, 358, 379, 387, 396, 398, 399, 401, 402, 403, 404, 405, 406, 407, 408, 409,	Western Slopes Dry Sclerophyll Forests <50%	440_Mod_ Good	Yes	41	Kerrabee,Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	414, 415, 417, 419, 420, 423, 425, 430, 431, 440, 443, 449, 455, 456, 457, 459, 462, 463, 467, 468, 469, 470, 471, 472, 473, 476, 477, 478, 479, 480, 482, 515, 531, 532, 576, 577, 581, 592, 610, 617, 671, 673, 676, 712, 713, 714, 746, 863, 889, 940, 956, 1133, 1176, 1277, 1278, 1279, 1307, 1313, 1314, 1316, 1381, 1398, 1610, 1629, 1654, 1655, 1656, 1657, 1660, 1661, 1663, 1668, 1669, 1671, 1672, 1674, 1676, 1677, 1678, 1679, 1680, 1709, 1711, 1770, 1771, 3753, 3754, 3756, 3757, 3758, 3759, 3760, 3761, 3762, 3763, 3766, 3767, 3768, 3769, 3770, 3771, 3772, 3773, 3774, 3775, 3776, 3777, 3778, 3780, 3781, 3782, 3783, 3784, 3785, 3786, 4153					
	Variation options					
	Formation	Trading group	Zone	HBT	Credits	IBRA region

	Dry Sclerophyll Forests (Shrubby sub-formation)	Tier 4 or higher threat status	440_DNG	No	0	IBRA Region: Sydney Basin, or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
	Dry Sclerophyll Forests (Shrubby sub-formation)	Tier 4 or higher threat status	440_Mod_Good	Yes (including artificial)	41	IBRA Region: Sydney Basin, or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
461-Tumbledown Gum woodland on hills in the northern NSW South Western Slopes Bioregion and southern Brigalow Belt South Bioregion	**Like-for-like credit retirement options**					
	Class	Trading group	Zone	HBT	Credits	IBRA region

	Western Slopes Grassy Woodlands This includes PCT's: 201, 202, 266, 267, 268, 272, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 301, 316, 326, 337, 347, 383, 421, 426, 433, 434, 437, 441, 444, 461, 483, 509, 516, 544, 589, 590, 593, 599, 847, 955, 1303, 1304, 1315, 1329, 1383, 1401, 1609, 1693, 1695, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3401, 3403, 3404, 3405, 3406, 3485, 4147	Western Slopes Grassy Woodlands >=50% and <70%	461_Mod_Good	Yes	583	Kerrabee,Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	Western Slopes Grassy Woodlands This includes PCT's: 201, 202, 266, 267, 268, 272, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 301, 316, 326, 337, 347, 383, 421, 426, 433, 434, 437, 441, 444, 461, 483, 509, 516, 544, 589, 590, 593, 599, 847, 955, 1303, 1304, 1315, 1329, 1383, 1401, 1609, 1693, 1695, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3401, 3403, 3404, 3405, 3406, 3485, 4147	Western Slopes Grassy Woodlands >=50% and <70%	461_Thinned	No	1	Kerrabee,Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
	Variation options					
	Formation	Trading group	Zone	HBT	Credits	IBRA region
	Grassy Woodlands	Tier 3 or higher threat status	461_Mod_Good	Yes (including artificial)	583	IBRA Region: Sydney Basin, or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
	Grassy Woodlands	Tier 3 or higher threat status	461_Thinned	No	1	IBRA Region: Sydney Basin, or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

477-Inland Scribbly Gum - Red Stringybark - Black Cypress Pine - Red Ironbark open forest on sandstone hills in the southern Brigalow Belt South Bioregion and northern NSW South Western Slopes Bioregion

Like-for-like credit retirement options

Class	Trading group	Zone	HBT	Credits	IBRA region
Western Slopes Dry Sclerophyll Forests This includes PCT's: 54, 110, 179, 217, 243, 255, 270, 273, 287, 291, 309, 321, 322, 323, 324, 325, 327, 330, 331, 333, 341, 343, 346, 348, 354, 358, 379, 387, 396, 398, 399, 401, 402, 403, 404, 405, 406, 407, 408, 409, 414, 415, 417, 419, 420, 423, 425, 430, 431, 440, 443, 449, 455, 456, 457, 459, 462, 463, 467, 468, 469, 470, 471, 472, 473, 476, 477, 478, 479, 480, 482, 515, 531, 532, 576, 577, 581, 592, 610, 617, 671, 673, 676, 712, 713, 714, 746, 863, 889, 940,	Western Slopes Dry Sclerophyll Forests <50%	477_Thinned	Yes	1	Kerrabee,Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	956, 1133, 1176, 1277, 1278, 1279, 1307, 1313, 1314, 1316, 1381, 1398, 1610, 1629, 1654, 1655, 1656, 1657, 1660, 1661, 1663, 1668, 1669, 1671, 1672, 1674, 1676, 1677, 1678, 1679, 1680, 1709, 1711, 1770, 1771, 3753, 3754, 3756, 3757, 3758, 3759, 3760, 3761, 3762, 3763, 3766, 3767, 3768, 3769, 3770, 3771, 3772, 3773, 3774, 3775, 3776, 3777, 3778, 3780, 3781, 3782, 3783, 3784, 3785, 3786, 4153					
	Variation options					
	Formation	Trading group	Zone	HBT	Credits	IBRA region
	Dry Sclerophyll Forests (Shrubby sub-formation)	Tier 4 or higher threat status	477_Thinned	Yes (including artificial)	1	IBRA Region: Sydney Basin, or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

478-Red Ironbark - Black Cypress Pine - stringybark +/- Narrow-leaved Wattle shrubby open forest on sandstone in the Gulgong - Mendooran region, southern Brigalow Belt South Bioregion	Like-for-like credit retirement options					
	Class	Trading group	Zone	HBT	Credits	IBRA region
	Western Slopes Dry Sclerophyll Forests This includes PCT's: 54, 110, 179, 217, 243, 255, 270, 273, 287, 291, 309, 321, 322, 323, 324, 325, 327, 330, 331, 333, 341, 343, 346, 348, 354, 358, 379, 387, 396, 398, 399, 401, 402, 403, 404, 405, 406, 407, 408, 409, 414, 415, 417, 419, 420, 423, 425, 430, 431, 440, 443, 449, 455, 456, 457, 459, 462, 463, 467, 468, 469, 470, 471, 472, 473, 476, 477, 478, 479, 480, 482, 515, 531, 532, 576, 577, 581, 592, 610, 617, 671, 673, 676, 712, 713, 714, 746, 863, 889, 940, 956, 1133, 1176, 1277, 1278, 1279, 1307, 1313, 1314, 1316, 1381, 1398, 1610, 1629, 1654, 1655, 1656, 1657, 1660, 1661, 1663, 1668, 1669, 1671, 1672, 1674, 1676, 1677,	Western Slopes Dry Sclerophyll Forests <50%	478_DNG	No	0	Kerrabee,Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	1678, 1679, 1680, 1709, 1711, 1770, 1771, 3753, 3754, 3756, 3757, 3758, 3759, 3760, 3761, 3762, 3763, 3766, 3767, 3768, 3769, 3770, 3771, 3772, 3773, 3774, 3775, 3776, 3777, 3778, 3780, 3781, 3782, 3783, 3784, 3785, 3786, 4153					
	Western Slopes Dry Sclerophyll Forests This includes PCT's: 54, 110, 179, 217, 243, 255, 270, 273, 287, 291, 309, 321, 322, 323, 324, 325, 327, 330, 331, 333, 341, 343, 346, 348, 354, 358, 379, 387, 396, 398, 399, 401, 402, 403, 404, 405, 406, 407, 408, 409, 414, 415, 417, 419, 420, 423, 425, 430, 431, 440, 443, 449, 455, 456, 457, 459, 462, 463, 467, 468, 469, 470, 471, 472, 473, 476, 477, 478, 479, 480, 482, 515, 531, 532, 576, 577, 581, 592, 610, 617, 671, 673, 676, 712, 713, 714, 746, 863, 889, 940,	Western Slopes Dry Sclerophyll Forests <50%	478_Mod_ Good	Yes	107	Kerrabee,Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	956, 1133, 1176, 1277, 1278, 1279, 1307, 1313, 1314, 1316, 1381, 1398, 1610, 1629, 1654, 1655, 1656, 1657, 1660, 1661, 1663, 1668, 1669, 1671, 1672, 1674, 1676, 1677, 1678, 1679, 1680, 1709, 1711, 1770, 1771, 3753, 3754, 3756, 3757, 3758, 3759, 3760, 3761, 3762, 3763, 3766, 3767, 3768, 3769, 3770, 3771, 3772, 3773, 3774, 3775, 3776, 3777, 3778, 3780, 3781, 3782, 3783, 3784, 3785, 3786, 4153					
	Western Slopes Dry Sclerophyll Forests This includes PCT's: 54, 110, 179, 217, 243, 255, 270, 273, 287, 291, 309, 321, 322, 323, 324, 325, 327, 330, 331, 333, 341, 343, 346, 348, 354, 358, 379, 387, 396, 398, 399, 401, 402, 403, 404, 405, 406, 407, 408, 409, 414, 415, 417, 419, 420, 423, 425, 430, 431, 440, 443, 449, 455, 456, 457,	Western Slopes Dry Sclerophyll Forests <50%	478_Thinned	Yes	2	Kerrabee,Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	459, 462, 463, 467, 468, 469, 470, 471, 472, 473, 476, 477, 478, 479, 480, 482, 515, 531, 532, 576, 577, 581, 592, 610, 617, 671, 673, 676, 712, 713, 714, 746, 863, 889, 940, 956, 1133, 1176, 1277, 1278, 1279, 1307, 1313, 1314, 1316, 1381, 1398, 1610, 1629, 1654, 1655, 1656, 1657, 1660, 1661, 1663, 1668, 1669, 1671, 1672, 1674, 1676, 1677, 1678, 1679, 1680, 1709, 1711, 1770, 1771, 3753, 3754, 3756, 3757, 3758, 3759, 3760, 3761, 3762, 3763, 3766, 3767, 3768, 3769, 3770, 3771, 3772, 3773, 3774, 3775, 3776, 3777, 3778, 3780, 3781, 3782, 3783, 3784, 3785, 3786, 4153					
	Variation options					
	Formation	Trading group	Zone	HBT	Credits	IBRA region

	Dry Sclerophyll Forests (Shrubby sub-formation)	Tier 4 or higher threat status	478_DNG	No	0	IBRA Region: Sydney Basin, or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
	Dry Sclerophyll Forests (Shrubby sub-formation)	Tier 4 or higher threat status	478_Mod_Good	Yes (including artificial)	107	IBRA Region: Sydney Basin, or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
	Dry Sclerophyll Forests (Shrubby sub-formation)	Tier 4 or higher threat status	478_Thinned	Yes (including artificial)	2	IBRA Region: Sydney Basin, or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
479-Narrow-leaved Ironbark-Black Cypress Pine - stringybark +/- Grey Gum +/- Narrow-leaved Wattle shrubby open forest on sandstone hills in the southern Brigalow Belt South Bioregion and Sydney Basin Bioregion	**Like-for-like credit retirement options**					
	Class	Trading group	Zone	HBT	Credits	IBRA region
	Western Slopes Dry Sclerophyll Forests This includes PCT's: 54, 110, 179, 217, 243, 255, 270, 273, 287, 291, 309, 321, 322, 323, 324, 325, 327, 330, 331, 333, 341, 343, 346, 348, 354, 358, 379, 387, 396, 398, 399, 401, 402, 403, 404, 405, 406, 407, 408, 409, 414, 415, 417, 419, 420,	Western Slopes Dry Sclerophyll Forests <50%	479_DNG	No	0	Kerrabee,Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	423, 425, 430, 431, 440, 443, 449, 455, 456, 457, 459, 462, 463, 467, 468, 469, 470, 471, 472, 473, 476, 477, 478, 479, 480, 482, 515, 531, 532, 576, 577, 581, 592, 610, 617, 671, 673, 676, 712, 713, 714, 746, 863, 889, 940, 956, 1133, 1176, 1277, 1278, 1279, 1307, 1313, 1314, 1316, 1381, 1398, 1610, 1629, 1654, 1655, 1656, 1657, 1660, 1661, 1663, 1668, 1669, 1671, 1672, 1674, 1676, 1677, 1678, 1679, 1680, 1709, 1711, 1770, 1771, 3753, 3754, 3756, 3757, 3758, 3759, 3760, 3761, 3762, 3763, 3766, 3767, 3768, 3769, 3770, 3771, 3772, 3773, 3774, 3775, 3776, 3777, 3778, 3780, 3781, 3782, 3783, 3784, 3785, 3786, 4153					
	Western Slopes Dry Sclerophyll Forests This includes PCT's: 54, 110, 179, 217, 243, 255, 270, 273, 287, 291,	Western Slopes Dry Sclerophyll Forests <50%	479_DNS	No	2	Kerrabee,Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the

	309, 321, 322, 323, 324, 325, 327, 330, 331, 333, 341, 343, 346, 348, 354, 358, 379, 387, 396, 398, 399, 401, 402, 403, 404, 405, 406, 407, 408, 409, 414, 415, 417, 419, 420, 423, 425, 430, 431, 440, 443, 449, 455, 456, 457, 459, 462, 463, 467, 468, 469, 470, 471, 472, 473, 476, 477, 478, 479, 480, 482, 515, 531, 532, 576, 577, 581, 592, 610, 617, 671, 673, 676, 712, 713, 714, 746, 863, 889, 940, 956, 1133, 1176, 1277, 1278, 1279, 1307, 1313, 1314, 1316, 1381, 1398, 1610, 1629, 1654, 1655, 1656, 1657, 1660, 1661, 1663, 1668, 1669, 1671, 1672, 1674, 1676, 1677, 1678, 1679, 1680, 1709, 1711, 1770, 1771, 3753, 3754, 3756, 3757, 3758, 3759, 3760, 3761, 3762, 3763, 3766, 3767, 3768, 3769, 3770, 3771, 3772, 3773, 3774, 3775, 3776, 3777, 3778, 3780, 3781,					impacted site.

	3782, 3783, 3784, 3785, 3786, 4153					
	Western Slopes Dry Sclerophyll Forests This includes PCT's: 54, 110, 179, 217, 243, 255, 270, 273, 287, 291, 309, 321, 322, 323, 324, 325, 327, 330, 331, 333, 341, 343, 346, 348, 354, 358, 379, 387, 396, 398, 399, 401, 402, 403, 404, 405, 406, 407, 408, 409, 414, 415, 417, 419, 420, 423, 425, 430, 431, 440, 443, 449, 455, 456, 457, 459, 462, 463, 467, 468, 469, 470, 471, 472, 473, 476, 477, 478, 479, 480, 482, 515, 531, 532, 576, 577, 581, 592, 610, 617, 671, 673, 676, 712, 713, 714, 746, 863, 889, 940, 956, 1133, 1176, 1277, 1278, 1279, 1307, 1313, 1314, 1316, 1381, 1398, 1610, 1629, 1654, 1655, 1656, 1657, 1660, 1661, 1663, 1668, 1669, 1671, 1672, 1674, 1676, 1677, 1678, 1679, 1680, 1709,	Western Slopes Dry Sclerophyll Forests <50%	479_Mod_Good	Yes	195	Kerrabee,Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	1711, 1770, 1771, 3753, 3754, 3756, 3757, 3758, 3759, 3760, 3761, 3762, 3763, 3766, 3767, 3768, 3769, 3770, 3771, 3772, 3773, 3774, 3775, 3776, 3777, 3778, 3780, 3781, 3782, 3783, 3784, 3785, 3786, 4153					
	Western Slopes Dry Sclerophyll Forests This includes PCT's: 54, 110, 179, 217, 243, 255, 270, 273, 287, 291, 309, 321, 322, 323, 324, 325, 327, 330, 331, 333, 341, 343, 346, 348, 354, 358, 379, 387, 396, 398, 399, 401, 402, 403, 404, 405, 406, 407, 408, 409, 414, 415, 417, 419, 420, 423, 425, 430, 431, 440, 443, 449, 455, 456, 457, 459, 462, 463, 467, 468, 469, 470, 471, 472, 473, 476, 477, 478, 479, 480, 482, 515, 531, 532, 576, 577, 581, 592, 610, 617, 671, 673, 676, 712, 713, 714, 746, 863, 889, 940, 956, 1133, 1176, 1277,	Western Slopes Dry Sclerophyll Forests <50%	479_Thinned	Yes	293	Kerrabee,Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

1278, 1279, 1307, 1313, 1314, 1316, 1381, 1398, 1610, 1629, 1654, 1655, 1656, 1657, 1660, 1661, 1663, 1668, 1669, 1671, 1672, 1674, 1676, 1677, 1678, 1679, 1680, 1709, 1711, 1770, 1771, 3753, 3754, 3756, 3757, 3758, 3759, 3760, 3761, 3762, 3763, 3766, 3767, 3768, 3769, 3770, 3771, 3772, 3773, 3774, 3775, 3776, 3777, 3778, 3780, 3781, 3782, 3783, 3784, 3785, 3786, 4153					

Variation options

Formation	Trading group	Zone	HBT	Credits	IBRA region
Dry Sclerophyll Forests (Shrubby sub-formation)	Tier 4 or higher threat status	479_DNG	No	0	IBRA Region: Sydney Basin, or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Dry Sclerophyll Forests (Shrubby sub-formation)	Tier 4 or higher threat status	479_DNS	No	2	IBRA Region: Sydney Basin, or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	Dry Sclerophyll Forests (Shrubby sub-formation)	Tier 4 or higher threat status	479_Mod_Good	Yes (including artificial)	195	IBRA Region: Sydney Basin, or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
	Dry Sclerophyll Forests (Shrubby sub-formation)	Tier 4 or higher threat status	479_Thinned	Yes (including artificial)	293	IBRA Region: Sydney Basin, or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

481-Rough-barked Apple - Blakely's Red Gum - Narrow-leaved Stringybark +/- Grey Gum sandstone riparian grass fern open forest on in the southern Brigalow Belt South Bioregion and Upper Hunter region

Like-for-like credit retirement options

Class	Trading group	Zone	HBT	Credits	IBRA region
North Coast Dry Sclerophyll Forests This includes PCT's: 481, 646, 647, 658, 682, 683, 688, 696, 974, 975, 976, 1072, 1136, 2247, 2250, 3557, 3558, 3559, 3560, 3561, 3563, 3564, 3565, 3566, 3567, 3568, 3569, 3570, 3571, 3572, 3573, 3574, 3575, 3576, 3577	North Coast Dry Sclerophyll Forests <50%	481_Mod_Good	Yes	38	Kerrabee,Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	North Coast Dry Sclerophyll Forests This includes PCT's: 481, 646, 647, 658, 682, 683, 688, 696, 974, 975, 976, 1072, 1136, 2247, 2250, 3557, 3558, 3559, 3560, 3561, 3563, 3564, 3565, 3566, 3567, 3568, 3569, 3570, 3571, 3572, 3573, 3574, 3575, 3576, 3577	North Coast Dry Sclerophyll Forests <50%	481_Thinned	Yes	185	Kerrabee,Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
	Variation options					
	Formation	Trading group	Zone	HBT	Credits	IBRA region
	Dry Sclerophyll Forests (Shrubby sub-formation)	Tier 4 or higher threat status	481_Mod_Good	Yes (including artificial)	38	IBRA Region: Sydney Basin, or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
	Dry Sclerophyll Forests (Shrubby sub-formation)	Tier 4 or higher threat status	481_Thinned	Yes (including artificial)	185	IBRA Region: Sydney Basin, or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
483-Grey Box x White Box grassy open woodland on basalt hills in the Merriwa region, upper Hunter Valley	**Like-for-like credit retirement options**					
	Class	Trading group	Zone	HBT	Credits	IBRA region
	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived	-	483_DNG	Yes	25	Kerrabee,Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or

	Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla This includes PCT's: 74, 75, 83, 250, 266, 267, 268, 270, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 298, 302, 312, 341, 342, 347, 350, 352, 356, 367, 381, 382, 395, 401, 403, 421, 433, 434, 435, 436, 437, 451, 483, 484, 488, 492, 496, 508, 509, 510, 511, 528, 538, 544, 563, 567, 571, 589, 590, 597, 599, 618, 619, 622, 633, 654, 702, 703, 704, 705, 710, 711, 796, 797, 799, 840, 847, 851, 921, 1099, 1103, 1303, 1304, 1307, 1324, 1329, 1330, 1331, 1332, 1333, 1334, 1383, 1401, 1512, 1606, 1608, 1611, 1691, 1693, 1695, 1698, 3314, 3359, 3363, 3373, 3376, 3387, 3388, 3394, 3395, 3396, 3397, 3398,					Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	3399, 3406, 3415, 3533, 4147, 4149, 4150					
	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla This includes PCT's: 74, 75, 83, 250, 266, 267, 268, 270, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 298, 302, 312, 341, 342, 347, 350, 352, 356, 367, 381, 382, 395, 401, 403, 421, 433, 434, 435, 436, 437, 451, 483, 484, 488, 492, 496, 508, 509, 510, 511, 528, 538, 544, 563, 567, 571, 589, 590, 597, 599, 618, 619, 622, 633, 654, 702, 703, 704, 705, 710, 711, 796, 797, 799, 840, 847, 851, 921, 1099, 1103, 1303, 1304, 1307, 1324, 1329, 1330, 1331, 1332, 1333, 1334, 1383, 1401,	-	483_Thinned	Yes	81	Kerrabee,Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	1512, 1606, 1608, 1611, 1691, 1693, 1695, 1698, 3314, 3359, 3363, 3373, 3376, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3406, 3415, 3533, 4147, 4149, 4150					
618-White Box x Grey Box - red gum - Rough-barked Apple grassy woodland on rich soils on hills in the upper Hunter Valley	**Like-for-like credit retirement options**					
	Class	Trading group	Zone	HBT	Credits	IBRA region
	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla This includes PCT's: 74, 75, 83, 250, 266, 267, 268, 270, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 298, 302, 312, 341, 342, 347, 350, 352, 356, 367, 381, 382, 395, 401, 403, 421, 433, 434, 435, 436, 437, 451, 483, 484, 488, 492, 496, 508, 509, 510, 511, 528, 538, 544, 563, 567,	-	618_DNG	No	435	Kerrabee,Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	571, 589, 590, 597, 599, 618, 619, 622, 633, 654, 702, 703, 704, 705, 710, 711, 796, 797, 799, 840, 847, 851, 921, 1099, 1103, 1303, 1304, 1307, 1324, 1329, 1330, 1331, 1332, 1333, 1334, 1383, 1401, 1512, 1606, 1608, 1611, 1691, 1693, 1695, 1698, 3314, 3359, 3363, 3373, 3376, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3406, 3415, 3533, 4147, 4149, 4150					
	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla This includes PCT's: 74, 75, 83, 250, 266, 267, 268, 270, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 298, 302, 312, 341, 342, 347, 350, 352, 356, 367, 381,	-	618_Mod_Good	Yes	177	Kerrabee,Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	382, 395, 401, 403, 421, 433, 434, 435, 436, 437, 451, 483, 484, 488, 492, 496, 508, 509, 510, 511, 528, 538, 544, 563, 567, 571, 589, 590, 597, 599, 618, 619, 622, 633, 654, 702, 703, 704, 705, 710, 711, 796, 797, 799, 840, 847, 851, 921, 1099, 1103, 1303, 1304, 1307, 1324, 1329, 1330, 1331, 1332, 1333, 1334, 1383, 1401, 1512, 1606, 1608, 1611, 1691, 1693, 1695, 1698, 3314, 3359, 3363, 3373, 3376, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3406, 3415, 3533, 4147, 4149, 4150					
	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla This includes PCT's: 74, 75, 83, 250, 266, 267,	-	618_Thinned	Yes	150	Kerrabee,Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	268, 270, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 298, 302, 312, 341, 342, 347, 350, 352, 356, 367, 381, 382, 395, 401, 403, 421, 433, 434, 435, 436, 437, 451, 483, 484, 488, 492, 496, 508, 509, 510, 511, 528, 538, 544, 563, 567, 571, 589, 590, 597, 599, 618, 619, 622, 633, 654, 702, 703, 704, 705, 710, 711, 796, 797, 799, 840, 847, 851, 921, 1099, 1103, 1303, 1304, 1307, 1324, 1329, 1330, 1331, 1332, 1333, 1334, 1383, 1401, 1512, 1606, 1608, 1611, 1691, 1693, 1695, 1698, 3314, 3359, 3363, 3373, 3376, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3406, 3415, 3533, 4147, 4149, 4150					
1176-Slaty Box - Grey Gum shrubby woodland on footslopes of the upper Hunter Valley, Sydney Basin Bioregion	**Like-for-like credit retirement options**					
	Class	Trading group	Zone	HBT	Credits	IBRA region

	Hunter Valley Footslopes Slaty Gum Woodland in the Sydney Basin Bioregion This includes PCT's: 1176, 1655, 3490	-	1176_Thinned	Yes	20	Kerrabee,Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
	Variation options					
	Formation	Trading group	Zone	HBT	Credits	IBRA region
	Dry Sclerophyll Forests (Shrubby sub-formation)	Tier 5 or higher threat status	1176_Thinned	Yes (including artificial)	20	IBRA Region: Sydney Basin, or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
1610-White Box - Black Cypress Pine shrubby woodland of the Western Slopes	**Like-for-like credit retirement options**					
	Class	Trading group	Zone	HBT	Credits	IBRA region
	Western Slopes Dry Sclerophyll Forests This includes PCT's: 54, 110, 217, 255, 273, 287, 330, 333, 341, 343, 346, 348, 358, 403, 455, 456, 472, 577, 581, 592, 617, 673, 676, 713, 940, 956, 1277, 1279, 1313, 1316, 1381, 1610, 1661, 1668, 1709, 3753, 3754, 3756, 3768, 3769, 4153	Western Slopes Dry Sclerophyll Forests >=50% and <70%	1610_DNG	No	12	Kerrabee,Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

Western Slopes Dry Sclerophyll Forests This includes PCT's: 54, 110, 217, 255, 273, 287, 330, 333, 341, 343, 346, 348, 358, 403, 455, 456, 472, 577, 581, 592, 617, 673, 676, 713, 940, 956, 1277, 1279, 1313, 1316, 1381, 1610, 1661, 1668, 1709, 3753, 3754, 3756, 3768, 3769, 4153	Western Slopes Dry Sclerophyll Forests >=50% and <70%	1610_Mod_Good	Yes	1172	Kerrabee,Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Western Slopes Dry Sclerophyll Forests This includes PCT's: 54, 110, 217, 255, 273, 287, 330, 333, 341, 343, 346, 348, 358, 403, 455, 456, 472, 577, 581, 592, 617, 673, 676, 713, 940, 956, 1277, 1279, 1313, 1316, 1381, 1610, 1661, 1668, 1709, 3753, 3754, 3756, 3768, 3769, 4153	Western Slopes Dry Sclerophyll Forests >=50% and <70%	1610_Thinned	Yes	92	Kerrabee,Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

Variation options

Formation	Trading group	Zone	HBT	Credits	IBRA region

	Dry Sclerophyll Forests (Shrubby sub-formation)	Tier 3 or higher threat status	1610_DNG	No	12	IBRA Region: Sydney Basin, or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
	Dry Sclerophyll Forests (Shrubby sub-formation)	Tier 3 or higher threat status	1610_Mod_Good	Yes (including artificial)	1172	IBRA Region: Sydney Basin, or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
	Dry Sclerophyll Forests (Shrubby sub-formation)	Tier 3 or higher threat status	1610_Thinned	Yes (including artificial)	92	IBRA Region: Sydney Basin, or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
1674-Red Ironbark - Brown Bloodwood - Black Pine heathy open forest on sandstone ranges of the Sydney Basin	**Like-for-like credit retirement options**					
	Class	Trading group	Zone	HBT	Credits	IBRA region
	Western Slopes Dry Sclerophyll Forests This includes PCT's: 54, 110, 179, 217, 243, 255, 270, 273, 287, 291, 309, 321, 322, 323, 324, 325, 327, 330, 331, 333, 341, 343, 346, 348, 354, 358, 379, 387, 396, 398, 399, 401, 402, 403, 404, 405, 406, 407, 408, 409, 414, 415, 417, 419, 420,	Western Slopes Dry Sclerophyll Forests <50%	1674_DNG	No	1	Kerrabee,Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	423, 425, 430, 431, 440, 443, 449, 455, 456, 457, 459, 462, 463, 467, 468, 469, 470, 471, 472, 473, 476, 477, 478, 479, 480, 482, 515, 531, 532, 576, 577, 581, 592, 610, 617, 671, 673, 676, 712, 713, 714, 746, 863, 889, 940, 956, 1133, 1176, 1277, 1278, 1279, 1307, 1313, 1314, 1316, 1381, 1398, 1610, 1629, 1654, 1655, 1656, 1657, 1660, 1661, 1663, 1668, 1669, 1671, 1672, 1674, 1676, 1677, 1678, 1679, 1680, 1709, 1711, 1770, 1771, 3753, 3754, 3756, 3757, 3758, 3759, 3760, 3761, 3762, 3763, 3766, 3767, 3768, 3769, 3770, 3771, 3772, 3773, 3774, 3775, 3776, 3777, 3778, 3780, 3781, 3782, 3783, 3784, 3785, 3786, 4153					
	Western Slopes Dry Sclerophyll Forests This includes PCT's: 54, 110, 179, 217, 243, 255, 270, 273, 287, 291,	Western Slopes Dry Sclerophyll Forests <50%	1674_Mod_Good	No	103	Kerrabee,Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the

	309, 321, 322, 323, 324, 325, 327, 330, 331, 333, 341, 343, 346, 348, 354, 358, 379, 387, 396, 398, 399, 401, 402, 403, 404, 405, 406, 407, 408, 409, 414, 415, 417, 419, 420, 423, 425, 430, 431, 440, 443, 449, 455, 456, 457, 459, 462, 463, 467, 468, 469, 470, 471, 472, 473, 476, 477, 478, 479, 480, 482, 515, 531, 532, 576, 577, 581, 592, 610, 617, 671, 673, 676, 712, 713, 714, 746, 863, 889, 940, 956, 1133, 1176, 1277, 1278, 1279, 1307, 1313, 1314, 1316, 1381, 1398, 1610, 1629, 1654, 1655, 1656, 1657, 1660, 1661, 1663, 1668, 1669, 1671, 1672, 1674, 1676, 1677, 1678, 1679, 1680, 1709, 1711, 1770, 1771, 3753, 3754, 3756, 3757, 3758, 3759, 3760, 3761, 3762, 3763, 3766, 3767, 3768, 3769, 3770, 3771, 3772, 3773, 3774, 3775, 3776, 3777, 3778, 3780, 3781,					impacted site.

	3782, 3783, 3784, 3785, 3786, 4153					
	Variation options					
	Formation	Trading group	Zone	HBT	Credits	IBRA region
	Dry Sclerophyll Forests (Shrubby sub-formation)	Tier 4 or higher threat status	1674_DNG	No	1	IBRA Region: Sydney Basin, or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
	Dry Sclerophyll Forests (Shrubby sub-formation)	Tier 4 or higher threat status	1674_Mod_Good	No	103	IBRA Region: Sydney Basin, or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

Species Credit Summary

Species	Vegetation Zone/s	Area / Count	Credits
Acacia ausfeldii / Ausfeld's Wattle	**281_DNG, 281_Mod_Good, 281_Thinned, 479_DNG, 479_Mod_Good, 479_Thinned, 481_Mod_Good, 481_Thinned**	4.9	117.00
Anthochaera phrygia / Regent Honeyeater	**277_Thinned, 277_Mod_Good, 281_DNS, 281_Mod_Good, 281_Thinned, 478_Mod_Good, 618_Mod_Good, 618_Thinned, 1176_Thinned, 1610_Mod_Good, 1674_Mod_Good**	93.4	3176.00
Aprasia parapulchella / Pink-tailed Legless Lizard	**440_Mod_Good, 477_Thinned**	0.8	20.00
Calyptorhynchus lathami / Glossy Black-Cockatoo	**461_Mod_Good**	5.5	121.00

Cercartetus nanus / Eastern Pygmy-possum	**440_Mod_Good, 461_Mod_Good, 461_Thinned, 477_Thinned, 1674_Mod_Good**	43.4	861.00
Chalinolobus dwyeri / Large-eared Pied Bat	**277_Thinned, 277_Mod_Good, 281_Mod_Good, 281_Poor, 281_Thinned, 461_Mod_Good, 461_Thinned, 1674_Mod_Good**	86.8	3099.00
Commersonia rosea / Commersonia rosea	**1674_Mod_Good**	3.3	63.00
Delma impar / Striped Legless Lizard	**277_Mod_Good, 277_Thinned, 618_DNG, 618_Mod_Good, 618_Thinned**	47.5	322.00
Eucalyptus camaldulensis - endangered population / Eucalyptus camaldulensis population in the Hunter catchment	**281_DNG, 281_Mod_Good, 281_Thinned**	1.4	26.00
Homoranthus darwinioides / Fairy Bells	**477_Thinned, 1674_Mod_Good**	3.3	44.00
Hoplocephalus bitorquatus / Pale-headed Snake	**440_Mod_Good, 477_Thinned, 1674_Mod_Good**	13.0	194.00
Hoplocephalus bungaroides / Broad-headed Snake	**1674_DNG, 1674_Mod_Good**	10.8	208.00
Leucochrysum albicans subsp. tricolor / Hoary Sunray	**461_Mod_Good, 481_Thinned**	5.0	10.00
Monotaxis macrophylla / Large-leafed Monotaxis	**1610_Mod_Good, 1610_Thinned**	18.8	446.00
Ozothamnus tesselatus / Ozothamnus tesselatus	**1674_Mod_Good**	3.3	31.00
Petaurus norfolcensis / Squirrel Glider	**277_Mod_Good, 277_Thinned, 281_Mod_Good, 281_Poor, 281_Thinned, 440_Mod_Good, 461_Mod_Good, 461_Thinned, 477_Thinned, 1674_Mod_Good**	126.9	3147.00

Petrogale penicillata / Brush-tailed Rock-wallaby	**277_Mod_Good, 277_Thinned, 281_Mod_Good, 281_Thinned, 461_Mod_Good, 461_Thinned, 1674_DNG, 1674_Mod_Good**	1.3	48.00
Phascolarctos cinereus / Koala	**277_Mod_Good, 277_Thinned, 281_Mod_Good, 281_Poor, 281_Thinned, 440_Mod_Good, 461_Mod_Good, 461_Thinned, 477_Thinned, 478_Mod_Good, 478_Thinned, 479_Mod_Good, 479_Thinned, 481_Mod_Good, 481_Thinned, 483_Thinned, 618_Mod_Good, 618_Thinned, 1610_Mod_Good, 1610_Thinned, 1674_Mod_Good**	252.4	6002.00
Pomaderris cotoneaster / Cotoneaster Pomaderris	**478_Mod_Good, 1610_Mod_Good, 1610_Thinned**	21.2	500.00
Vespadelus troughtoni / Eastern Cave Bat	**461_Mod_Good, 461_Thinned, 1674_Mod_Good**	38.5	1122.00

Credit Retirement Options

Like-for-like options

Acacia ausfeldii/ Ausfeld's Wattle	Spp	IBRA region	
	Acacia ausfeldii/Ausfeld's Wattle	Any in NSW	
	Variation options		
	Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act	IBRA region

		shown below	
	Flora	Vulnerable	Kerrabee, Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Anthochaera phrygia/ Regent Honeyeater	Spp	IBRA region	
	Anthochaera phrygia/Regent Honeyeater *Note: Variation rules do not apply for Critically Endangered species and impacts on Commonwealth listed entities that are a controlled action.*	Any in NSW	
Aprasia parapulchella/ Pink-tailed Legless Lizard	Spp	IBRA region	
	Aprasia parapulchella/Pink-tailed Legless Lizard	Any in NSW	
	Variation options		
	Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act shown below	IBRA region

	Fauna	Vulnerable	Kerrabee, Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Calyptorhynchus lathami/ Glossy Black-Cockatoo	Spp	IBRA region	
	Calyptorhynchus lathami/Glossy Black-Cockatoo	Any in NSW	
	Variation options		
	Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act shown below	IBRA region
	Fauna	Vulnerable	Kerrabee, Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Cercartetus nanus/ Eastern Pygmy-possum	Spp	IBRA region	
	Cercartetus nanus/Eastern Pygmy-possum	Any in NSW	
	Variation options		
	Kingdom	Any species with same or higher category of listing	IBRA region

		under Part 4 of the BC Act shown below	
	Fauna	Vulnerable	Kerrabee, Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Chalinolobus dwyeri/ Large-eared Pied Bat	Spp	IBRA region	
	Chalinolobus dwyeri/Large-eared Pied Bat	Any in NSW	
	Variation options		
	Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act shown below	IBRA region
	Fauna	Vulnerable	Kerrabee, Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Commersonia rosea/ Commersonia rosea	Spp	IBRA region	
	Commersonia rosea/Commersonia rosea	Any in NSW	
	Variation options		

	Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act shown below	IBRA region
	Flora	Endangered	Kerrabee, Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Delma impar/ Striped Legless Lizard	Spp	IBRA region	
	Delma impar/Striped Legless Lizard	Any in NSW	
	Variation options		
	Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act shown below	IBRA region
	Fauna	Vulnerable	Kerrabee, Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

Eucalyptus camaldulensis - endangered population/ Eucalyptus camaldulensis population in the Hunter catchment	Spp		IBRA region
	Eucalyptus camaldulensis - endangered population/Eucalyptus camaldulensis population in the Hunter catchment		Any in NSW
	Variation options		
	Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act shown below	IBRA region
	Flora	Endangered Population	Kerrabee, Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Homoranthus darwinioides/ Fairy Bells	Spp		IBRA region
	Homoranthus darwinioides/Fairy Bells		Any in NSW
	Variation options		
	Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act shown below	IBRA region

	Flora	Vulnerable	Kerrabee, Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Hoplocephalus bitorquatus/ Pale-headed Snake	Spp	IBRA region	
	Hoplocephalus bitorquatus/Pale-headed Snake	Any in NSW	
	Variation options		
	Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act shown below	IBRA region
	Fauna	Vulnerable	Kerrabee, Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Hoplocephalus bungaroides/ Broad-headed Snake	Spp	IBRA region	
	Hoplocephalus bungaroides/Broad-headed Snake	Any in NSW	
	Variation options		
	Kingdom	Any species with same or higher category of listing	IBRA region

		under Part 4 of the BC Act shown below	
	Fauna	Endangered	Kerrabee, Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Leucochrysum albicans subsp. tricolor/ Hoary Sunray	Spp	IBRA region	
	Leucochrysum albicans subsp. tricolor/Hoary Sunray	Any in NSW	
	Variation options		
	Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act shown below	IBRA region
	Flora	Endangered	Kerrabee, Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Monotaxis macrophylla/ Large-leafed Monotaxis	Spp	IBRA region	
	Monotaxis macrophylla/Large-leafed Monotaxis	Any in NSW	
	Variation options		

	Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act shown below	IBRA region
	Flora	Endangered	Kerrabee, Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Ozothamnus tesselatus/ Ozothamnus tesselatus	Spp	IBRA region	
	Ozothamnus tesselatus/Ozothamnus tesselatus	Any in NSW	
	Variation options		
	Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act shown below	IBRA region
	Flora	Vulnerable	Kerrabee, Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Petaurus norfolcensis/ Squirrel Glider	Spp	IBRA region	

	Petaurus norfolcensis/Squirrel Glider	Any in NSW	
	Variation options		
	Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act shown below	IBRA region
	Fauna	Vulnerable	Kerrabee, Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Petrogale penicillata/ Brush-tailed Rock-wallaby	Spp	IBRA region	
	Petrogale penicillata/Brush-tailed Rock-wallaby	Any in NSW	
	Variation options		
	Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act shown below	IBRA region

	Fauna	Endangered	Kerrabee, Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Phascolarctos cinereus/ Koala	Spp	IBRA region	
	Phascolarctos cinereus/Koala	Any in NSW	
	Variation options		
	Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act shown below	IBRA region
	Fauna	Endangered	Kerrabee, Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Pomaderris cotoneaster/ Cotoneaster Pomaderris	Spp	IBRA region	
	Pomaderris cotoneaster/Cotoneaster Pomaderris	Any in NSW	
	Variation options		
	Kingdom	Any species with same or higher category of listing	IBRA region

		under Part 4 of the BC Act shown below	
	Flora	Endangered	Kerrabee, Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Vespadelus troughtoni/ Eastern Cave Bat	Spp	IBRA region	
	Vespadelus troughtoni/Eastern Cave Bat	Any in NSW	
	Variation options		
	Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act shown below	IBRA region
	Fauna	Vulnerable	Kerrabee, Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

BAM Candidate Species Report

Proposal Details

Assessment Id	Proposal Name	BAM data last updated *
00038556/BAAS17060/23/00038557	CWOREZ Kerrabee subregion - RNI1	22/06/2023
Assessor Name	Report Created	BAM Data version *
Lukas Leslie Clews	16/08/2023	61
Assessor Number	Assessment Type	BAM Case Status
BAAS17060	Major Projects	Open
Assessment Revision	Date Finalised	
1	To be finalised	

* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.

List of Species Requiring Survey

Name	Presence	Survey Months
Acacia ausfeldii Ausfeld's Wattle	Yes (surveyed) *Survey months are outside of the months specified in Bionet.	☐ Jan ☑ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☑ Sep ☑ Oct ☐ Nov ☐ Dec ☑ Survey month outside the specified months?
Acacia pendula - endangered population Acacia pendula population in the Hunter catchment	No (surveyed)	☐ Jan ☑ Feb ☑ Mar ☐ Apr ☐ May ☑ Jun ☐ Jul ☐ Aug ☑ Sep ☑ Oct ☑ Nov ☐ Dec ☐ Survey month outside the specified months?
Anthochaera phrygia Regent Honeyeater	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?

Aprasia parapulchella Pink-tailed Legless Lizard	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Burhinus grallarius Bush Stone-curlew	No (surveyed)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☑ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Callocephalon fimbriatum Gang-gang Cockatoo	No (surveyed)	☑ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Calyptorhynchus lathami Glossy Black-Cockatoo	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Cercartetus nanus Eastern Pygmy-possum	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Chalinolobus dwyeri Large-eared Pied Bat	Yes (surveyed)	☑ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?

Commersonia rosea Commersonia rosea	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Cymbidium canaliculatum - endangered population Cymbidium canaliculatum population in the Hunter Catchment	No (surveyed)	☐ Jan ☑ Feb ☐ Mar ☐ Apr ☐ May ☑ Jun ☐ Jul ☐ Aug ☑ Sep ☑ Oct ☑ Nov ☐ Dec ☐ Survey month outside the specified months?
Delma impar Striped Legless Lizard	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Diuris tricolor Pine Donkey Orchid	No (surveyed)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☑ Sep ☑ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Eucalyptus camaldulensis - endangered population Eucalyptus camaldulensis population in the Hunter catchment	Yes (surveyed)	☐ Jan ☑ Feb ☑ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☑ Sep ☑ Oct ☑ Nov ☐ Dec ☐ Survey month outside the specified months?
Eucalyptus cannonii Capertee Stringybark	No (surveyed)	☐ Jan ☑ Feb ☑ Mar ☐ Apr ☐ May ☑ Jun ☐ Jul ☐ Aug ☑ Sep ☑ Oct ☑ Nov ☐ Dec ☐ Survey month outside the specified months?

Haliaeetus leucogaster White-bellied Sea-Eagle	No (surveyed)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☑ Sep ☑ Oct ☑ Nov ☐ Dec ☐ Survey month outside the specified months?
Hieraaetus morphnoides Little Eagle	No (surveyed)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☑ Sep ☑ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Homoranthus darwinioides Fairy Bells	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Hoplocephalus bitorquatus Pale-headed Snake	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Hoplocephalus bungaroides Broad-headed Snake	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Leucochrysum albicans subsp. tricolor Hoary Sunray	Yes (surveyed)	☐ Jan ☐ Feb ☑ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☑ Sep ☑ Oct ☑ Nov ☐ Dec ☐ Survey month outside the specified months?

Lophoictinia isura Square-tailed Kite	No (surveyed)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☑ Sep ☑ Oct ☑ Nov ☐ Dec ☐ Survey month outside the specified months?
Monotaxis macrophylla Large-leafed Monotaxis	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Ninox connivens Barking Owl	No (surveyed)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☑ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Ninox strenua Powerful Owl	No (surveyed)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☑ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Ozothamnus tesselatus Ozothamnus tesselatus	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Petaurus norfolcensis Squirrel Glider	Yes (surveyed)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☑ Nov ☑ Dec ☐ Survey month outside the specified months?

Petrogale penicillata Brush-tailed Rock-wallaby	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Phascolarctos cinereus Koala	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Pomaderris cotoneaster Cotoneaster Pomaderris	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Pomaderris queenslandica Scant Pomaderris	No (surveyed)	☐ Jan ☑ Feb ☑ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☑ Sep ☑ Oct ☑ Nov ☐ Dec ☐ Survey month outside the specified months?
Prasophyllum petilum Tarengo Leek Orchid	No (surveyed)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☑ Sep ☑ Oct ☑ Nov ☐ Dec ☐ Survey month outside the specified months?
Tylophora linearis Tylophora linearis	No (surveyed)	☐ Jan ☑ Feb ☑ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☑ Nov ☐ Dec ☐ Survey month outside the specified months?

Tyto novaehollandiae Masked Owl	No (surveyed)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☑ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Vespadelus troughtoni Eastern Cave Bat	Yes (surveyed)	☑ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☑ Nov ☑ Dec ☐ Survey month outside the specified months?

Threatened species Manually Added

Common Name	Scientific Name
Eucalyptus camaldulensis population in the Hunter catchment	Eucalyptus camaldulensis - endangered population
Hoary Sunray	Leucochrysum albicans subsp. tricolor
Cotoneaster Pomaderris	Pomaderris cotoneaster

Threatened species assessed as not on site

Refer to BAR for detailed justification

Common name	Scientific name	Justification in the BAM-C
Acacia dangarensis	Acacia dangarensis	Refer to BAR
Brush-tailed Phascogale	Phascogale tapoatafa	Species is vagrant
Commersonia procumbens	Commersonia procumbens	Habitat constraints
Denman Pomaderris	Pomaderris reperta	Species is vagrant
Giant Burrowing Frog	Heleioporus australiacus	Refer to BAR
Grey-headed Flying-fox	Pteropus poliocephalus	Habitat constraints
Kennedia retrorsa	Kennedia retrorsa	Species is vagrant
Large Bent-winged Bat	Miniopterus orianae oceanensis	Habitat constraints
Lasiopetalum longistamineum	Lasiopetalum longistamineum	Species is vagrant
Little Bent-winged Bat	Miniopterus australis	Habitat constraints
Mount Vincent Mint-bush	Prostanthera stricta	Species is vagrant

Pine Donkey Orchid population in the Muswellbrook local government area	Diuris tricolor - endangered population	Refer to BAR
Prasophyllum sp. Wybong	Prasophyllum sp. Wybong	Species is vagrant
Prostanthera discolor	Prostanthera discolor	Species is vagrant
Senecio linearifolius var. dangarensis	Senecio linearifolius var. dangarensis	Species is vagrant
Silky Pomaderris	Pomaderris sericea	Species is vagrant
Southern Greater Glider	Petauroides volans	Refer to BAR
Swift Parrot	Lathamus discolor	Habitat constraints
Wollemi Mint-bush	Prostanthera cryptandroides subsp. cryptandroides	Species is vagrant

BAM Credit Summary Report

Proposal Details

Assessment Id
00038556/BAAS17060/23/00038557

Proposal Name
CWOREZ Kerrabee subregion - RNI1

BAM data last updated *
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Assessor Name
Lukas Leslie Clews

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1

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* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.

Ecosystem credits for plant communities types (PCT), ecological communities & threatened species habitat

Zone	Vegetation zone name	TEC name	Current Vegetation integrity score	Change in Vegetation integrity (loss / gain)	Area (ha)	Sensitivity to loss (Justification)	Species sensitivity to gain class	BC Act Listing status	EPBC Act listing status	Biodiversity risk weighting	Potential SAII	Ecosystem credits

Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion												
1	277_Mod_Good	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla	89.7	60.1	0.17	Population size	High Sensitivity to Gain	Critically Endangered Ecological Community	Not Listed	2.50	True	6

2	277_Thinned	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla	59.3	47.6	0.85	Population size	High Sensitivity to Gain	Critically Endangered Ecological Community	Not Listed	2.50	True	25
											Subtotal	**31**

Grey Box x White Box grassy open woodland on basalt hills in the Merriwa region, upper Hunter Valley												
22	483_DNG	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla	27.2	27.2	1.4	Population size	High Sensitivity to Gain	Critically Endangered Ecological Community	Not Listed	2.50	True	25

23	483_Thinned	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla	76.1	47.6	2.7	Population size	High Sensitivity to Gain	Critically Endangered Ecological Community	Not Listed	2.50	True	81
											Subtotal	**106**
Inland Scribbly Gum - Red Stringybark - Black Cypress Pine - Red Ironbark open forest on sandstone hills in the southern Brigalow Belt South Bioregion and northern NSW South Western Slopes Bioregion												
12	477_Thinned	Not a TEC	68.1	68.1	0.05	PCT Cleared - 40%	High Sensitivity to Gain			1.50		1
											Subtotal	**1**

Narrow-leaved Ironbark- Black Cypress Pine - stringybark +/- Grey Gum +/- Narrow-leaved Wattle shrubby open forest on sandstone hills in the southern Brigalow Belt South Bioregion and Sydney Basin Bioregion												
16	479_DNG	Not a TEC	8.8	8.8	7.4	PCT Cleared - 40%	High Sensitivity to Gain			1.50		0
17	479_DNS	Not a TEC	20.6	20.6	0.31	PCT Cleared - 40%	High Sensitivity to Gain			1.50		2
18	479_Mod_Good	Not a TEC	75.8	56.1	9.3	PCT Cleared - 40%	High Sensitivity to Gain			1.50		195
19	479_Thinned	Not a TEC	62.4	46.8	16.7	PCT Cleared - 40%	High Sensitivity to Gain			1.50		293
											Subtotal	**490**
Red Ironbark - Black Cypress Pine - stringybark +/- Narrow-leaved Wattle shrubby open forest on sandstone in the Gulgong - Mendooran region, southern Brigalow Belt South Bioregion												
13	478_DNG	Not a TEC	2.4	2.4	0.61	PCT Cleared - 29%	High Sensitivity to Gain			1.50		0
14	478_Mod_Good	Not a TEC	63.4	45.3	6.3	PCT Cleared - 29%	High Sensitivity to Gain			1.50		107
15	478_Thinned	Not a TEC	63.4	38.0	0.15	PCT Cleared - 29%	High Sensitivity to Gain			1.50		2

											Subtotal	**109**
Red Ironbark - Brown Bloodwood - Black Pine heathy open forest on sandstone ranges of the Sydney Basin												
31	1674_DNG	Not a TEC	30.4	30.4	0.02	PCT Cleared - 19%	High Sensitivity to Gain			1.50		1
32	1674_Mod_Good	Not a TEC	37.1	25.7	10.7	PCT Cleared - 19%	High Sensitivity to Gain			1.50		103
											Subtotal	**104**
Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion												
8	440_DNG	Not a TEC	7	7.0	1.7	PCT Cleared - 34%	High Sensitivity to Gain			1.50		0
9	440_Mod_Good	Not a TEC	72.1	49.5	2.2	PCT Cleared - 34%	High Sensitivity to Gain			1.50		41
											Subtotal	**41**
Rough-barked Apple - Blakely's Red Gum - Narrow-leaved Stringybark +/- Grey Gum sandstone riparian grass fern open forest on in the southern Brigalow Belt South Bioregion and Upper Hunter region												
20	481_Mod_Good	Not a TEC	68.5	39.6	2.5	PCT Cleared - 28%	High Sensitivity to Gain			1.50		38
21	481_Thinned	Not a TEC	76.8	53.5	9.2	PCT Cleared - 28%	High Sensitivity to Gain			1.50		185

											Subtotal	**223**
Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion												
3	281_DNG	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla	26.3	26.3	26.5	Population size	High Sensitivity to Gain	Critically Endangered Ecological Community	Not Listed	2.50	True	435

4	281_DNS	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla	37.1	37.1	1.1	Population size	High Sensitivity to Gain	Critically Endangered Ecological Community	Not Listed	2.50	True	25

5	281_Mod_Good	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla	93.6	55.8	40.3	Population size	High Sensitivity to Gain	Critically Endangered Ecological Community	Not Listed	2.50	True	1405

6	281_Poor	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla	84	37.5	0.01	Population size	High Sensitivity to Gain	Critically Endangered Ecological Community	Not Listed	2.50	True	1

7	281_Thinned	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla	84	53.7	42.8	Population size	High Sensitivity to Gain	Critically Endangered Ecological Community	Not Listed	2.50	True	1438
											Subtotal	**3304**
Slaty Box - Grey Gum shrubby woodland on footslopes of the upper Hunter Valley, Sydney Basin Bioregion												
27	1176_Thinned	Hunter Valley Footslopes Slaty Gum Woodland in the Sydney Basin Bioregion	42.2	23.2	2	Biodiversity Conservation Act listing status	High Sensitivity to Gain	Vulnerable Ecological Community	Not Listed	1.75		20
											Subtotal	**20**

Tumbledown Gum woodland on hills in the northern NSW South Western Slopes Bioregion and southern Brigalow Belt South Bioregion												
10	461_Mod_Good	Not a TEC	85.6	44.0	30.3	PCT Cleared - 50%	High Sensitivity to Gain			1.75		583
11	461_Thinned	Not a TEC	75.6	17.2	0.13	PCT Cleared - 50%	High Sensitivity to Gain			1.75		1
											Subtotal	**584**
White Box - Black Cypress Pine shrubby woodland of the Western Slopes												
28	1610_DNG	Not a TEC	22.7	22.7	1.2	PCT Cleared - 67%	High Sensitivity to Gain			1.75		12
29	1610_Mod_Good	Not a TEC	70.2	47.5	56.4	PCT Cleared - 67%	High Sensitivity to Gain			1.75		1172
30	1610_Thinned	Not a TEC	70.2	46.9	4.5	PCT Cleared - 67%	High Sensitivity to Gain			1.75		92
											Subtotal	**1276**

White Box x Grey Box - red gum - Rough-barked Apple grassy woodland on rich soils on hills in the upper Hunter Valley												
24	618_DNG	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla	16.6	16.6	42	Population size	High Sensitivity to Gain	Critically Endangered Ecological Community	Not Listed	2.50	True	435

25	618_Mod_Good	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla	65.7	34.7	8.2	Population size	High Sensitivity to Gain	Critically Endangered Ecological Community	Not Listed	2.50	True	177

26	618_Thinned	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla	45	24.2	9.9	Population size	High Sensitivity to Gain	Critically Endangered Ecological Community	Not Listed	2.50	True	150
											Subtotal	**762**
											Total	**7051**

Species credits for threatened species

Vegetation zone name	Habitat condition (Vegetation Integrity)	Change in habitat condition	Area (ha)/Count (no. individuals)	Sensitivity to loss (Justification)	Sensitivity to gain (Justification)	BC Act Listing status	EPBC Act listing status	Potential SAII	Species credits

Acacia ausfeldii / Ausfeld's Wattle (Flora)									
281_DNG	26.3	26.3	0.13	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Not Listed	False	2
281_Mod_Good	55.8	55.8	0.08	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Not Listed	False	2
281_Thinned	53.7	53.7	1.8	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Not Listed	False	49
479_DNG	8.8	8.8	0.28	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Not Listed	False	1
479_Mod_Good	56.1	56.1	1.4	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Not Listed	False	38

479_Thinned	46.8	46.8	0.05	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Not Listed	False	1
481_Mod_Good	39.6	39.6	1	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Not Listed	False	20
481_Thinned	53.5	53.5	0.16	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Not Listed	False	4
								Subtotal	**117**
Anthochaera phrygia / Regent Honeyeater (Fauna)									
277_Thinned	47.6	47.6	0.85	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Critically Endangered	Critically Endangered	True	30
277_Mod_Good	60.1	60.1	0.17	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Critically Endangered	Critically Endangered	True	8

281_DNS	37.1	37.1	1.1	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Critically Endangered	Critically Endangered	True	30
281_Mod_Good	55.8	55.8	20.6	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Critically Endangered	Critically Endangered	True	864
281_Thinned	53.7	53.7	16.6	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Critically Endangered	Critically Endangered	True	667
478_Mod_Good	45.3	45.3	6.2	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Critically Endangered	Critically Endangered	True	212
618_Mod_Good	34.7	34.7	6.6	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Critically Endangered	Critically Endangered	True	172
618_Thinned	24.2	24.2	4	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Critically Endangered	Critically Endangered	True	72

1176_Thinned	23.2	23.2	1.9	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Critically Endangered	Critically Endangered	True	33
1610_Mod_Good	47.5	47.5	24.8	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Critically Endangered	Critically Endangered	True	883
1674_Mod_Good	25.7	25.7	10.6	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Critically Endangered	Critically Endangered	True	205
								Subtotal	**3176**
Aprasia parapulchella / Pink-tailed Legless Lizard (Fauna)									
440_Mod_Good	49.5	49.5	0.73	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Vulnerable	False	18
477_Thinned	68.1	68.1	0.05	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Vulnerable	False	2
								Subtotal	**20**

Calyptorhynchus lathami / Glossy Black-Cockatoo (Fauna)									
461_Mod_Good	44.0	44.0	5.5	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Vulnerable	False	121
								Subtotal	**121**
Cercartetus nanus / Eastern Pygmy-possum (Fauna)									
440_Mod_Good	49.5	49.5	2.2	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Not Listed	False	54
461_Mod_Good	44.0	44.0	30.3	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Not Listed	False	666
461_Thinned	17.2	17.2	0.13	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Not Listed	False	1
477_Thinned	68.1	68.1	0.05	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Not Listed	False	2

1674_Mod_Good	25.7	25.7	10.7	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Not Listed	False	138
								Subtotal	**861**
Chalinolobus dwyeri / Large-eared Pied Bat (Fauna)									
277_Thinned	47.6	47.6	0.85	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Vulnerable	True	30
277_Mod_Good	60.1	60.1	0.17	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Vulnerable	True	8
281_Mod_Good	55.8	55.8	20.8	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Vulnerable	True	870
281_Poor	37.5	37.5	0.01	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Vulnerable	True	1
281_Thinned	53.7	53.7	26.5	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Vulnerable	True	1068

461_Mod_Good	44.0	44.0	27.7	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Vulnerable	True	913
461_Thinned	17.2	17.2	0.12	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Vulnerable	True	2
1674_Mod_Good	25.7	25.7	10.7	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Vulnerable	True	207
								Subtotal	**3099**
Commersonia rosea / Commersonia rosea (Flora)									
1674_Mod_Good	25.7	25.7	3.2	Population size	Effectiveness of management in controlling threats	Endangered	Endangered	True	63
								Subtotal	**63**
Delma impar / Striped Legless Lizard (Fauna)									
277_Mod_Good	60.1	60.1	0.08	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Vulnerable	False	2

277_Thinned	47.6	47.6	0.46	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Vulnerable	False	8
618_DNG	16.6	16.6	42	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Vulnerable	False	261
618_Mod_Good	34.7	34.7	1.7	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Vulnerable	False	22
618_Thinned	24.2	24.2	3.2	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Vulnerable	False	29
								Subtotal	**322**
Eucalyptus camaldulensis - endangered population / Eucalyptus camaldulensis population in the Hunter catchment (Flora)									
281_DNG	26.3	26.3	0.83	Biodiversity Conservation Act listing status	Seedbank Persistence	Endangered Population	Not Listed	False	11

281_Mod_Good	55.8	55.8	0.23	Biodiversity Conservation Act listing status	Seedbank Persistence	Endangered Population	Not Listed	False	6
281_Thinned	53.7	53.7	0.34	Biodiversity Conservation Act listing status	Seedbank Persistence	Endangered Population	Not Listed	False	9
								Subtotal	**26**
Homoranthus darwinioides / Fairy Bells (Flora)									
477_Thinned	68.1	68.1	0.05	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Vulnerable	False	2
1674_Mod_Good	25.7	25.7	3.2	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Vulnerable	False	42
								Subtotal	**44**
Hoplocephalus bitorquatus / Pale-headed Snake (Fauna)									
440_Mod_Good	49.5	49.5	2.2	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	54

477_Thinned	68.1	68.1	0.05	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	2
1674_Mod_Good	25.7	25.7	10.7	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	138
								Subtotal	**194**
Hoplocephalus bungaroides / Broad-headed Snake (Fauna)									
1674_DNG	30.4	30.4	0.02	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Endangered	Vulnerable	True	1
1674_Mod_Good	25.7	25.7	10.7	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Endangered	Vulnerable	True	207
								Subtotal	**208**
Leucochrysum albicans subsp. tricolor / Hoary Sunray (Flora)									
461_Mod_Good	N/A	N/A	4	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Endangered	False	8

481_Thinned	N/A	N/A	1	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Endangered	False	2
								Subtotal	**10**
Monotaxis macrophylla / Large-leafed Monotaxis (Flora)									
1610_Mod_Good	47.5	47.5	17.5	Biodiversity Conservation Act listing status	Ability to colonise improved habitat	Endangered	Not Listed	False	416
1610_Thinned	46.9	46.9	1.3	Biodiversity Conservation Act listing status	Ability to colonise improved habitat	Endangered	Not Listed	False	30
								Subtotal	**446**
Ozothamnus tesselatus / Ozothamnus tesselatus (Flora)									
1674_Mod_Good	25.7	25.7	3.2	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Vulnerable	False	31
								Subtotal	**31**

Petaurus norfolcensis / Squirrel Glider (Fauna)									
277_Mod_Good	60.1	60.1	0.17	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	5
277_Thinned	47.6	47.6	0.85	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	20
281_Mod_Good	55.8	55.8	40.3	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	1124
281_Poor	37.5	37.5	0.01	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	1
281_Thinned	53.7	53.7	42.3	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	1136
440_Mod_Good	49.5	49.5	2.2	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	54
461_Mod_Good	44.0	44.0	30.3	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	666

461_Thinned	17.2	17.2	0.12	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	1
477_Thinned	68.1	68.1	0.05	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	2
1674_Mod_Good	25.7	25.7	10.7	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	138
								Subtotal	**3147**
Petrogale penicillata / Brush-tailed Rock-wallaby (Fauna)									
277_Mod_Good	60.1	60.1	0.01	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Endangered	Vulnerable	True	1
277_Thinned	47.6	47.6	0.01	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Endangered	Vulnerable	True	1
281_Mod_Good	55.8	55.8	0.29	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Endangered	Vulnerable	True	12

281_Thinned	53.7	53.7	0.39	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Endangered	Vulnerable	True	16
461_Mod_Good	44.0	44.0	0.42	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Endangered	Vulnerable	True	14
461_Thinned	17.2	17.2	0.01	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Endangered	Vulnerable	True	1
1674_DNG	30.4	30.4	0.02	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Endangered	Vulnerable	True	1
1674_Mod_Good	25.7	25.7	0.12	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Endangered	Vulnerable	True	2
								Subtotal	**48**
Phascolarctos cinereus / Koala (Fauna)									
277_Mod_Good	60.1	60.1	0.17	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Endangered	False	5

277_Thinned	47.6	47.6	0.85	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Endangered	False	20
281_Mod_Good	55.8	55.8	40.3	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Endangered	False	1124
281_Poor	37.5	37.5	0.01	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Endangered	False	1
281_Thinned	53.7	53.7	42.3	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Endangered	False	1136
440_Mod_Good	49.5	49.5	2.2	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Endangered	False	54
461_Mod_Good	44.0	44.0	30.3	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Endangered	False	666

461_Thinned	17.2	17.2	0.12	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Endangered	False	1
477_Thinned	68.1	68.1	0.05	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Endangered	False	2
478_Mod_Good	45.3	45.3	6.3	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Endangered	False	142
478_Thinned	38.0	38.0	0.15	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Endangered	False	3
479_Mod_Good	56.1	56.1	9.3	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Endangered	False	260
479_Thinned	46.8	46.8	16.7	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Endangered	False	391

481_Mod_Good	39.6	39.6	2.5	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Endangered	False	50
481_Thinned	53.5	53.5	9.2	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Endangered	False	246
483_Thinned	47.6	47.6	2.7	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Endangered	False	65
618_Mod_Good	34.7	34.7	8.2	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Endangered	False	141
618_Thinned	24.2	24.2	9.9	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Endangered	False	119
1610_Mod_Good	47.5	47.5	56.1	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Endangered	False	1333

1610_Thinned	46.9	46.9	4.5	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Endangered	False	105
1674_Mod_Good	25.7	25.7	10.7	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Endangered	False	138
								Subtotal	**6002**
Pomaderris cotoneaster / Cotoneaster Pomaderris (Flora)									
478_Mod_Good	45.3	45.3	2.4	Biodiversity Conservation Act listing status	Ability to colonise improved habitat	Endangered	Endangered	False	54
1610_Mod_Good	47.5	47.5	17.5	Biodiversity Conservation Act listing status	Ability to colonise improved habitat	Endangered	Endangered	False	416
1610_Thinned	46.9	46.9	1.3	Biodiversity Conservation Act listing status	Ability to colonise improved habitat	Endangered	Endangered	False	30
								Subtotal	**500**

Vespadelus troughtoni / Eastern Cave Bat (Fauna)									
461_Mod_Good	44.0	44.0	27.7	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	True	913
461_Thinned	17.2	17.2	0.12	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	True	2
1674_Mod_Good	25.7	25.7	10.7	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	True	207
								Subtotal	**1122**

BAM Predicted Species Report

Proposal Details

Assessment Id	Proposal Name	BAM data last updated *
00038556/BAAS17060/23/00038557	CWOREZ Kerrabee subregion - RNI1	22/06/2023
Assessor Name	Report Created	BAM Data version *
Lukas Leslie Clews	16/08/2023	61
Assessor Number	Assessment Type	BAM Case Status
BAAS17060	Major Projects	Open
Assessment Revision		Date Finalised
1		To be finalised

* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.

Threatened species reliably predicted to utilise the site. No surveys are required for these species. Ecosystem credits apply to these species.

Common Name	Scientific Name	Vegetation Types(s)
Barking Owl	Ninox connivens	277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
		281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
		461-Tumbledown Gum woodland on hills in the northern NSW South Western Slopes Bioregion and southern Brigalow Belt South Bioregion
		477-Inland Scribbly Gum - Red Stringybark - Black Cypress Pine - Red Ironbark open forest on sandstone hills in the southern Brigalow Belt South Bioregion and northern NSW South Western Slopes Bioregion
		478-Red Ironbark - Black Cypress Pine - stringybark +/- Narrow-leaved Wattle shrubby open forest on sandstone in the Gulgong - Mendooran region, southern Brigalow Belt South Bioregion

Barking Owl	Ninox connivens	479-Narrow-leaved Ironbark- Black Cypress Pine - stringybark +/- Grey Gum +/- Narrow-leaved Wattle shrubby open forest on sandstone hills in the southern Brigalow Belt South Bioregion and Sydney Basin Bioregion
		481-Rough-barked Apple - Blakely's Red Gum - Narrow-leaved Stringybark +/- Grey Gum sandstone riparian grass fern open forest on in the southern Brigalow Belt South Bioregion and Upper Hunter region
		483-Grey Box x White Box grassy open woodland on basalt hills in the Merriwa region, upper Hunter Valley
		618-White Box x Grey Box - red gum - Rough-barked Apple grassy woodland on rich soils on hills in the upper Hunter Valley
		1176-Slaty Box - Grey Gum shrubby woodland on footslopes of the upper Hunter Valley, Sydney Basin Bioregion
		1610-White Box - Black Cypress Pine shrubby woodland of the Western Slopes
		1674-Red Ironbark - Brown Bloodwood - Black Pine heathy open forest on sandstone ranges of the Sydney Basin
Black Falcon	Falco subniger	277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
		281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
Black-chinned Honeyeater (eastern subspecies)	Melithreptus gularis gularis	277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
		281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		461-Tumbledown Gum woodland on hills in the northern NSW South Western Slopes Bioregion and southern Brigalow Belt South Bioregion
		1176-Slaty Box - Grey Gum shrubby woodland on footslopes of the upper Hunter Valley, Sydney Basin Bioregion
		1674-Red Ironbark - Brown Bloodwood - Black Pine heathy open forest on sandstone ranges of the Sydney Basin
Broad-headed Snake	Hoplocephalus bungaroides	1674-Red Ironbark - Brown Bloodwood - Black Pine heathy open forest on sandstone ranges of the Sydney Basin

Brown Treecreeper (eastern subspecies)	Climacteris picumnus victoriae	277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
		281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
		461-Tumbledown Gum woodland on hills in the northern NSW South Western Slopes Bioregion and southern Brigalow Belt South Bioregion
		477-Inland Scribbly Gum - Red Stringybark - Black Cypress Pine - Red Ironbark open forest on sandstone hills in the southern Brigalow Belt South Bioregion and northern NSW South Western Slopes Bioregion
		1176-Slaty Box - Grey Gum shrubby woodland on footslopes of the upper Hunter Valley, Sydney Basin Bioregion
		1610-White Box - Black Cypress Pine shrubby woodland of the Western Slopes
		1674-Red Ironbark - Brown Bloodwood - Black Pine heathy open forest on sandstone ranges of the Sydney Basin
Corben's Long-eared Bat	Nyctophilus corbeni	440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
		461-Tumbledown Gum woodland on hills in the northern NSW South Western Slopes Bioregion and southern Brigalow Belt South Bioregion
		477-Inland Scribbly Gum - Red Stringybark - Black Cypress Pine - Red Ironbark open forest on sandstone hills in the southern Brigalow Belt South Bioregion and northern NSW South Western Slopes Bioregion
		1176-Slaty Box - Grey Gum shrubby woodland on footslopes of the upper Hunter Valley, Sydney Basin Bioregion
		1674-Red Ironbark - Brown Bloodwood - Black Pine heathy open forest on sandstone ranges of the Sydney Basin
Diamond Firetail	Stagonopleura guttata	277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion

Diamond Firetail	Stagonopleura guttata	281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
		461-Tumbledown Gum woodland on hills in the northern NSW South Western Slopes Bioregion and southern Brigalow Belt South Bioregion
		477-Inland Scribbly Gum - Red Stringybark - Black Cypress Pine - Red Ironbark open forest on sandstone hills in the southern Brigalow Belt South Bioregion and northern NSW South Western Slopes Bioregion
		1176-Slaty Box - Grey Gum shrubby woodland on footslopes of the upper Hunter Valley, Sydney Basin Bioregion
		1674-Red Ironbark - Brown Bloodwood - Black Pine heathy open forest on sandstone ranges of the Sydney Basin
Dusky Woodswallow	Artamus cyanopterus cyanopterus	277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
		281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
		461-Tumbledown Gum woodland on hills in the northern NSW South Western Slopes Bioregion and southern Brigalow Belt South Bioregion
		477-Inland Scribbly Gum - Red Stringybark - Black Cypress Pine - Red Ironbark open forest on sandstone hills in the southern Brigalow Belt South Bioregion and northern NSW South Western Slopes Bioregion
		478-Red Ironbark - Black Cypress Pine - stringybark +/- Narrow-leaved Wattle shrubby open forest on sandstone in the Gulgong - Mendooran region, southern Brigalow Belt South Bioregion
		479-Narrow-leaved Ironbark- Black Cypress Pine - stringybark +/- Grey Gum +/- Narrow-leaved Wattle shrubby open forest on sandstone hills in the southern Brigalow Belt South Bioregion and Sydney Basin Bioregion

Dusky Woodswallow	Artamus cyanopterus cyanopterus	1176-Slaty Box - Grey Gum shrubby woodland on footslopes of the upper Hunter Valley, Sydney Basin Bioregion
Eastern Coastal Free-tailed Bat	Micronomus norfolkensis	1176-Slaty Box - Grey Gum shrubby woodland on footslopes of the upper Hunter Valley, Sydney Basin Bioregion
Eastern False Pipistrelle	Falsistrellus tasmaniensis	277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
		1176-Slaty Box - Grey Gum shrubby woodland on footslopes of the upper Hunter Valley, Sydney Basin Bioregion
		1674-Red Ironbark - Brown Bloodwood - Black Pine heathy open forest on sandstone ranges of the Sydney Basin
Flame Robin	Petroica phoenicea	277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
		281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
		461-Tumbledown Gum woodland on hills in the northern NSW South Western Slopes Bioregion and southern Brigalow Belt South Bioregion
		477-Inland Scribbly Gum - Red Stringybark - Black Cypress Pine - Red Ironbark open forest on sandstone hills in the southern Brigalow Belt South Bioregion and northern NSW South Western Slopes Bioregion
		1674-Red Ironbark - Brown Bloodwood - Black Pine heathy open forest on sandstone ranges of the Sydney Basin
Gang-gang Cockatoo	Callocephalon fimbriatum	277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
		281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		1176-Slaty Box - Grey Gum shrubby woodland on footslopes of the upper Hunter Valley, Sydney Basin Bioregion
		1674-Red Ironbark - Brown Bloodwood - Black Pine heathy open forest on sandstone ranges of the Sydney Basin

Glossy Black-Cockatoo	Calyptorhynchus lathami	440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
		461-Tumbledown Gum woodland on hills in the northern NSW South Western Slopes Bioregion and southern Brigalow Belt South Bioregion
		477-Inland Scribbly Gum - Red Stringybark - Black Cypress Pine - Red Ironbark open forest on sandstone hills in the southern Brigalow Belt South Bioregion and northern NSW South Western Slopes Bioregion
		1176-Slaty Box - Grey Gum shrubby woodland on footslopes of the upper Hunter Valley, Sydney Basin Bioregion
		1674-Red Ironbark - Brown Bloodwood - Black Pine heathy open forest on sandstone ranges of the Sydney Basin
Greater Broad-nosed Bat	Scoteanax rueppellii	1176-Slaty Box - Grey Gum shrubby woodland on footslopes of the upper Hunter Valley, Sydney Basin Bioregion
		1674-Red Ironbark - Brown Bloodwood - Black Pine heathy open forest on sandstone ranges of the Sydney Basin
Grey-crowned Babbler (eastern subspecies)	Pomatostomus temporalis temporalis	277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
		281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		461-Tumbledown Gum woodland on hills in the northern NSW South Western Slopes Bioregion and southern Brigalow Belt South Bioregion
		1176-Slaty Box - Grey Gum shrubby woodland on footslopes of the upper Hunter Valley, Sydney Basin Bioregion
		1674-Red Ironbark - Brown Bloodwood - Black Pine heathy open forest on sandstone ranges of the Sydney Basin
Grey-headed Flying-fox	Pteropus poliocephalus	277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
		281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion

Grey-headed Flying-fox	Pteropus poliocephalus	461-Tumbledown Gum woodland on hills in the northern NSW South Western Slopes Bioregion and southern Brigalow Belt South Bioregion
		477-Inland Scribbly Gum - Red Stringybark - Black Cypress Pine - Red Ironbark open forest on sandstone hills in the southern Brigalow Belt South Bioregion and northern NSW South Western Slopes Bioregion
		1176-Slaty Box - Grey Gum shrubby woodland on footslopes of the upper Hunter Valley, Sydney Basin Bioregion
		1674-Red Ironbark - Brown Bloodwood - Black Pine heathy open forest on sandstone ranges of the Sydney Basin
Hooded Robin (south-eastern form)	Melanodryas cucullata cucullata	277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
		281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
		461-Tumbledown Gum woodland on hills in the northern NSW South Western Slopes Bioregion and southern Brigalow Belt South Bioregion
		477-Inland Scribbly Gum - Red Stringybark - Black Cypress Pine - Red Ironbark open forest on sandstone hills in the southern Brigalow Belt South Bioregion and northern NSW South Western Slopes Bioregion
		1176-Slaty Box - Grey Gum shrubby woodland on footslopes of the upper Hunter Valley, Sydney Basin Bioregion
		1610-White Box - Black Cypress Pine shrubby woodland of the Western Slopes
		1674-Red Ironbark - Brown Bloodwood - Black Pine heathy open forest on sandstone ranges of the Sydney Basin
Large Bent-winged Bat	Miniopterus orianae oceanensis	277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
		281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion

Large Bent-winged Bat	Miniopterus orianae oceanensis	440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
		461-Tumbledown Gum woodland on hills in the northern NSW South Western Slopes Bioregion and southern Brigalow Belt South Bioregion
		477-Inland Scribbly Gum - Red Stringybark - Black Cypress Pine - Red Ironbark open forest on sandstone hills in the southern Brigalow Belt South Bioregion and northern NSW South Western Slopes Bioregion
		1176-Slaty Box - Grey Gum shrubby woodland on footslopes of the upper Hunter Valley, Sydney Basin Bioregion
		1674-Red Ironbark - Brown Bloodwood - Black Pine heathy open forest on sandstone ranges of the Sydney Basin
Little Bent-winged Bat	Miniopterus australis	1176-Slaty Box - Grey Gum shrubby woodland on footslopes of the upper Hunter Valley, Sydney Basin Bioregion
Little Eagle	Hieraaetus morphnoides	277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
		281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
		461-Tumbledown Gum woodland on hills in the northern NSW South Western Slopes Bioregion and southern Brigalow Belt South Bioregion
		477-Inland Scribbly Gum - Red Stringybark - Black Cypress Pine - Red Ironbark open forest on sandstone hills in the southern Brigalow Belt South Bioregion and northern NSW South Western Slopes Bioregion
		1176-Slaty Box - Grey Gum shrubby woodland on footslopes of the upper Hunter Valley, Sydney Basin Bioregion
		1674-Red Ironbark - Brown Bloodwood - Black Pine heathy open forest on sandstone ranges of the Sydney Basin
Little Lorikeet	Glossopsitta pusilla	277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion

Little Lorikeet	Glossopsitta pusilla	281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
		461-Tumbledown Gum woodland on hills in the northern NSW South Western Slopes Bioregion and southern Brigalow Belt South Bioregion
		477-Inland Scribbly Gum - Red Stringybark - Black Cypress Pine - Red Ironbark open forest on sandstone hills in the southern Brigalow Belt South Bioregion and northern NSW South Western Slopes Bioregion
		478-Red Ironbark - Black Cypress Pine - stringybark +/- Narrow-leaved Wattle shrubby open forest on sandstone in the Gulgong - Mendooran region, southern Brigalow Belt South Bioregion
		479-Narrow-leaved Ironbark- Black Cypress Pine - stringybark +/- Grey Gum +/- Narrow-leaved Wattle shrubby open forest on sandstone hills in the southern Brigalow Belt South Bioregion and Sydney Basin Bioregion
		481-Rough-barked Apple - Blakely's Red Gum - Narrow-leaved Stringybark +/- Grey Gum sandstone riparian grass fern open forest on in the southern Brigalow Belt South Bioregion and Upper Hunter region
		483-Grey Box x White Box grassy open woodland on basalt hills in the Merriwa region, upper Hunter Valley
		618-White Box x Grey Box - red gum - Rough-barked Apple grassy woodland on rich soils on hills in the upper Hunter Valley
		1176-Slaty Box - Grey Gum shrubby woodland on footslopes of the upper Hunter Valley, Sydney Basin Bioregion
		1610-White Box - Black Cypress Pine shrubby woodland of the Western Slopes
		1674-Red Ironbark - Brown Bloodwood - Black Pine heathy open forest on sandstone ranges of the Sydney Basin
Malleefowl	Leipoa ocellata	477-Inland Scribbly Gum - Red Stringybark - Black Cypress Pine - Red Ironbark open forest on sandstone hills in the southern Brigalow Belt South Bioregion and northern NSW South Western Slopes Bioregion

Malleefowl	Leipoa ocellata	1674-Red Ironbark - Brown Bloodwood - Black Pine heathy open forest on sandstone ranges of the Sydney Basin
Masked Owl	Tyto novaehollandiae	277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
		281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
		461-Tumbledown Gum woodland on hills in the northern NSW South Western Slopes Bioregion and southern Brigalow Belt South Bioregion
		477-Inland Scribbly Gum - Red Stringybark - Black Cypress Pine - Red Ironbark open forest on sandstone hills in the southern Brigalow Belt South Bioregion and northern NSW South Western Slopes Bioregion
		1176-Slaty Box - Grey Gum shrubby woodland on footslopes of the upper Hunter Valley, Sydney Basin Bioregion
		1674-Red Ironbark - Brown Bloodwood - Black Pine heathy open forest on sandstone ranges of the Sydney Basin
New Holland Mouse	Pseudomys novaehollandiae	440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
		477-Inland Scribbly Gum - Red Stringybark - Black Cypress Pine - Red Ironbark open forest on sandstone hills in the southern Brigalow Belt South Bioregion and northern NSW South Western Slopes Bioregion
Painted Honeyeater	Grantiella picta	277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
		281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
		461-Tumbledown Gum woodland on hills in the northern NSW South Western Slopes Bioregion and southern Brigalow Belt South Bioregion

Painted Honeyeater	Grantiella picta	477-Inland Scribbly Gum - Red Stringybark - Black Cypress Pine - Red Ironbark open forest on sandstone hills in the southern Brigalow Belt South Bioregion and northern NSW South Western Slopes Bioregion
		478-Red Ironbark - Black Cypress Pine - stringybark +/- Narrow-leaved Wattle shrubby open forest on sandstone in the Gulgong - Mendooran region, southern Brigalow Belt South Bioregion
		479-Narrow-leaved Ironbark- Black Cypress Pine - stringybark +/- Grey Gum +/- Narrow-leaved Wattle shrubby open forest on sandstone hills in the southern Brigalow Belt South Bioregion and Sydney Basin Bioregion
		481-Rough-barked Apple - Blakely's Red Gum - Narrow-leaved Stringybark +/- Grey Gum sandstone riparian grass fern open forest on in the southern Brigalow Belt South Bioregion and Upper Hunter region
		483-Grey Box x White Box grassy open woodland on basalt hills in the Merriwa region, upper Hunter Valley
		618-White Box x Grey Box - red gum - Rough-barked Apple grassy woodland on rich soils on hills in the upper Hunter Valley
		1176-Slaty Box - Grey Gum shrubby woodland on footslopes of the upper Hunter Valley, Sydney Basin Bioregion
		1610-White Box - Black Cypress Pine shrubby woodland of the Western Slopes
		1674-Red Ironbark - Brown Bloodwood - Black Pine heathy open forest on sandstone ranges of the Sydney Basin
Powerful Owl	Ninox strenua	281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		1176-Slaty Box - Grey Gum shrubby woodland on footslopes of the upper Hunter Valley, Sydney Basin Bioregion
		1674-Red Ironbark - Brown Bloodwood - Black Pine heathy open forest on sandstone ranges of the Sydney Basin
Regent Honeyeater	Anthochaera phrygia	277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
		281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion

Regent Honeyeater	Anthochaera phrygia	461-Tumbledown Gum woodland on hills in the northern NSW South Western Slopes Bioregion and southern Brigalow Belt South Bioregion
		479-Narrow-leaved Ironbark- Black Cypress Pine - stringybark +/- Grey Gum +/- Narrow-leaved Wattle shrubby open forest on sandstone hills in the southern Brigalow Belt South Bioregion and Sydney Basin Bioregion
		481-Rough-barked Apple - Blakely's Red Gum - Narrow-leaved Stringybark +/- Grey Gum sandstone riparian grass fern open forest on in the southern Brigalow Belt South Bioregion and Upper Hunter region
		483-Grey Box x White Box grassy open woodland on basalt hills in the Merriwa region, upper Hunter Valley
		618-White Box x Grey Box - red gum - Rough-barked Apple grassy woodland on rich soils on hills in the upper Hunter Valley
		1176-Slaty Box - Grey Gum shrubby woodland on footslopes of the upper Hunter Valley, Sydney Basin Bioregion
		1610-White Box - Black Cypress Pine shrubby woodland of the Western Slopes
Rosenberg's Goanna	Varanus rosenbergi	281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		1176-Slaty Box - Grey Gum shrubby woodland on footslopes of the upper Hunter Valley, Sydney Basin Bioregion
		1674-Red Ironbark - Brown Bloodwood - Black Pine heathy open forest on sandstone ranges of the Sydney Basin
Scarlet Robin	Petroica boodang	277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
		281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
		461-Tumbledown Gum woodland on hills in the northern NSW South Western Slopes Bioregion and southern Brigalow Belt South Bioregion

Scarlet Robin	Petroica boodang	477-Inland Scribbly Gum - Red Stringybark - Black Cypress Pine - Red Ironbark open forest on sandstone hills in the southern Brigalow Belt South Bioregion and northern NSW South Western Slopes Bioregion
		1176-Slaty Box - Grey Gum shrubby woodland on footslopes of the upper Hunter Valley, Sydney Basin Bioregion
		1674-Red Ironbark - Brown Bloodwood - Black Pine heathy open forest on sandstone ranges of the Sydney Basin
Speckled Warbler	Chthonicola sagittata	277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
		281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
		461-Tumbledown Gum woodland on hills in the northern NSW South Western Slopes Bioregion and southern Brigalow Belt South Bioregion
		477-Inland Scribbly Gum - Red Stringybark - Black Cypress Pine - Red Ironbark open forest on sandstone hills in the southern Brigalow Belt South Bioregion and northern NSW South Western Slopes Bioregion
		1176-Slaty Box - Grey Gum shrubby woodland on footslopes of the upper Hunter Valley, Sydney Basin Bioregion
		1610-White Box - Black Cypress Pine shrubby woodland of the Western Slopes
		1674-Red Ironbark - Brown Bloodwood - Black Pine heathy open forest on sandstone ranges of the Sydney Basin
Spotted Harrier	Circus assimilis	277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
		281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion

Spotted Harrier	Circus assimilis	461-Tumbledown Gum woodland on hills in the northern NSW South Western Slopes Bioregion and southern Brigalow Belt South Bioregion
		477-Inland Scribbly Gum - Red Stringybark - Black Cypress Pine - Red Ironbark open forest on sandstone hills in the southern Brigalow Belt South Bioregion and northern NSW South Western Slopes Bioregion
Spotted-tailed Quoll	Dasyurus maculatus	277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
		281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
		461-Tumbledown Gum woodland on hills in the northern NSW South Western Slopes Bioregion and southern Brigalow Belt South Bioregion
		477-Inland Scribbly Gum - Red Stringybark - Black Cypress Pine - Red Ironbark open forest on sandstone hills in the southern Brigalow Belt South Bioregion and northern NSW South Western Slopes Bioregion
		1176-Slaty Box - Grey Gum shrubby woodland on footslopes of the upper Hunter Valley, Sydney Basin Bioregion
		1610-White Box - Black Cypress Pine shrubby woodland of the Western Slopes
		1674-Red Ironbark - Brown Bloodwood - Black Pine heathy open forest on sandstone ranges of the Sydney Basin
Square-tailed Kite	Lophoictinia isura	277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
		281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
		461-Tumbledown Gum woodland on hills in the northern NSW South Western Slopes Bioregion and southern Brigalow Belt South Bioregion

Square-tailed Kite	Lophoictinia isura	477-Inland Scribbly Gum - Red Stringybark - Black Cypress Pine - Red Ironbark open forest on sandstone hills in the southern Brigalow Belt South Bioregion and northern NSW South Western Slopes Bioregion
		618-White Box x Grey Box - red gum - Rough-barked Apple grassy woodland on rich soils on hills in the upper Hunter Valley
		1176-Slaty Box - Grey Gum shrubby woodland on footslopes of the upper Hunter Valley, Sydney Basin Bioregion
		1610-White Box - Black Cypress Pine shrubby woodland of the Western Slopes
		1674-Red Ironbark - Brown Bloodwood - Black Pine heathy open forest on sandstone ranges of the Sydney Basin
Swift Parrot	Lathamus discolor	277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
		281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
		461-Tumbledown Gum woodland on hills in the northern NSW South Western Slopes Bioregion and southern Brigalow Belt South Bioregion
		477-Inland Scribbly Gum - Red Stringybark - Black Cypress Pine - Red Ironbark open forest on sandstone hills in the southern Brigalow Belt South Bioregion and northern NSW South Western Slopes Bioregion
		478-Red Ironbark - Black Cypress Pine - stringybark +/- Narrow-leaved Wattle shrubby open forest on sandstone in the Gulgong - Mendooran region, southern Brigalow Belt South Bioregion
		479-Narrow-leaved Ironbark- Black Cypress Pine - stringybark +/- Grey Gum +/- Narrow-leaved Wattle shrubby open forest on sandstone hills in the southern Brigalow Belt South Bioregion and Sydney Basin Bioregion
		481-Rough-barked Apple - Blakely's Red Gum - Narrow-leaved Stringybark +/- Grey Gum sandstone riparian grass fern open forest on in the southern Brigalow Belt South Bioregion and Upper Hunter region

Swift Parrot	Lathamus discolor	483-Grey Box x White Box grassy open woodland on basalt hills in the Merriwa region, upper Hunter Valley
		618-White Box x Grey Box - red gum - Rough-barked Apple grassy woodland on rich soils on hills in the upper Hunter Valley
		1176-Slaty Box - Grey Gum shrubby woodland on footslopes of the upper Hunter Valley, Sydney Basin Bioregion
		1610-White Box - Black Cypress Pine shrubby woodland of the Western Slopes
		1674-Red Ironbark - Brown Bloodwood - Black Pine heathy open forest on sandstone ranges of the Sydney Basin
Turquoise Parrot	Neophema pulchella	277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
		281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
		461-Tumbledown Gum woodland on hills in the northern NSW South Western Slopes Bioregion and southern Brigalow Belt South Bioregion
		477-Inland Scribbly Gum - Red Stringybark - Black Cypress Pine - Red Ironbark open forest on sandstone hills in the southern Brigalow Belt South Bioregion and northern NSW South Western Slopes Bioregion
		478-Red Ironbark - Black Cypress Pine - stringybark +/- Narrow-leaved Wattle shrubby open forest on sandstone in the Gulgong - Mendooran region, southern Brigalow Belt South Bioregion
		479-Narrow-leaved Ironbark- Black Cypress Pine - stringybark +/- Grey Gum +/- Narrow-leaved Wattle shrubby open forest on sandstone hills in the southern Brigalow Belt South Bioregion and Sydney Basin Bioregion
		481-Rough-barked Apple - Blakely's Red Gum - Narrow-leaved Stringybark +/- Grey Gum sandstone riparian grass fern open forest on in the southern Brigalow Belt South Bioregion and Upper Hunter region
		483-Grey Box x White Box grassy open woodland on basalt hills in the Merriwa region, upper Hunter Valley

Turquoise Parrot	Neophema pulchella	618-White Box x Grey Box - red gum - Rough-barked Apple grassy woodland on rich soils on hills in the upper Hunter Valley
		1176-Slaty Box - Grey Gum shrubby woodland on footslopes of the upper Hunter Valley, Sydney Basin Bioregion
		1610-White Box - Black Cypress Pine shrubby woodland of the Western Slopes
		1674-Red Ironbark - Brown Bloodwood - Black Pine heathy open forest on sandstone ranges of the Sydney Basin
Varied Sittella	Daphoenositta chrysoptera	277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
		281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
		461-Tumbledown Gum woodland on hills in the northern NSW South Western Slopes Bioregion and southern Brigalow Belt South Bioregion
		477-Inland Scribbly Gum - Red Stringybark - Black Cypress Pine - Red Ironbark open forest on sandstone hills in the southern Brigalow Belt South Bioregion and northern NSW South Western Slopes Bioregion
		1176-Slaty Box - Grey Gum shrubby woodland on footslopes of the upper Hunter Valley, Sydney Basin Bioregion
		1610-White Box - Black Cypress Pine shrubby woodland of the Western Slopes
		1674-Red Ironbark - Brown Bloodwood - Black Pine heathy open forest on sandstone ranges of the Sydney Basin
White-bellied Sea-Eagle	Haliaeetus leucogaster	277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
		281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
White-throated Needletail	Hirundapus caudacutus	277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion

White-throated Needletail	Hirundapus caudacutus	281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
		461-Tumbledown Gum woodland on hills in the northern NSW South Western Slopes Bioregion and southern Brigalow Belt South Bioregion
		477-Inland Scribbly Gum - Red Stringybark - Black Cypress Pine - Red Ironbark open forest on sandstone hills in the southern Brigalow Belt South Bioregion and northern NSW South Western Slopes Bioregion
		478-Red Ironbark - Black Cypress Pine - stringybark +/- Narrow-leaved Wattle shrubby open forest on sandstone in the Gulgong - Mendooran region, southern Brigalow Belt South Bioregion
		479-Narrow-leaved Ironbark- Black Cypress Pine - stringybark +/- Grey Gum +/- Narrow-leaved Wattle shrubby open forest on sandstone hills in the southern Brigalow Belt South Bioregion and Sydney Basin Bioregion
		481-Rough-barked Apple - Blakely's Red Gum - Narrow-leaved Stringybark +/- Grey Gum sandstone riparian grass fern open forest on in the southern Brigalow Belt South Bioregion and Upper Hunter region
		483-Grey Box x White Box grassy open woodland on basalt hills in the Merriwa region, upper Hunter Valley
		618-White Box x Grey Box - red gum - Rough-barked Apple grassy woodland on rich soils on hills in the upper Hunter Valley
		1176-Slaty Box - Grey Gum shrubby woodland on footslopes of the upper Hunter Valley, Sydney Basin Bioregion
		1610-White Box - Black Cypress Pine shrubby woodland of the Western Slopes
		1674-Red Ironbark - Brown Bloodwood - Black Pine heathy open forest on sandstone ranges of the Sydney Basin
Yellow-bellied Sheathtail-bat	Saccolaimus flaviventris	277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion

Yellow-bellied Sheathtail-bat	Saccolaimus flaviventris	281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
		461-Tumbledown Gum woodland on hills in the northern NSW South Western Slopes Bioregion and southern Brigalow Belt South Bioregion
		477-Inland Scribbly Gum - Red Stringybark - Black Cypress Pine - Red Ironbark open forest on sandstone hills in the southern Brigalow Belt South Bioregion and northern NSW South Western Slopes Bioregion
		1176-Slaty Box - Grey Gum shrubby woodland on footslopes of the upper Hunter Valley, Sydney Basin Bioregion
		1674-Red Ironbark - Brown Bloodwood - Black Pine heathy open forest on sandstone ranges of the Sydney Basin

Threatened species Manually Added

None added

Threatened species assessed as not within the vegetation zone(s) for the PCT(s)

Refer to BAR for detailed justification

Common Name	Scientific Name	Justification in the BAM-C

BAM Vegetation Zones Report

Proposal Details

Assessment Id
00038556/BAAS17060/23/00038557

Assessment name
CWOREZ Kerrabee subregion - RNI1

BAM data last updated *
22/06/2023

Assessor Name
Lukas Leslie Clews

Report Created
16/08/2023

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Assessor Number
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Assessment Type
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Open

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Date Finalised
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* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.

Vegetation Zones

#	Name	PCT	Condition	Area	Minimum number of plots	Management zones
1	277_Mod_Good	277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion	Mod_Good	0.17	1	A (0.08 ha) B (0.07 ha) HZ (0.02 ha)

2	277_Thinned	277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion	Thinned	0.85	1	A (0.46 ha) B (0.38 ha) HZ (0.01 ha)
3	281_DNG	281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion	DNG	26.51	4	A (26.51 ha)
4	281_DNS	281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion	DNS	1.08	1	A (1.08 ha)
5	281_Mod_Good	281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion	Mod_Good	40.26	4	A (12.32 ha) B (27.49 ha) HZ (0.45 ha)
6	281_Poor	281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion	Poor	0.01	1	A (0 ha) B (0.01 ha) HZ (0 ha)

7	281_Thinned	281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion	Thinned	42.82	4	A (14.95 ha) B (27.3 ha) HZ (0.57 ha)
8	440_DNG	440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion	DNG	1.67	1	A (1.67 ha)
9	440_Mod_Good	440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion	Mod_Good	2.18	2	A (0.73 ha) B (1.45 ha)
10	461_Mod_Good	461-Tumbledown Gum woodland on hills in the northern NSW South Western Slopes Bioregion and southern Brigalow Belt South Bioregion	Mod_Good	30.28	4	A (8.36 ha) B (21.46 ha) HZ (0.46 ha)
11	461_Thinned	461-Tumbledown Gum woodland on hills in the northern NSW South Western Slopes Bioregion and southern Brigalow Belt South Bioregion	Thinned	0.13	1	A (0 ha) B (0.12 ha) HZ (0.01 ha)

12	477_Thinned	477-Inland Scribbly Gum - Red Stringybark - Black Cypress Pine - Red Ironbark open forest on sandstone hills in the southern Brigalow Belt South Bioregion and northern NSW South Western Slopes Bioregion	Thinned	0.05	1	A (0.05 ha)
13	478_DNG	478-Red Ironbark - Black Cypress Pine - stringybark +/- Narrow-leaved Wattle shrubby open forest on sandstone in the Gulgong - Mendooran region, southern Brigalow Belt South Bioregion	DNG	0.61	1	A (0.61 ha)
14	478_Mod_Good	478-Red Ironbark - Black Cypress Pine - stringybark +/- Narrow-leaved Wattle shrubby open forest on sandstone in the Gulgong - Mendooran region, southern Brigalow Belt South Bioregion	Mod_Good	6.27	3	A (2.4 ha) B (3.71 ha) HZ (0.16 ha)
15	478_Thinned	478-Red Ironbark - Black Cypress Pine - stringybark +/- Narrow-leaved Wattle shrubby open forest on sandstone in the Gulgong - Mendooran region, southern Brigalow Belt South Bioregion	Thinned	0.15	1	A (0.02 ha) B (0.12 ha) HZ (0.01 ha)

16	479_DNG	479-Narrow-leaved Ironbark- Black Cypress Pine - stringybark +/- Grey Gum +/- Narrow-leaved Wattle shrubby open forest on sandstone hills in the southern Brigalow Belt South Bioregion and Sydney Basin Bioregion	DNG	7.35	3	A (7.35 ha)
17	479_DNS	479-Narrow-leaved Ironbark- Black Cypress Pine - stringybark +/- Grey Gum +/- Narrow-leaved Wattle shrubby open forest on sandstone hills in the southern Brigalow Belt South Bioregion and Sydney Basin Bioregion	DNS	0.31	1	A (0.31 ha)
18	479_Mod_Good	479-Narrow-leaved Ironbark- Black Cypress Pine - stringybark +/- Grey Gum +/- Narrow-leaved Wattle shrubby open forest on sandstone hills in the southern Brigalow Belt South Bioregion and Sydney Basin Bioregion	Mod_Good	9.29	3	A (4.16 ha) B (4.93 ha) HZ (0.2 ha)
19	479_Thinned	479-Narrow-leaved Ironbark- Black Cypress Pine - stringybark +/- Grey Gum +/- Narrow-leaved Wattle shrubby open forest on sandstone hills in the southern Brigalow Belt South Bioregion and Sydney Basin Bioregion	Thinned	16.71	3	A (5.16 ha) B (11.21 ha) HZ (0.34 ha)

20	481_Mod_Good	481-Rough-barked Apple - Blakely's Red Gum - Narrow-leaved Stringybark +/- Grey Gum sandstone riparian grass fern open forest on in the southern Brigalow Belt South Bioregion and Upper Hunter region	Mod_Good	2.54	2	A (0.63 ha) B (1.87 ha) HZ (0.04 ha)
21	481_Thinned	481-Rough-barked Apple - Blakely's Red Gum - Narrow-leaved Stringybark +/- Grey Gum sandstone riparian grass fern open forest on in the southern Brigalow Belt South Bioregion and Upper Hunter region	Thinned	9.2	3	A (3.27 ha) B (5.8 ha) HZ (0.13 ha)
22	483_DNG	483-Grey Box x White Box grassy open woodland on basalt hills in the Merriwa region, upper Hunter Valley	DNG	1.45	1	A (1.45 ha)
23	483_Thinned	483-Grey Box x White Box grassy open woodland on basalt hills in the Merriwa region, upper Hunter Valley	Thinned	2.73	2	A (0.77 ha) B (1.96 ha)
24	618_DNG	618-White Box x Grey Box - red gum - Rough-barked Apple grassy woodland on rich soils on hills in the upper Hunter Valley	DNG	42.03	4	A (42.03 ha)
25	618_Mod_Good	618-White Box x Grey Box - red gum - Rough-barked Apple grassy woodland on rich soils on hills in the upper Hunter Valley	Mod_Good	8.17	3	A (1.72 ha) B (6.27 ha) HZ (0.18 ha)

26	618_Thinned	618-White Box x Grey Box - red gum - Rough-barked Apple grassy woodland on rich soils on hills in the upper Hunter Valley	Thinned	9.91	3	A (3.22 ha) B (6.52 ha) HZ (0.17 ha)
27	1176_Thinned	1176-Slaty Box - Grey Gum shrubby woodland on footslopes of the upper Hunter Valley, Sydney Basin Bioregion	Thinned	1.95	1	A (0.53 ha) B (1.39 ha) HZ (0.04 ha)
28	1610_DNG	1610-White Box - Black Cypress Pine shrubby woodland of the Western Slopes	DNG	1.18	1	A (1.18 ha)
29	1610_Mod_Good	1610-White Box - Black Cypress Pine shrubby woodland of the Western Slopes	Mod_Good	56.37	5	A (17.52 ha) B (37.89 ha) HZ (0.96 ha)
30	1610_Thinned	1610-White Box - Black Cypress Pine shrubby woodland of the Western Slopes	Thinned	4.48	2	A (1.3 ha) B (3.11 ha) HZ (0.07 ha)
31	1674_DNG	1674-Red Ironbark - Brown Bloodwood - Black Pine heathy open forest on sandstone ranges of the Sydney Basin	DNG	0.02	1	A (0.02 ha)
32	1674_Mod_Good	1674-Red Ironbark - Brown Bloodwood - Black Pine heathy open forest on sandstone ranges of the Sydney Basin	Mod_Good	10.74	3	A (3.25 ha) B (7.37 ha) HZ (0.12 ha)

BAM Biodiversity Credit Report (Like for like)

Proposal Details

Assessment Id
00038891/BAAS17060/23/00038892

Proposal Name
CWOREZ Kerrabee subregion - Valley of Winds

BAM data last updated *
22/06/2023

Assessor Name
Lukas Leslie Clews

Assessor Number
BAAS17060

BAM Data version *
61

Proponent Names

Report Created
27/07/2023

BAM Case Status
Open

Assessment Revision
2

Assessment Type
Major Projects

Date Finalised
To be finalised

* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.

Potential Serious and Irreversible Impacts

Name of threatened ecological community	Listing status	Name of Plant Community Type/ID
Hunter Floodplain Red Gum Woodland in the NSW North Coast and Sydney Basin Bioregions	Endangered Ecological Community	42-River Red Gum / River Oak riparian woodland wetland in the Hunter Valley
White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla	Critically Endangered Ecological Community	277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion

White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla	Critically Endangered Ecological Community	281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla	Critically Endangered Ecological Community	599-Blakely's Red Gum - Yellow Box grassy tall woodland on flats and hills in the Brigalow Belt South Bioregion and Nandewar Bioregion
White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla	Critically Endangered Ecological Community	618-White Box x Grey Box - red gum - Rough-barked Apple grassy woodland on rich soils on hills in the upper Hunter Valley

Species
Chalinolobus dwyeri / Large-eared Pied Bat
Petrogale penicillata / Brush-tailed Rock-wallaby
Vespadelus troughtoni / Eastern Cave Bat

Additional Information for Approval

PCT Outside Ibra Added

PCT
42-River Red Gum / River Oak riparian woodland wetland in the Hunter Valley

277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
479-Narrow-leaved Ironbark- Black Cypress Pine - stringybark +/- Grey Gum +/- Narrow-leaved Wattle shrubby open forest on sandstone hills in the southern Brigalow Belt South Bioregion and Sydney Basin Bioregion

PCTs With Customized Benchmarks

PCT
No Changes

Predicted Threatened Species Not On Site

Name
No Changes

Ecosystem Credit Summary (Number and class of biodiversity credits to be retired)

Name of Plant Community Type/ID	Name of threatened ecological community	Area of impact	HBT Cr	No HBT Cr	Total credits to be retired
42-River Red Gum / River Oak riparian woodland wetland in the Hunter Valley	Hunter Floodplain Red Gum Woodland in the NSW North Coast and Sydney Basin Bioregions	0.8	19	5	24

277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla	0.1	8	0	8
281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla	13.6	519	0	519
440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion	Not a TEC	0.8	18	0	18
479-Narrow-leaved Ironbark- Black Cypress Pine - stringybark +/- Grey Gum +/- Narrow-leaved Wattle shrubby open forest on sandstone hills in the southern Brigalow Belt South Bioregion and Sydney Basin Bioregion	Not a TEC	11.5	237	0	237
481-Rough-barked Apple - Blakely's Red Gum - Narrow-leaved Stringybark +/- Grey Gum sandstone riparian grass fern open forest on in the southern Brigalow Belt South Bioregion and Upper Hunter region	Not a TEC	0.2	2	0	2

599-Blakely's Red Gum - Yellow Box grassy tall woodland on flats and hills in the Brigalow Belt South Bioregion and Nandewar Bioregion	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla	5.2	93	0	93
618-White Box x Grey Box - red gum - Rough-barked Apple grassy woodland on rich soils on hills in the upper Hunter Valley	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla	27.6	377	93	470

42-River Red Gum / River Oak riparian woodland wetland in the Hunter Valley

Like-for-like credit retirement options

Name of offset trading group	Trading group	Zone	HBT	Credits	IBRA region
Hunter Floodplain Red Gum Woodland in the NSW North Coast and Sydney Basin Bioregions This includes PCT's: 42, 1106, 1698, 4089	-	42_DNG	No	5	Kerrabee, Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	Hunter Floodplain Red Gum Woodland in the NSW North Coast and Sydney Basin Bioregions This includes PCT's: 42, 1106, 1698, 4089	-	42_Thinned	Yes	19	Kerrabee, Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion	**Like-for-like credit retirement options**					
	Name of offset trading group	Trading group	Zone	HBT	Credits	IBRA region
	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla This includes PCT's: 74, 75, 83, 250, 266, 267, 268, 270, 274, 275, 276,	-	277_Mod_Good	Yes	8	Kerrabee, Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	277, 278, 279, 280, 281, 282, 283, 284, 286, 298, 302, 312, 341, 342, 347, 350, 352, 356, 367, 381, 382, 395, 401, 403, 421, 433, 434, 435, 436, 437, 451, 483, 484, 488, 492, 496, 508, 509, 510, 511, 528, 538, 544, 563, 567, 571, 589, 590, 597, 599, 618, 619, 622, 633, 654, 702, 703, 704, 705, 710, 711, 796, 797, 799, 840, 847, 851, 921, 1099, 1103, 1303, 1304, 1307, 1324, 1329, 1330, 1331, 1332, 1333, 1334, 1383, 1401, 1512, 1606, 1608, 1611, 1691, 1693, 1695, 1698, 3314, 3359, 3363, 3373, 3376, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3406, 3415, 3533, 4147, 4149, 4150					

281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion	Like-for-like credit retirement options					
	Name of offset trading group	Trading group	Zone	HBT	Credits	IBRA region
	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla This includes PCT's: 74, 75, 83, 250, 266, 267, 268, 270, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 298, 302, 312, 341, 342, 347, 350, 352, 356, 367, 381, 382, 395, 401, 403, 421, 433, 434, 435, 436, 437, 451, 483, 484, 488, 492, 496, 508, 509, 510, 511, 528, 538, 544, 563, 567, 571, 589, 590, 597, 599, 618, 619, 622, 633, 654,	-	281_Mod_Good	Yes	284	Kerrabee, Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	702, 703, 704, 705, 710, 711, 796, 797, 799, 840, 847, 851, 921, 1099, 1103, 1303, 1304, 1307, 1324, 1329, 1330, 1331, 1332, 1333, 1334, 1383, 1401, 1512, 1606, 1608, 1611, 1691, 1693, 1695, 1698, 3314, 3359, 3363, 3373, 3376, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3406, 3415, 3533, 4147, 4149, 4150					
	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla This includes PCT's: 74, 75, 83, 250, 266, 267, 268, 270, 274, 275, 276, 277, 278, 279, 280, 281,	-	281_Thinned	Yes	235	Kerrabee, Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	282, 283, 284, 286, 298, 302, 312, 341, 342, 347, 350, 352, 356, 367, 381, 382, 395, 401, 403, 421, 433, 434, 435, 436, 437, 451, 483, 484, 488, 492, 496, 508, 509, 510, 511, 528, 538, 544, 563, 567, 571, 589, 590, 597, 599, 618, 619, 622, 633, 654, 702, 703, 704, 705, 710, 711, 796, 797, 799, 840, 847, 851, 921, 1099, 1103, 1303, 1304, 1307, 1324, 1329, 1330, 1331, 1332, 1333, 1334, 1383, 1401, 1512, 1606, 1608, 1611, 1691, 1693, 1695, 1698, 3314, 3359, 3363, 3373, 3376, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3406, 3415, 3533, 4147, 4149, 4150					

440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion	Like-for-like credit retirement options					
	Class	Trading group	Zone	HBT	Credits	IBRA region
	Western Slopes Dry Sclerophyll Forests This includes PCT's: 54, 110, 179, 217, 243, 255, 270, 273, 287, 291, 309, 321, 322, 323, 324, 325, 327, 330, 331, 333, 341, 343, 346, 348, 354, 358, 379, 387, 396, 398, 399, 401, 402, 403, 404, 405, 406, 407, 408, 409, 414, 415, 417, 419, 420, 423, 425, 430, 431, 440, 443, 449, 455, 456, 457, 459, 462, 463, 467, 468, 469, 470, 471, 472, 473, 476, 477, 478, 479, 480, 482, 515, 531, 532, 576, 577, 581, 592, 610, 617, 671, 673, 676, 712, 713, 714, 746, 863, 889, 940, 956, 1133, 1176, 1277, 1278, 1279, 1307, 1313, 1314, 1316, 1381, 1398,	Western Slopes Dry Sclerophyll Forests <50%	440_Mod_Good	Yes	17	Kerrabee, Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	1610, 1629, 1654, 1655, 1656, 1657, 1660, 1661, 1663, 1668, 1669, 1671, 1672, 1674, 1676, 1677, 1678, 1679, 1680, 1709, 1711, 1770, 1771, 3753, 3754, 3756, 3757, 3758, 3759, 3760, 3761, 3762, 3763, 3766, 3767, 3768, 3769, 3770, 3771, 3772, 3773, 3774, 3775, 3776, 3777, 3778, 3780, 3781, 3782, 3783, 3784, 3785, 3786, 4153					
	Western Slopes Dry Sclerophyll Forests This includes PCT's: 54, 110, 179, 217, 243, 255, 270, 273, 287, 291, 309, 321, 322, 323, 324, 325, 327, 330, 331, 333, 341, 343, 346, 348, 354, 358, 379, 387, 396, 398, 399, 401, 402, 403, 404, 405, 406, 407, 408, 409, 414, 415, 417, 419, 420, 423, 425, 430, 431, 440,	Western Slopes Dry Sclerophyll Forests <50%	440_Thinned	Yes	1	Kerrabee, Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	443, 449, 455, 456, 457, 459, 462, 463, 467, 468, 469, 470, 471, 472, 473, 476, 477, 478, 479, 480, 482, 515, 531, 532, 576, 577, 581, 592, 610, 617, 671, 673, 676, 712, 713, 714, 746, 863, 889, 940, 956, 1133, 1176, 1277, 1278, 1279, 1307, 1313, 1314, 1316, 1381, 1398, 1610, 1629, 1654, 1655, 1656, 1657, 1660, 1661, 1663, 1668, 1669, 1671, 1672, 1674, 1676, 1677, 1678, 1679, 1680, 1709, 1711, 1770, 1771, 3753, 3754, 3756, 3757, 3758, 3759, 3760, 3761, 3762, 3763, 3766, 3767, 3768, 3769, 3770, 3771, 3772, 3773, 3774, 3775, 3776, 3777, 3778, 3780, 3781, 3782, 3783, 3784, 3785, 3786, 4153					

479-Narrow-leaved Ironbark-Black Cypress Pine - stringybark +/- Grey Gum +/- Narrow-leaved Wattle shrubby open forest on sandstone hills in the southern Brigalow Belt South Bioregion and Sydney Basin Bioregion	**Like-for-like credit retirement options**					
	Class	Trading group	Zone	HBT	Credits	IBRA region
	Western Slopes Dry Sclerophyll Forests This includes PCT's: 54, 110, 179, 217, 243, 255, 270, 273, 287, 291, 309, 321, 322, 323, 324, 325, 327, 330, 331, 333, 341, 343, 346, 348, 354, 358, 379, 387, 396, 398, 399, 401, 402, 403, 404, 405, 406, 407, 408, 409, 414, 415, 417, 419, 420, 423, 425, 430, 431, 440, 443, 449, 455, 456, 457, 459, 462, 463, 467, 468, 469, 470, 471, 472, 473, 476, 477, 478, 479, 480, 482, 515, 531, 532, 576, 577, 581, 592, 610, 617, 671, 673, 676, 712, 713, 714, 746, 863, 889, 940, 956, 1133, 1176, 1277, 1278, 1279, 1307, 1313,	Western Slopes Dry Sclerophyll Forests <50%	479_DNG	No	0	Kerrabee, Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	1314, 1316, 1381, 1398, 1610, 1629, 1654, 1655, 1656, 1657, 1660, 1661, 1663, 1668, 1669, 1671, 1672, 1674, 1676, 1677, 1678, 1679, 1680, 1709, 1711, 1770, 1771, 3753, 3754, 3756, 3757, 3758, 3759, 3760, 3761, 3762, 3763, 3766, 3767, 3768, 3769, 3770, 3771, 3772, 3773, 3774, 3775, 3776, 3777, 3778, 3780, 3781, 3782, 3783, 3784, 3785, 3786, 4153					
	Western Slopes Dry Sclerophyll Forests This includes PCT's: 54, 110, 179, 217, 243, 255, 270, 273, 287, 291, 309, 321, 322, 323, 324, 325, 327, 330, 331, 333, 341, 343, 346, 348, 354, 358, 379, 387, 396, 398, 399, 401, 402, 403, 404, 405, 406, 407, 408, 409, 414, 415, 417, 419, 420,	Western Slopes Dry Sclerophyll Forests <50%	479_Mod_Good	Yes	191	Kerrabee, Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	423, 425, 430, 431, 440, 443, 449, 455, 456, 457, 459, 462, 463, 467, 468, 469, 470, 471, 472, 473, 476, 477, 478, 479, 480, 482, 515, 531, 532, 576, 577, 581, 592, 610, 617, 671, 673, 676, 712, 713, 714, 746, 863, 889, 940, 956, 1133, 1176, 1277, 1278, 1279, 1307, 1313, 1314, 1316, 1381, 1398, 1610, 1629, 1654, 1655, 1656, 1657, 1660, 1661, 1663, 1668, 1669, 1671, 1672, 1674, 1676, 1677, 1678, 1679, 1680, 1709, 1711, 1770, 1771, 3753, 3754, 3756, 3757, 3758, 3759, 3760, 3761, 3762, 3763, 3766, 3767, 3768, 3769, 3770, 3771, 3772, 3773, 3774, 3775, 3776, 3777, 3778, 3780, 3781, 3782, 3783, 3784, 3785, 3786, 4153					
	Western Slopes Dry	Western Slopes Dry	479_Thinned	Yes	46	Kerrabee, Hunter, Inland Slopes,

	Sclerophyll Forests This includes PCT's: 54, 110, 179, 217, 243, 255, 270, 273, 287, 291, 309, 321, 322, 323, 324, 325, 327, 330, 331, 333, 341, 343, 346, 348, 354, 358, 379, 387, 396, 398, 399, 401, 402, 403, 404, 405, 406, 407, 408, 409, 414, 415, 417, 419, 420, 423, 425, 430, 431, 440, 443, 449, 455, 456, 457, 459, 462, 463, 467, 468, 469, 470, 471, 472, 473, 476, 477, 478, 479, 480, 482, 515, 531, 532, 576, 577, 581, 592, 610, 617, 671, 673, 676, 712, 713, 714, 746, 863, 889, 940, 956, 1133, 1176, 1277, 1278, 1279, 1307, 1313, 1314, 1316, 1381, 1398, 1610, 1629, 1654, 1655, 1656, 1657, 1660, 1661, 1663, 1668, 1669, 1671, 1672, 1674, 1676, 1677,	Sclerophyll Forests <50%				Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	1678, 1679, 1680, 1709, 1711, 1770, 1771, 3753, 3754, 3756, 3757, 3758, 3759, 3760, 3761, 3762, 3763, 3766, 3767, 3768, 3769, 3770, 3771, 3772, 3773, 3774, 3775, 3776, 3777, 3778, 3780, 3781, 3782, 3783, 3784, 3785, 3786, 4153					
481-Rough-barked Apple - Blakely's Red Gum - Narrow-leaved Stringybark +/- Grey Gum sandstone riparian grass fern open forest on in the southern Brigalow Belt South Bioregion and Upper Hunter region	**Like-for-like credit retirement options**					
	Class	Trading group	Zone	HBT	Credits	IBRA region

North Coast Dry Sclerophyll Forests This includes PCT's: 481, 646, 647, 658, 682, 683, 688, 696, 974, 975, 976, 1072, 1136, 2247, 2250, 3557, 3558, 3559, 3560, 3561, 3563, 3564, 3565, 3566, 3567, 3568, 3569, 3570, 3571, 3572, 3573, 3574, 3575, 3576, 3577	North Coast Dry Sclerophyll Forests <50%	481_DNG	No	0	Kerrabee, Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
North Coast Dry Sclerophyll Forests This includes PCT's: 481, 646, 647, 658, 682, 683, 688, 696, 974, 975, 976, 1072, 1136, 2247, 2250, 3557, 3558, 3559, 3560, 3561, 3563, 3564, 3565, 3566, 3567, 3568, 3569, 3570, 3571, 3572, 3573, 3574, 3575, 3576, 3577	North Coast Dry Sclerophyll Forests <50%	481_Thinned	Yes	2	Kerrabee, Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

599-Blakely's Red Gum - Yellow Box grassy tall woodland on flats and hills in the Brigalow Belt South Bioregion and Nandewar Bioregion	**Like-for-like credit retirement options**					
	Name of offset trading group	Trading group	Zone	HBT	Credits	IBRA region
	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla This includes PCT's: 74, 75, 83, 250, 266, 267, 268, 270, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 298, 302, 312, 341, 342, 347, 350, 352, 356, 367, 381, 382, 395, 401, 403, 421, 433, 434, 435, 436, 437, 451, 483, 484, 488, 492, 496, 508, 509, 510, 511, 528, 538, 544, 563, 567, 571, 589, 590, 597, 599,	-	599_DNG	No	0	Kerrabee, Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	618, 619, 622, 633, 654, 702, 703, 704, 705, 710, 711, 796, 797, 799, 840, 847, 851, 921, 1099, 1103, 1303, 1304, 1307, 1324, 1329, 1330, 1331, 1332, 1333, 1334, 1383, 1401, 1512, 1606, 1608, 1611, 1691, 1693, 1695, 1698, 3314, 3359, 3363, 3373, 3376, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3406, 3415, 3533, 4147, 4149, 4150					
	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla This includes PCT's: 74, 75, 83, 250, 266, 267, 268, 270, 274, 275, 276,	-	599_Mod_Good	Yes	44	Kerrabee, Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	277, 278, 279, 280, 281, 282, 283, 284, 286, 298, 302, 312, 341, 342, 347, 350, 352, 356, 367, 381, 382, 395, 401, 403, 421, 433, 434, 435, 436, 437, 451, 483, 484, 488, 492, 496, 508, 509, 510, 511, 528, 538, 544, 563, 567, 571, 589, 590, 597, 599, 618, 619, 622, 633, 654, 702, 703, 704, 705, 710, 711, 796, 797, 799, 840, 847, 851, 921, 1099, 1103, 1303, 1304, 1307, 1324, 1329, 1330, 1331, 1332, 1333, 1334, 1383, 1401, 1512, 1606, 1608, 1611, 1691, 1693, 1695, 1698, 3314, 3359, 3363, 3373, 3376, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3406, 3415, 3533, 4147, 4149, 4150					
	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and	-	599_Thinned	Yes	49	Kerrabee, Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo.

	Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla This includes PCT's: 74, 75, 83, 250, 266, 267, 268, 270, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 298, 302, 312, 341, 342, 347, 350, 352, 356, 367, 381, 382, 395, 401, 403, 421, 433, 434, 435, 436, 437, 451, 483, 484, 488, 492, 496, 508, 509, 510, 511, 528, 538, 544, 563, 567, 571, 589, 590, 597, 599, 618, 619, 622, 633, 654, 702, 703, 704, 705, 710, 711, 796, 797, 799, 840, 847, 851, 921, 1099, 1103, 1303, 1304, 1307, 1324, 1329, 1330, 1331, 1332, 1333, 1334, 1383,					or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	1401, 1512, 1606, 1608, 1611, 1691, 1693, 1695, 1698, 3314, 3359, 3363, 3373, 3376, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3406, 3415, 3533, 4147, 4149, 4150					
618-White Box x Grey Box - red gum - Rough-barked Apple grassy woodland on rich soils on hills in the upper Hunter Valley	**Like-for-like credit retirement options**					
	Name of offset trading group	Trading group	Zone	HBT	Credits	IBRA region
	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla This includes PCT's: 74, 75, 83, 250, 266, 267, 268, 270, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 298, 302, 312, 341, 342, 347,	-	618_DNG	No	93	Kerrabee, Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	350, 352, 356, 367, 381, 382, 395, 401, 403, 421, 433, 434, 435, 436, 437, 451, 483, 484, 488, 492, 496, 508, 509, 510, 511, 528, 538, 544, 563, 567, 571, 589, 590, 597, 599, 618, 619, 622, 633, 654, 702, 703, 704, 705, 710, 711, 796, 797, 799, 840, 847, 851, 921, 1099, 1103, 1303, 1304, 1307, 1324, 1329, 1330, 1331, 1332, 1333, 1334, 1383, 1401, 1512, 1606, 1608, 1611, 1691, 1693, 1695, 1698, 3314, 3359, 3363, 3373, 3376, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3406, 3415, 3533, 4147, 4149, 4150					
	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New	-	618_Mod_Good	Yes	196	Kerrabee, Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the

	England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla This includes PCT's: 74, 75, 83, 250, 266, 267, 268, 270, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 298, 302, 312, 341, 342, 347, 350, 352, 356, 367, 381, 382, 395, 401, 403, 421, 433, 434, 435, 436, 437, 451, 483, 484, 488, 492, 496, 508, 509, 510, 511, 528, 538, 544, 563, 567, 571, 589, 590, 597, 599, 618, 619, 622, 633, 654, 702, 703, 704, 705, 710, 711, 796, 797, 799, 840, 847, 851, 921, 1099, 1103, 1303, 1304, 1307, 1324, 1329, 1330, 1331, 1332, 1333, 1334, 1383, 1401, 1512, 1606, 1608, 1611, 1691, 1693, 1695, 1698, 3314, 3359, 3363,					impacted site.

	3373, 3376, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3406, 3415, 3533, 4147, 4149, 4150					
	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla This includes PCT's: 74, 75, 83, 250, 266, 267, 268, 270, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 298, 302, 312, 341, 342, 347, 350, 352, 356, 367, 381, 382, 395, 401, 403, 421, 433, 434, 435, 436, 437, 451, 483, 484, 488, 492, 496, 508, 509, 510, 511, 528, 538, 544, 563, 567, 571, 589, 590, 597, 599,	-	618_Thinned	Yes	181	Kerrabee, Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	618, 619, 622, 633, 654, 702, 703, 704, 705, 710, 711, 796, 797, 799, 840, 847, 851, 921, 1099, 1103, 1303, 1304, 1307, 1324, 1329, 1330, 1331, 1332, 1333, 1334, 1383, 1401, 1512, 1606, 1608, 1611, 1691, 1693, 1695, 1698, 3314, 3359, 3363, 3373, 3376, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3406, 3415, 3533, 4147, 4149, 4150					

Species Credit Summary

Species	Vegetation Zone/s	Area / Count	Credits
Aprasia parapulchella / Pink-tailed Legless Lizard	**42_Thinned, 440_Mod_Good, 440_Thinned**	1.4	43.00
Calyptorhynchus lathami / Glossy Black-Cockatoo	**599_Mod_Good**	1.1	25.00
Cercartetus nanus / Eastern Pygmy-possum	**42_Thinned, 440_Mod_Good, 440_Thinned**	1.4	43.00
Chalinolobus dwyeri / Large-eared Pied Bat	**440_Mod_Good, 618_Mod_Good**	1.7	63.00

Commersonia procumbens / Commersonia procumbens	**440_Mod_Good, 440_Thinned, 479_Mod_Good**	4.1	117.00
Delma impar / Striped Legless Lizard	**42_DNG, 42_Thinned, 618_DNG, 618_Mod_Good, 618_Thinned, 277_Mod_Good**	28.6	306.00
Dichanthium setosum / Bluegrass	**618_DNG, 618_Thinned**	2.0	21.00
Hoplocephalus bitorquatus / Pale-headed Snake	**42_Thinned, 440_Mod_Good, 440_Thinned**	1.4	43.00
Monotaxis macrophylla / Large-leafed Monotaxis	**440_Mod_Good, 440_Thinned, 479_Mod_Good**	4.1	117.00
Petaurus norfolcensis / Squirrel Glider	**42_Thinned, 281_Mod_Good, 281_Thinned, 440_Mod_Good, 277_Mod_Good, 440_Thinned**	14.5	447.00
Petrogale penicillata / Brush-tailed Rock-wallaby	**281_Thinned, 440_Mod_Good**	1.7	72.00
Phascolarctos cinereus / Koala	**42_Thinned, 277_Mod_Good, 281_Mod_Good, 281_Thinned, 440_Mod_Good, 440_Thinned, 479_Mod_Good, 479_Thinned, 618_Mod_Good, 618_Thinned**	44.3	1064.00
Tylophora linearis / Tylophora linearis	**479_Mod_Good, 479_Thinned**	3.1	85.00

Vespadelus troughtoni / Eastern Cave Bat	**440_Mod_Good**	0.8	34.00

Credit Retirement Options

Like-for-like credit retirement options

Aprasia parapulchella / Pink-tailed Legless Lizard	Spp	IBRA subregion
	Aprasia parapulchella / Pink-tailed Legless Lizard	Any in NSW
Calyptorhynchus lathami / Glossy Black-Cockatoo	Spp	IBRA subregion
	Calyptorhynchus lathami / Glossy Black-Cockatoo	Any in NSW
Cercartetus nanus / Eastern Pygmy-possum	Spp	IBRA subregion
	Cercartetus nanus / Eastern Pygmy-possum	Any in NSW
Chalinolobus dwyeri / Large-eared Pied Bat	Spp	IBRA subregion
	Chalinolobus dwyeri / Large-eared Pied Bat	Any in NSW
Commersonia procumbens / Commersonia procumbens	Spp	IBRA subregion
	Commersonia procumbens / Commersonia procumbens	Any in NSW
Delma impar / Striped Legless Lizard	Spp	IBRA subregion
	Delma impar / Striped Legless Lizard	Any in NSW

Dichanthium setosum / Bluegrass	Spp	IBRA subregion
	Dichanthium setosum / Bluegrass	Any in NSW
Hoplocephalus bitorquatus / Pale-headed Snake	Spp	IBRA subregion
	Hoplocephalus bitorquatus / Pale-headed Snake	Any in NSW
Monotaxis macrophylla / Large-leafed Monotaxis	Spp	IBRA subregion
	Monotaxis macrophylla / Large-leafed Monotaxis	Any in NSW
Petaurus norfolcensis / Squirrel Glider	Spp	IBRA subregion
	Petaurus norfolcensis / Squirrel Glider	Any in NSW
Petrogale penicillata / Brush-tailed Rock-wallaby	Spp	IBRA subregion
	Petrogale penicillata / Brush-tailed Rock-wallaby	Any in NSW
Phascolarctos cinereus / Koala	Spp	IBRA subregion
	Phascolarctos cinereus / Koala	Any in NSW
Tylophora linearis / Tylophora linearis	Spp	IBRA subregion

	Tylophora linearis / Tylophora linearis	Any in NSW
Vespadelus troughtoni / Eastern Cave Bat	Spp	IBRA subregion
	Vespadelus troughtoni / Eastern Cave Bat	Any in NSW

BAM Biodiversity Credit Report (Variations)

Proposal Details

Assessment Id
00038891/BAAS17060/23/00038892

Proposal Name
CWOREZ Kerrabee subregion - Valley of Winds

BAM data last updated *
22/06/2023

Assessor Name
Lukas Leslie Clews

Assessor Number
BAAS17060

BAM Data version *
61

Proponent Name(s)

Report Created
27/07/2023

BAM Case Status
Open

Assessment Revision
2

Assessment Type
Major Projects

Date Finalised
To be finalised

* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.

Potential Serious and Irreversible Impacts

Name of threatened ecological community	Listing status	Name of Plant Community Type/ID
Hunter Floodplain Red Gum Woodland in the NSW North Coast and Sydney Basin Bioregions	Endangered Ecological Community	42-River Red Gum / River Oak riparian woodland wetland in the Hunter Valley
White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla	Critically Endangered Ecological Community	277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion

White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla	Critically Endangered Ecological Community	281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla	Critically Endangered Ecological Community	599-Blakely's Red Gum - Yellow Box grassy tall woodland on flats and hills in the Brigalow Belt South Bioregion and Nandewar Bioregion
White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla	Critically Endangered Ecological Community	618-White Box x Grey Box - red gum - Rough-barked Apple grassy woodland on rich soils on hills in the upper Hunter Valley

Species
Chalinolobus dwyeri / Large-eared Pied Bat
Petrogale penicillata / Brush-tailed Rock-wallaby
Vespadelus troughtoni / Eastern Cave Bat

Additional Information for Approval

PCT Outside Ibra Added

PCT
42-River Red Gum / River Oak riparian woodland wetland in the Hunter Valley
277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion

440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
479-Narrow-leaved Ironbark- Black Cypress Pine - stringybark +/- Grey Gum +/- Narrow-leaved Wattle shrubby open forest on sandstone hills in the southern Brigalow Belt South Bioregion and Sydney Basin Bioregion

PCTs With Customized Benchmarks

PCT
No Changes

Predicted Threatened Species Not On Site

Name
No Changes

Ecosystem Credit Summary (Number and class of biodiversity credits to be retired)

Name of Plant Community Type/ID	Name of threatened ecological community	Area of impact	HBT Cr	No HBT Cr	Total credits to be retired
42-River Red Gum / River Oak riparian woodland wetland in the Hunter Valley	Hunter Floodplain Red Gum Woodland in the NSW North Coast and Sydney Basin Bioregions	0.8	19	5	24.00
277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla	0.1	8	0	8.00
281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla	13.6	519	0	519.00

440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion	Not a TEC	0.8	18	0	18.00
479-Narrow-leaved Ironbark- Black Cypress Pine - stringybark +/- Grey Gum +/- Narrow-leaved Wattle shrubby open forest on sandstone hills in the southern Brigalow Belt South Bioregion and Sydney Basin Bioregion	Not a TEC	11.5	237	0	237.00
481-Rough-barked Apple - Blakely's Red Gum - Narrow-leaved Stringybark +/- Grey Gum sandstone riparian grass fern open forest on in the southern Brigalow Belt South Bioregion and Upper Hunter region	Not a TEC	0.2	2	0	2.00
599-Blakely's Red Gum - Yellow Box grassy tall woodland on flats and hills in the Brigalow Belt South Bioregion and Nandewar Bioregion	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla	5.2	93	0	93.00
618-White Box x Grey Box - red gum - Rough-barked Apple grassy woodland on rich soils on hills in the upper Hunter Valley	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla	27.6	377	93	470.00

42-River Red Gum / River Oak riparian woodland wetland in the Hunter Valley

Like-for-like credit retirement options

Class	Trading group	Zone	HBT	Credits	IBRA region

	Hunter Floodplain Red Gum Woodland in the NSW North Coast and Sydney Basin Bioregions This includes PCT's: 42, 1106, 1698, 4089	-	42_DNG	No	5	Kerrabee,Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
	Hunter Floodplain Red Gum Woodland in the NSW North Coast and Sydney Basin Bioregions This includes PCT's: 42, 1106, 1698, 4089	-	42_Thinned	Yes	19	Kerrabee,Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
	Variation options					
	Formation	Trading group	Zone	HBT	Credits	IBRA region
	Forested Wetlands	Tier 1	42_DNG	No	5	IBRA Region: Sydney Basin, or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
	Forested Wetlands	Tier 1	42_Thinned	Yes (including artificial)	19	IBRA Region: Sydney Basin, or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion	**Like-for-like credit retirement options**					
	Class	Trading group	Zone	HBT	Credits	IBRA region
	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived	-	277_Mod_Good	Yes	8	Kerrabee,Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or

	Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla This includes PCT's: 74, 75, 83, 250, 266, 267, 268, 270, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 298, 302, 312, 341, 342, 347, 350, 352, 356, 367, 381, 382, 395, 401, 403, 421, 433, 434, 435, 436, 437, 451, 483, 484, 488, 492, 496, 508, 509, 510, 511, 528, 538, 544, 563, 567, 571, 589, 590, 597, 599, 618, 619, 622, 633, 654, 702, 703, 704, 705, 710, 711, 796, 797, 799, 840, 847, 851, 921, 1099, 1103, 1303, 1304, 1307, 1324, 1329, 1330, 1331, 1332, 1333, 1334, 1383, 1401, 1512, 1606, 1608, 1611, 1691, 1693, 1695, 1698, 3314, 3359, 3363, 3373, 3376, 3387, 3388, 3394, 3395, 3396, 3397, 3398,					Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	3399, 3406, 3415, 3533, 4147, 4149, 4150					
281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion	**Like-for-like credit retirement options**					
	Class	Trading group	Zone	HBT	Credits	IBRA region
	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla This includes PCT's: 74, 75, 83, 250, 266, 267, 268, 270, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 298, 302, 312, 341, 342, 347, 350, 352, 356, 367, 381, 382, 395, 401, 403, 421, 433, 434, 435, 436, 437, 451, 483, 484, 488, 492, 496, 508, 509, 510, 511, 528, 538, 544, 563, 567, 571, 589, 590, 597, 599, 618, 619, 622, 633, 654, 702, 703, 704, 705, 710, 711, 796, 797, 799, 840, 847, 851, 921, 1099, 1103,	-	281_Mod_ Good	Yes	284	Kerrabee,Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	1303, 1304, 1307, 1324, 1329, 1330, 1331, 1332, 1333, 1334, 1383, 1401, 1512, 1606, 1608, 1611, 1691, 1693, 1695, 1698, 3314, 3359, 3363, 3373, 3376, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3406, 3415, 3533, 4147, 4149, 4150					
	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla This includes PCT's: 74, 75, 83, 250, 266, 267, 268, 270, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 298, 302, 312, 341, 342, 347, 350, 352, 356, 367, 381, 382, 395, 401, 403, 421, 433, 434, 435, 436, 437, 451, 483, 484, 488, 492, 496, 508, 509, 510, 511, 528, 538, 544, 563, 567,	-	281_Thinned	Yes	235	Kerrabee,Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	571, 589, 590, 597, 599, 618, 619, 622, 633, 654, 702, 703, 704, 705, 710, 711, 796, 797, 799, 840, 847, 851, 921, 1099, 1103, 1303, 1304, 1307, 1324, 1329, 1330, 1331, 1332, 1333, 1334, 1383, 1401, 1512, 1606, 1608, 1611, 1691, 1693, 1695, 1698, 3314, 3359, 3363, 3373, 3376, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3406, 3415, 3533, 4147, 4149, 4150					
440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion	**Like-for-like credit retirement options**					
	Class	Trading group	Zone	HBT	Credits	IBRA region
	Western Slopes Dry Sclerophyll Forests This includes PCT's: 54, 110, 179, 217, 243, 255, 270, 273, 287, 291, 309, 321, 322, 323, 324, 325, 327, 330, 331, 333, 341, 343, 346, 348, 354, 358, 379, 387, 396, 398, 399, 401, 402, 403, 404, 405, 406, 407, 408, 409, 414, 415, 417, 419, 420, 423, 425, 430, 431, 440,	Western Slopes Dry Sclerophyll Forests <50%	440_Mod_ Good	Yes	17	Kerrabee,Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	443, 449, 455, 456, 457, 459, 462, 463, 467, 468, 469, 470, 471, 472, 473, 476, 477, 478, 479, 480, 482, 515, 531, 532, 576, 577, 581, 592, 610, 617, 671, 673, 676, 712, 713, 714, 746, 863, 889, 940, 956, 1133, 1176, 1277, 1278, 1279, 1307, 1313, 1314, 1316, 1381, 1398, 1610, 1629, 1654, 1655, 1656, 1657, 1660, 1661, 1663, 1668, 1669, 1671, 1672, 1674, 1676, 1677, 1678, 1679, 1680, 1709, 1711, 1770, 1771, 3753, 3754, 3756, 3757, 3758, 3759, 3760, 3761, 3762, 3763, 3766, 3767, 3768, 3769, 3770, 3771, 3772, 3773, 3774, 3775, 3776, 3777, 3778, 3780, 3781, 3782, 3783, 3784, 3785, 3786, 4153					
	Western Slopes Dry Sclerophyll Forests This includes PCT's: 54, 110, 179, 217, 243, 255, 270, 273, 287, 291, 309, 321, 322, 323, 324,	Western Slopes Dry Sclerophyll Forests <50%	440_Thinned	Yes	1	Kerrabee,Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	325, 327, 330, 331, 333, 341, 343, 346, 348, 354, 358, 379, 387, 396, 398, 399, 401, 402, 403, 404, 405, 406, 407, 408, 409, 414, 415, 417, 419, 420, 423, 425, 430, 431, 440, 443, 449, 455, 456, 457, 459, 462, 463, 467, 468, 469, 470, 471, 472, 473, 476, 477, 478, 479, 480, 482, 515, 531, 532, 576, 577, 581, 592, 610, 617, 671, 673, 676, 712, 713, 714, 746, 863, 889, 940, 956, 1133, 1176, 1277, 1278, 1279, 1307, 1313, 1314, 1316, 1381, 1398, 1610, 1629, 1654, 1655, 1656, 1657, 1660, 1661, 1663, 1668, 1669, 1671, 1672, 1674, 1676, 1677, 1678, 1679, 1680, 1709, 1711, 1770, 1771, 3753, 3754, 3756, 3757, 3758, 3759, 3760, 3761, 3762, 3763, 3766, 3767, 3768, 3769, 3770, 3771, 3772, 3773, 3774, 3775, 3776, 3777, 3778, 3780, 3781, 3782, 3783, 3784, 3785,					

	3786, 4153					
	Variation options					
	Formation	Trading group	Zone	HBT	Credits	IBRA region
	Dry Sclerophyll Forests (Shrubby sub-formation)	Tier 4 or higher threat status	440_Mod_Good	Yes (including artificial)	17	IBRA Region: Sydney Basin, or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
	Dry Sclerophyll Forests (Shrubby sub-formation)	Tier 4 or higher threat status	440_Thinned	Yes (including artificial)	1	IBRA Region: Sydney Basin, or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
479-Narrow-leaved Ironbark-Black Cypress Pine - stringybark +/- Grey Gum +/- Narrow-leaved Wattle shrubby open forest on sandstone hills in the southern Brigalow Belt South Bioregion and Sydney Basin Bioregion	**Like-for-like credit retirement options**					
	Class	Trading group	Zone	HBT	Credits	IBRA region
	Western Slopes Dry Sclerophyll Forests This includes PCT's: 54, 110, 179, 217, 243, 255, 270, 273, 287, 291, 309, 321, 322, 323, 324, 325, 327, 330, 331, 333, 341, 343, 346, 348, 354, 358, 379, 387, 396, 398, 399, 401, 402, 403, 404, 405, 406, 407, 408, 409, 414, 415, 417, 419, 420, 423, 425, 430, 431, 440, 443, 449, 455, 456, 457,	Western Slopes Dry Sclerophyll Forests <50%	479_DNG	No	0	Kerrabee,Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	459, 462, 463, 467, 468, 469, 470, 471, 472, 473, 476, 477, 478, 479, 480, 482, 515, 531, 532, 576, 577, 581, 592, 610, 617, 671, 673, 676, 712, 713, 714, 746, 863, 889, 940, 956, 1133, 1176, 1277, 1278, 1279, 1307, 1313, 1314, 1316, 1381, 1398, 1610, 1629, 1654, 1655, 1656, 1657, 1660, 1661, 1663, 1668, 1669, 1671, 1672, 1674, 1676, 1677, 1678, 1679, 1680, 1709, 1711, 1770, 1771, 3753, 3754, 3756, 3757, 3758, 3759, 3760, 3761, 3762, 3763, 3766, 3767, 3768, 3769, 3770, 3771, 3772, 3773, 3774, 3775, 3776, 3777, 3778, 3780, 3781, 3782, 3783, 3784, 3785, 3786, 4153					
	Western Slopes Dry Sclerophyll Forests This includes PCT's: 54, 110, 179, 217, 243, 255, 270, 273, 287, 291, 309, 321, 322, 323, 324, 325, 327, 330, 331, 333,	Western Slopes Dry Sclerophyll Forests <50%	479_Mod_Good	Yes	191	Kerrabee,Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	341, 343, 346, 348, 354, 358, 379, 387, 396, 398, 399, 401, 402, 403, 404, 405, 406, 407, 408, 409, 414, 415, 417, 419, 420, 423, 425, 430, 431, 440, 443, 449, 455, 456, 457, 459, 462, 463, 467, 468, 469, 470, 471, 472, 473, 476, 477, 478, 479, 480, 482, 515, 531, 532, 576, 577, 581, 592, 610, 617, 671, 673, 676, 712, 713, 714, 746, 863, 889, 940, 956, 1133, 1176, 1277, 1278, 1279, 1307, 1313, 1314, 1316, 1381, 1398, 1610, 1629, 1654, 1655, 1656, 1657, 1660, 1661, 1663, 1668, 1669, 1671, 1672, 1674, 1676, 1677, 1678, 1679, 1680, 1709, 1711, 1770, 1771, 3753, 3754, 3756, 3757, 3758, 3759, 3760, 3761, 3762, 3763, 3766, 3767, 3768, 3769, 3770, 3771, 3772, 3773, 3774, 3775, 3776, 3777, 3778, 3780, 3781, 3782, 3783, 3784, 3785, 3786, 4153					

	Western Slopes Dry Sclerophyll Forests This includes PCT's: 54, 110, 179, 217, 243, 255, 270, 273, 287, 291, 309, 321, 322, 323, 324, 325, 327, 330, 331, 333, 341, 343, 346, 348, 354, 358, 379, 387, 396, 398, 399, 401, 402, 403, 404, 405, 406, 407, 408, 409, 414, 415, 417, 419, 420, 423, 425, 430, 431, 440, 443, 449, 455, 456, 457, 459, 462, 463, 467, 468, 469, 470, 471, 472, 473, 476, 477, 478, 479, 480, 482, 515, 531, 532, 576, 577, 581, 592, 610, 617, 671, 673, 676, 712, 713, 714, 746, 863, 889, 940, 956, 1133, 1176, 1277, 1278, 1279, 1307, 1313, 1314, 1316, 1381, 1398, 1610, 1629, 1654, 1655, 1656, 1657, 1660, 1661, 1663, 1668, 1669, 1671, 1672, 1674, 1676, 1677, 1678, 1679, 1680, 1709, 1711, 1770, 1771, 3753, 3754, 3756, 3757, 3758,	Western Slopes Dry Sclerophyll Forests <50%	479_Thinned	Yes	46	Kerrabee,Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	3759, 3760, 3761, 3762, 3763, 3766, 3767, 3768, 3769, 3770, 3771, 3772, 3773, 3774, 3775, 3776, 3777, 3778, 3780, 3781, 3782, 3783, 3784, 3785, 3786, 4153					
	Variation options					
	Formation	Trading group	Zone	HBT	Credits	IBRA region
	Dry Sclerophyll Forests (Shrubby sub-formation)	Tier 4 or higher threat status	479_DNG	No	0	IBRA Region: Sydney Basin, or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
	Dry Sclerophyll Forests (Shrubby sub-formation)	Tier 4 or higher threat status	479_Mod_Good	Yes (including artificial)	191	IBRA Region: Sydney Basin, or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
	Dry Sclerophyll Forests (Shrubby sub-formation)	Tier 4 or higher threat status	479_Thinned	Yes (including artificial)	46	IBRA Region: Sydney Basin, or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

481-Rough-barked Apple - Blakely's Red Gum - Narrow-leaved Stringybark +/- Grey Gum sandstone riparian grass fern open forest on in the southern Brigalow Belt South Bioregion and Upper Hunter region

Like-for-like credit retirement options

Class	Trading group	Zone	HBT	Credits	IBRA region
North Coast Dry Sclerophyll Forests This includes PCT's: 481, 646, 647, 658, 682, 683, 688, 696, 974, 975, 976, 1072, 1136, 2247, 2250, 3557, 3558, 3559, 3560, 3561, 3563, 3564, 3565, 3566, 3567, 3568, 3569, 3570, 3571, 3572, 3573, 3574, 3575, 3576, 3577	North Coast Dry Sclerophyll Forests <50%	481_DNG	No	0	Kerrabee,Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
North Coast Dry Sclerophyll Forests This includes PCT's: 481, 646, 647, 658, 682, 683, 688, 696, 974, 975, 976, 1072, 1136, 2247, 2250, 3557, 3558, 3559, 3560, 3561, 3563, 3564, 3565, 3566, 3567, 3568, 3569, 3570, 3571, 3572, 3573, 3574, 3575, 3576, 3577	North Coast Dry Sclerophyll Forests <50%	481_Thinned	Yes	2	Kerrabee,Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

Variation options

Formation	Trading group	Zone	HBT	Credits	IBRA region

	Dry Sclerophyll Forests (Shrubby sub-formation)	Tier 4 or higher threat status	481_DNG	No	0	IBRA Region: Sydney Basin, or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
	Dry Sclerophyll Forests (Shrubby sub-formation)	Tier 4 or higher threat status	481_Thinned	Yes (including artificial)	2	IBRA Region: Sydney Basin, or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

599-Blakely's Red Gum - Yellow Box grassy tall woodland on flats and hills in the Brigalow Belt South Bioregion and Nandewar Bioregion	**Like-for-like credit retirement options**					
	Class	Trading group	Zone	HBT	Credits	IBRA region
	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla This includes PCT's: 74, 75, 83, 250, 266, 267, 268, 270, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 298, 302, 312, 341, 342, 347, 350, 352, 356, 367, 381, 382, 395, 401, 403, 421, 433, 434, 435, 436, 437,	-	599_DNG	No	0	Kerrabee,Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	451, 483, 484, 488, 492, 496, 508, 509, 510, 511, 528, 538, 544, 563, 567, 571, 589, 590, 597, 599, 618, 619, 622, 633, 654, 702, 703, 704, 705, 710, 711, 796, 797, 799, 840, 847, 851, 921, 1099, 1103, 1303, 1304, 1307, 1324, 1329, 1330, 1331, 1332, 1333, 1334, 1383, 1401, 1512, 1606, 1608, 1611, 1691, 1693, 1695, 1698, 3314, 3359, 3363, 3373, 3376, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3406, 3415, 3533, 4147, 4149, 4150					
	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla This includes PCT's: 74, 75, 83, 250, 266, 267, 268, 270, 274, 275, 276, 277, 278, 279, 280, 281,	-	599_Mod_Good	Yes	44	Kerrabee,Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	282, 283, 284, 286, 298, 302, 312, 341, 342, 347, 350, 352, 356, 367, 381, 382, 395, 401, 403, 421, 433, 434, 435, 436, 437, 451, 483, 484, 488, 492, 496, 508, 509, 510, 511, 528, 538, 544, 563, 567, 571, 589, 590, 597, 599, 618, 619, 622, 633, 654, 702, 703, 704, 705, 710, 711, 796, 797, 799, 840, 847, 851, 921, 1099, 1103, 1303, 1304, 1307, 1324, 1329, 1330, 1331, 1332, 1333, 1334, 1383, 1401, 1512, 1606, 1608, 1611, 1691, 1693, 1695, 1698, 3314, 3359, 3363, 3373, 3376, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3406, 3415, 3533, 4147, 4149, 4150					
	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin,	-	599_Thinned	Yes	49	Kerrabee,Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	South Eastern Highla This includes PCT's: 74, 75, 83, 250, 266, 267, 268, 270, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 298, 302, 312, 341, 342, 347, 350, 352, 356, 367, 381, 382, 395, 401, 403, 421, 433, 434, 435, 436, 437, 451, 483, 484, 488, 492, 496, 508, 509, 510, 511, 528, 538, 544, 563, 567, 571, 589, 590, 597, 599, 618, 619, 622, 633, 654, 702, 703, 704, 705, 710, 711, 796, 797, 799, 840, 847, 851, 921, 1099, 1103, 1303, 1304, 1307, 1324, 1329, 1330, 1331, 1332, 1333, 1334, 1383, 1401, 1512, 1606, 1608, 1611, 1691, 1693, 1695, 1698, 3314, 3359, 3363, 3373, 3376, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3406, 3415, 3533, 4147, 4149, 4150					

618-White Box x Grey Box - red gum - Rough-barked Apple grassy woodland on rich soils on hills in the upper Hunter Valley	Like-for-like credit retirement options					
	Class	Trading group	Zone	HBT	Credits	IBRA region
	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla This includes PCT's: 74, 75, 83, 250, 266, 267, 268, 270, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 298, 302, 312, 341, 342, 347, 350, 352, 356, 367, 381, 382, 395, 401, 403, 421, 433, 434, 435, 436, 437, 451, 483, 484, 488, 492, 496, 508, 509, 510, 511, 528, 538, 544, 563, 567, 571, 589, 590, 597, 599, 618, 619, 622, 633, 654, 702, 703, 704, 705, 710, 711, 796, 797, 799, 840, 847, 851, 921, 1099, 1103, 1303, 1304, 1307, 1324, 1329, 1330, 1331, 1332,	-	618_DNG	No	93	Kerrabee,Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	1333, 1334, 1383, 1401, 1512, 1606, 1608, 1611, 1691, 1693, 1695, 1698, 3314, 3359, 3363, 3373, 3376, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3406, 3415, 3533, 4147, 4149, 4150					
	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla This includes PCT's: 74, 75, 83, 250, 266, 267, 268, 270, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 298, 302, 312, 341, 342, 347, 350, 352, 356, 367, 381, 382, 395, 401, 403, 421, 433, 434, 435, 436, 437, 451, 483, 484, 488, 492, 496, 508, 509, 510, 511, 528, 538, 544, 563, 567, 571, 589, 590, 597, 599, 618, 619, 622, 633, 654,	-	618_Mod_Good	Yes	196	Kerrabee,Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	702, 703, 704, 705, 710, 711, 796, 797, 799, 840, 847, 851, 921, 1099, 1103, 1303, 1304, 1307, 1324, 1329, 1330, 1331, 1332, 1333, 1334, 1383, 1401, 1512, 1606, 1608, 1611, 1691, 1693, 1695, 1698, 3314, 3359, 3363, 3373, 3376, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3406, 3415, 3533, 4147, 4149, 4150					
	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla This includes PCT's: 74, 75, 83, 250, 266, 267, 268, 270, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 298, 302, 312, 341, 342, 347, 350, 352, 356, 367, 381, 382, 395, 401, 403, 421, 433, 434, 435, 436, 437,	-	618_Thinned	Yes	181	Kerrabee,Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	451, 483, 484, 488, 492, 496, 508, 509, 510, 511, 528, 538, 544, 563, 567, 571, 589, 590, 597, 599, 618, 619, 622, 633, 654, 702, 703, 704, 705, 710, 711, 796, 797, 799, 840, 847, 851, 921, 1099, 1103, 1303, 1304, 1307, 1324, 1329, 1330, 1331, 1332, 1333, 1334, 1383, 1401, 1512, 1606, 1608, 1611, 1691, 1693, 1695, 1698, 3314, 3359, 3363, 3373, 3376, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3406, 3415, 3533, 4147, 4149, 4150					

Species Credit Summary

Species	Vegetation Zone/s	Area / Count	Credits
Aprasia parapulchella / Pink-tailed Legless Lizard	**42_Thinned, 440_Mod_Good, 440_Thinned**	1.4	43.00
Calyptorhynchus lathami / Glossy Black-Cockatoo	**599_Mod_Good**	1.1	25.00
Cercartetus nanus / Eastern Pygmy-possum	**42_Thinned, 440_Mod_Good, 440_Thinned**	1.4	43.00
Chalinolobus dwyeri / Large-eared Pied Bat	**440_Mod_Good, 618_Mod_Good**	1.7	63.00
Commersonia procumbens / Commersonia procumbens	**440_Mod_Good, 440_Thinned, 479_Mod_Good**	4.1	117.00

Delma impar / Striped Legless Lizard	**42_DNG, 42_Thinned, 618_DNG, 618_Mod_Good, 618_Thinned, 277_Mod_Good**	28.6	306.00
Dichanthium setosum / Bluegrass	**618_DNG, 618_Thinned**	2.0	21.00
Hoplocephalus bitorquatus / Pale-headed Snake	**42_Thinned, 440_Mod_Good, 440_Thinned**	1.4	43.00
Monotaxis macrophylla / Large-leafed Monotaxis	**440_Mod_Good, 440_Thinned, 479_Mod_Good**	4.1	117.00
Petaurus norfolcensis / Squirrel Glider	**42_Thinned, 281_Mod_Good, 281_Thinned, 440_Mod_Good, 277_Mod_Good, 440_Thinned**	14.5	447.00
Petrogale penicillata / Brush-tailed Rock-wallaby	**281_Thinned, 440_Mod_Good**	1.7	72.00
Phascolarctos cinereus / Koala	**42_Thinned, 277_Mod_Good, 281_Mod_Good, 281_Thinned, 440_Mod_Good, 440_Thinned, 479_Mod_Good, 479_Thinned, 618_Mod_Good, 618_Thinned**	44.3	1064.00
Tylophora linearis / Tylophora linearis	**479_Mod_Good, 479_Thinned**	3.1	85.00
Vespadelus troughtoni / Eastern Cave Bat	**440_Mod_Good**	0.8	34.00

Credit Retirement Options

Like-for-like options

Aprasia parapulchella/ Pink-tailed Legless Lizard	Spp	IBRA region	
	Aprasia parapulchella/Pink-tailed Legless Lizard	Any in NSW	
	Variation options		
	Kingdom	Any species with same or higher category of listing	IBRA region

		under Part 4 of the BC Act shown below	
	Fauna	Vulnerable	Kerrabee, Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Calyptorhynchus lathami/ Glossy Black-Cockatoo	Spp	IBRA region	
	Calyptorhynchus lathami/Glossy Black-Cockatoo	Any in NSW	
	Variation options		
	Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act shown below	IBRA region
	Fauna	Vulnerable	Kerrabee, Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Cercartetus nanus/ Eastern Pygmy-possum	Spp	IBRA region	
	Cercartetus nanus/Eastern Pygmy-possum	Any in NSW	
	Variation options		

	Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act shown below	IBRA region
	Fauna	Vulnerable	Kerrabee, Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Chalinolobus dwyeri/ Large-eared Pied Bat	Spp	IBRA region	
	Chalinolobus dwyeri/Large-eared Pied Bat	Any in NSW	
	Variation options		
	Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act shown below	IBRA region
	Fauna	Vulnerable	Kerrabee, Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Commersonia procumbens/ Commersonia procumbens	Spp	IBRA region	

	Commersonia procumbens/Commersonia procumbens	Any in NSW	
	Variation options		
	Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act shown below	IBRA region
	Flora	Vulnerable	Kerrabee, Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Delma impar/ Striped Legless Lizard	Spp	IBRA region	
	Delma impar/Striped Legless Lizard	Any in NSW	
	Variation options		
	Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act shown below	IBRA region

	Fauna	Vulnerable	Kerrabee, Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Dichanthium setosum/ Bluegrass	Spp	IBRA region	
	Dichanthium setosum/Bluegrass	Any in NSW	
	Variation options		
	Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act shown below	IBRA region
	Flora		Kerrabee, Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Hoplocephalus bitorquatus/ Pale-headed Snake	Spp	IBRA region	
	Hoplocephalus bitorquatus/Pale-headed Snake	Any in NSW	
	Variation options		
	Kingdom	Any species with same or higher category of listing	IBRA region

		under Part 4 of the BC Act shown below	
	Fauna	Vulnerable	Kerrabee, Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Monotaxis macrophylla/ Large-leafed Monotaxis	Spp	IBRA region	
	Monotaxis macrophylla/Large-leafed Monotaxis	Any in NSW	
	Variation options		
	Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act shown below	IBRA region
	Flora	Endangered	Kerrabee, Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Petaurus norfolcensis/ Squirrel Glider	Spp	IBRA region	
	Petaurus norfolcensis/Squirrel Glider	Any in NSW	
	Variation options		

	Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act shown below	IBRA region
	Fauna	Vulnerable	Kerrabee, Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Petrogale penicillata/ Brush-tailed Rock-wallaby	Spp	IBRA region	
	Petrogale penicillata/Brush-tailed Rock-wallaby	Any in NSW	
	Variation options		
	Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act shown below	IBRA region
	Fauna	Endangered	Kerrabee, Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Phascolarctos cinereus/ Koala	Spp	IBRA region	

	Phascolarctos cinereus/Koala	Any in NSW	
	Variation options		
	Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act shown below	IBRA region
	Fauna	Endangered	Kerrabee, Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Tylophora linearis/ Tylophora linearis	Spp	IBRA region	
	Tylophora linearis/Tylophora linearis	Any in NSW	
	Variation options		
	Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act shown below	IBRA region

	Flora	Vulnerable	Kerrabee, Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Vespadelus troughtoni/ Eastern Cave Bat	Spp	IBRA region	
	Vespadelus troughtoni/Eastern Cave Bat	Any in NSW	
	Variation options		
	Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act shown below	IBRA region
	Fauna	Vulnerable	Kerrabee, Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

BAM Candidate Species Report

Proposal Details

Assessment Id 00038891/BAAS17060/23/00038892	Proposal Name CWOREZ Kerrabee subregion - Valley of Winds	BAM data last updated * 22/06/2023
Assessor Name Lukas Leslie Clews	Report Created 27/07/2023	BAM Data version * 61
Assessor Number BAAS17060	Assessment Type Major Projects	BAM Case Status Open
Assessment Revision 2	Date Finalised To be finalised	

* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.

List of Species Requiring Survey

Name	Presence	Survey Months
Acacia ausfeldii Ausfeld's Wattle	No (surveyed)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☑ Sep ☑ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Aprasia parapulchella Pink-tailed Legless Lizard	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Burhinus grallarius Bush Stone-curlew	No (surveyed)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☑ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?

Callocephalon fimbriatum Gang-gang Cockatoo	No (surveyed)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☑ Nov ☑ Dec ☐ Survey month outside the specified months?
Calyptorhynchus lathami Glossy Black-Cockatoo	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Cercartetus nanus Eastern Pygmy-possum	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Chalinolobus dwyeri Large-eared Pied Bat	Yes (surveyed)	☑ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Commersonia procumbens Commersonia procumbens	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Delma impar Striped Legless Lizard	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?

Dichanthium setosum Bluegrass	Yes (surveyed)	☐ Jan ☐ Feb ☑ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Homoranthus darwinioides Fairy Bells	No (surveyed)	☐ Jan ☐ Feb ☑ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☑ Sep ☑ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Hoplocephalus bitorquatus Pale-headed Snake	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Hoplocephalus stephensii Stephens' Banded Snake	No (surveyed)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☑ Dec ☐ Survey month outside the specified months?
Monotaxis macrophylla Large-leafed Monotaxis	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Ninox connivens Barking Owl	No (surveyed)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☑ Nov ☐ Dec ☐ Survey month outside the specified months?

Ninox strenua Powerful Owl	No (surveyed)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☑ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Petauroides volans Southern Greater Glider	No (surveyed)	☑ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☑ Aug ☐ Sep ☐ Oct ☑ Nov ☑ Dec ☐ Survey month outside the specified months?
Petaurus norfolcensis Squirrel Glider	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Petrogale penicillata Brush-tailed Rock-wallaby	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Phascolarctos cinereus Koala	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Pomaderris queenslandica Scant Pomaderris	No (surveyed)	☐ Jan ☐ Feb ☑ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☑ Sep ☑ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?

Prasophyllum petilum Tarengo Leek Orchid	No (surveyed)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☑ Sep ☑ Oct ☑ Nov ☐ Dec ☐ Survey month outside the specified months?
Tylophora linearis Tylophora linearis	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Tyto novaehollandiae Masked Owl	No (surveyed)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☑ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Vespadelus troughtoni Eastern Cave Bat	Yes (surveyed)	☑ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?

Threatened species Manually Added

Common Name	Scientific Name
Bluegrass	Dichanthium setosum

Threatened species assessed as not on site

Refer to BAR for detailed justification

Common name	Scientific name	Justification in the BAM-C
Brush-tailed Phascogale	Phascogale tapoatafa	Species is vagrant
Eucalyptus camaldulensis population in the Hunter catchment	Eucalyptus camaldulensis - endangered population	Refer to BAR
Grey-headed Flying-fox	Pteropus poliocephalus	Habitat constraints

Large Bent-winged Bat	Miniopterus orianae oceanensis	Habitat constraints
Little Bent-winged Bat	Miniopterus australis	Habitat constraints
Little Eagle	Hieraaetus morphnoides	Habitat constraints
Prasophyllum sp. Wybong	Prasophyllum sp. Wybong	Species is vagrant
Regent Honeyeater	Anthochaera phrygia	Habitat constraints
Square-tailed Kite	Lophoictinia isura	Habitat constraints
Swift Parrot	Lathamus discolor	Habitat constraints
White-bellied Sea-Eagle	Haliaeetus leucogaster	Habitat constraints
White-flowered Wax Plant	Cynanchum elegans	Habitat degraded

BAM Credit Summary Report

Proposal Details

Assessment Id
00038891/BAAS17060/23/00038892

Proposal Name
CWOREZ Kerrabee subregion - Valley of Winds

BAM data last updated *
22/06/2023

Assessor Name
Lukas Leslie Clews

Report Created
27/07/2023

BAM Data version *
61

Assessor Number
BAAS17060

BAM Case Status
Open

Date Finalised
To be finalised

Assessment Revision
2

Assessment Type
Major Projects

* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.

Ecosystem credits for plant communities types (PCT), ecological communities & threatened species habitat

Zone	Vegetation zone name	TEC name	Current Vegetation integrity score	Change in Vegetation integrity (loss / gain)	Area (ha)	Sensitivity to loss (Justification)	Species sensitivity to gain class	BC Act Listing status	EPBC Act listing status	Biodiversity risk weighting	Potential SAII	Ecosystem credits

Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion												
3	277_Mod_Good	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla	89.7	89.7	0.14	Population size	High Sensitivity to Gain	Critically Endangered Ecological Community	Not Listed	2.50	True	8
											Subtotal	**8**

Blakely's Red Gum - Yellow Box grassy tall woodland on flats and hills in the Brigalow Belt South Bioregion and Nandewar Bioregion												
13	599_DNG	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla	14.4	14.4	1.7	Population size	High Sensitivity to Gain	Critically Endangered Ecological Community	Not Listed	2.50	True	0

14	599_Mod_Good	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla	83.7	46.9	1.5	Population size	High Sensitivity to Gain	Critically Endangered Ecological Community	Not Listed	2.50	True	44

15	599_Thinned	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla	54.7	38.1	2.1	Population size	High Sensitivity to Gain	Critically Endangered Ecological Community	Not Listed	2.50	True	49
											Subtotal	**93**
Narrow-leaved Ironbark- Black Cypress Pine - stringybark +/- Grey Gum +/- Narrow-leaved Wattle shrubby open forest on sandstone hills in the southern Brigalow Belt South Bioregion and Sydney Basin Bioregion												
8	479_DNG	Not a TEC	8.8	8.8	0.16	PCT Cleared - 40%	High Sensitivity to Gain			1.50		0
9	479_Mod_Good	Not a TEC	75.8	57.5	8.8	PCT Cleared - 40%	High Sensitivity to Gain			1.50		191
10	479_Thinned	Not a TEC	62.4	50.4	2.4	PCT Cleared - 40%	High Sensitivity to Gain			1.50		46

											Subtotal	**237**
Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion												
6	440_Mod_Good	Not a TEC	72.1	58.4	0.78	PCT Cleared - 34%	High Sensitivity to Gain			1.50		17
7	440_Thinned	Not a TEC	60.4	60.4	0.03	PCT Cleared - 34%	High Sensitivity to Gain			1.50		1
											Subtotal	**18**
River Red Gum / River Oak riparian woodland wetland in the Hunter Valley												
1	42_DNG	Hunter Floodplain Red Gum Woodland in the NSW North Coast and Sydney Basin Bioregions	54.4	54.4	0.18	Population size	High Sensitivity to Gain	Endangered Ecological Community	Not Listed	2.00	True	5
2	42_Thinned	Hunter Floodplain Red Gum Woodland in the NSW North Coast and Sydney Basin Bioregions	97.3	62.2	0.62	Population size	High Sensitivity to Gain	Endangered Ecological Community	Not Listed	2.00	True	19
											Subtotal	**24**

Rough-barked Apple - Blakely's Red Gum - Narrow-leaved Stringybark +/- Grey Gum sandstone riparian grass fern open forest on in the southern Brigalow Belt South Bioregion and Upper Hunter region												
11	481_DNG	Not a TEC	10.5	10.5	0.05	PCT Cleared - 28%	High Sensitivity to Gain			1.50		0
12	481_Thinned	Not a TEC	76.8	49.7	0.12	PCT Cleared - 28%	High Sensitivity to Gain			1.50		2
											Subtotal	**2**
Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion												
4	281_Mod_Good	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla	93.6	68.2	6.7	Population size	High Sensitivity to Gain	Critically Endangered Ecological Community	Not Listed	2.50	True	284

5	281_Thinned	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla	84	54.7	6.9	Population size	High Sensitivity to Gain	Critically Endangered Ecological Community	Not Listed	2.50	True	235
											Subtotal	**519**

White Box x Grey Box - red gum - Rough-barked Apple grassy woodland on rich soils on hills in the upper Hunter Valley												
16	618_DNG	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla	16.6	16.6	9	Population size	High Sensitivity to Gain	Critically Endangered Ecological Community	Not Listed	2.50	True	93

17	618_Mod_Good	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla	65.7	42.5	7.4	Population size	High Sensitivity to Gain	Critically Endangered Ecological Community	Not Listed	2.50	True	196

18	618_Thinned	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla	45	25.8	11.2	Population size	High Sensitivity to Gain	Critically Endangered Ecological Community	Not Listed	2.50	True	181
											Subtotal	**470**
											Total	**1371**

Species credits for threatened species

Vegetation zone name	Habitat condition (Vegetation Integrity)	Change in habitat condition	Area (ha)/Count (no. individuals)	Sensitivity to loss (Justification)	Sensitivity to gain (Justification)	BC Act Listing status	EPBC Act listing status	Potential SAII	Species credits

Aprasia parapulchella / Pink-tailed Legless Lizard (Fauna)									
42_Thinned	62.2	62.2	0.62	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Vulnerable	False	19
440_Mod_Good	58.4	58.4	0.78	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Vulnerable	False	23
440_Thinned	60.4	60.4	0.03	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Vulnerable	False	1
								Subtotal	**43**
Calyptorhynchus lathami / Glossy Black-Cockatoo (Fauna)									
599_Mod_Good	46.9	46.9	1.1	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Vulnerable	False	25
								Subtotal	**25**
Cercartetus nanus / Eastern Pygmy-possum (Fauna)									
42_Thinned	62.2	62.2	0.62	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Not Listed	False	19

440_Mod_Good	58.4	58.4	0.78	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Not Listed	False	23
440_Thinned	60.4	60.4	0.03	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Not Listed	False	1
								Subtotal	**43**
Chalinolobus dwyeri / Large-eared Pied Bat (Fauna)									
440_Mod_Good	58.4	58.4	0.78	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Vulnerable	True	34
618_Mod_Good	42.5	42.5	0.91	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Vulnerable	True	29
								Subtotal	**63**
Commersonia procumbens / Commersonia procumbens (Flora)									
440_Mod_Good	58.4	58.4	0.48	Biodiversity Conservation Act listing status	Ability to colonise improved habitat	Vulnerable	Vulnerable	False	14

440_Thinned	60.4	60.4	0.03	Biodiversity Conservation Act listing status	Ability to colonise improved habitat	Vulnerable	Vulnerable	False	1
479_Mod_Good	57.5	57.5	3.6	Biodiversity Conservation Act listing status	Ability to colonise improved habitat	Vulnerable	Vulnerable	False	102
								Subtotal	**117**
Delma impar / Striped Legless Lizard (Fauna)									
42_DNG	54.4	54.4	0.18	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Vulnerable	False	4
42_Thinned	62.2	62.2	0.62	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Vulnerable	False	14
618_DNG	16.6	16.6	9	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Vulnerable	False	56

618_Mod_Good	42.5	42.5	7.4	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Vulnerable	False	118
618_Thinned	25.8	25.8	11.2	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Vulnerable	False	109
277_Mod_Good	89.7	89.7	0.14	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Vulnerable	False	5
								Subtotal	**306**
Dichanthium setosum / Bluegrass (Flora)									
618_DNG	16.6	16.6	1	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Vulnerable	False	8
618_Thinned	25.8	25.8	1	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Vulnerable	False	13
								Subtotal	**21**

Hoplocephalus bitorquatus / Pale-headed Snake (Fauna)									
42_Thinned	62.2	62.2	0.62	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	19
440_Mod_Good	58.4	58.4	0.78	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	23
440_Thinned	60.4	60.4	0.03	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	1
								Subtotal	**43**
Monotaxis macrophylla / Large-leafed Monotaxis (Flora)									
440_Mod_Good	58.4	58.4	0.48	Biodiversity Conservation Act listing status	Ability to colonise improved habitat	Endangered	Not Listed	False	14
440_Thinned	60.4	60.4	0.03	Biodiversity Conservation Act listing status	Ability to colonise improved habitat	Endangered	Not Listed	False	1
479_Mod_Good	57.5	57.5	3.6	Biodiversity Conservation Act listing status	Ability to colonise improved habitat	Endangered	Not Listed	False	102
								Subtotal	**117**

Petaurus norfolcensis / Squirrel Glider (Fauna)									
42_Thinned	62.2	62.2	0.62	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	19
281_Mod_Good	68.2	68.2	6.7	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	228
281_Thinned	54.7	54.7	6.2	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	170
440_Mod_Good	58.4	58.4	0.78	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	23
277_Mod_Good	89.7	89.7	0.14	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	6
440_Thinned	60.4	60.4	0.03	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	1
								Subtotal	**447**

Petrogale penicillata / Brush-tailed Rock-wallaby (Fauna)									
281_Thinned	54.7	54.7	0.92	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Endangered	Vulnerable	True	38
440_Mod_Good	58.4	58.4	0.78	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Endangered	Vulnerable	True	34
								Subtotal	**72**
Phascolarctos cinereus / Koala (Fauna)									
42_Thinned	62.2	62.2	0.62	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Endangered	False	19
277_Mod_Good	89.7	89.7	0.14	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Endangered	False	6
281_Mod_Good	68.2	68.2	6.7	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Endangered	False	228

281_Thinned	54.7	54.7	6.2	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Endangered	False	170
440_Mod_Good	58.4	58.4	0.78	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Endangered	False	23
440_Thinned	60.4	60.4	0.03	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Endangered	False	1
479_Mod_Good	57.5	57.5	8.8	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Endangered	False	254
479_Thinned	50.4	50.4	2.4	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Endangered	False	62
618_Mod_Good	42.5	42.5	7.4	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Endangered	False	157

618_Thinned	25.8	25.8	11.1	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Endangered	False	144
								Subtotal	**1064**
Tylophora linearis / Tylophora linearis (Flora)									
479_Mod_Good	57.5	57.5	2	Biodiversity Conservation Act listing status	Quantity class of viable seeds produced	Vulnerable	Endangered	False	56
479_Thinned	50.4	50.4	1.2	Biodiversity Conservation Act listing status	Quantity class of viable seeds produced	Vulnerable	Endangered	False	29
								Subtotal	**85**
Vespadelus troughtoni / Eastern Cave Bat (Fauna)									
440_Mod_Good	58.4	58.4	0.78	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	True	34
								Subtotal	**34**

BAM Predicted Species Report

Proposal Details

Assessment Id	Proposal Name	BAM data last updated *
00038891/BAAS17060/23/00038892	CWOREZ Kerrabee subregion - Valley of Winds	22/06/2023
Assessor Name	**Report Created**	**BAM Data version ***
Lukas Leslie Clews	27/07/2023	61
Assessor Number	**Assessment Type**	**BAM Case Status**
BAAS17060	Major Projects	Open
Assessment Revision		**Date Finalised**
2		To be finalised

* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.

Threatened species reliably predicted to utilise the site. No surveys are required for these species. Ecosystem credits apply to these species.

Common Name	Scientific Name	Vegetation Types(s)
Barking Owl	Ninox connivens	42-River Red Gum / River Oak riparian woodland wetland in the Hunter Valley
		277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
		281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
		479-Narrow-leaved Ironbark- Black Cypress Pine - stringybark +/- Grey Gum +/- Narrow-leaved Wattle shrubby open forest on sandstone hills in the southern Brigalow Belt South Bioregion and Sydney Basin Bioregion
		481-Rough-barked Apple - Blakely's Red Gum - Narrow-leaved Stringybark +/- Grey Gum sandstone riparian grass fern open forest on in the southern Brigalow Belt South Bioregion and Upper Hunter region

Barking Owl	Ninox connivens	599-Blakely's Red Gum - Yellow Box grassy tall woodland on flats and hills in the Brigalow Belt South Bioregion and Nandewar Bioregion
		618-White Box x Grey Box - red gum - Rough-barked Apple grassy woodland on rich soils on hills in the upper Hunter Valley
Black Falcon	Falco subniger	42-River Red Gum / River Oak riparian woodland wetland in the Hunter Valley
		277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
		281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		599-Blakely's Red Gum - Yellow Box grassy tall woodland on flats and hills in the Brigalow Belt South Bioregion and Nandewar Bioregion
Black-chinned Honeyeater (eastern subspecies)	Melithreptus gularis gularis	277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
		281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		599-Blakely's Red Gum - Yellow Box grassy tall woodland on flats and hills in the Brigalow Belt South Bioregion and Nandewar Bioregion
Brown Treecreeper (eastern subspecies)	Climacteris picumnus victoriae	42-River Red Gum / River Oak riparian woodland wetland in the Hunter Valley
		277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
		281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
		599-Blakely's Red Gum - Yellow Box grassy tall woodland on flats and hills in the Brigalow Belt South Bioregion and Nandewar Bioregion

Corben's Long-eared Bat	Nyctophilus corbeni	440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
		599-Blakely's Red Gum - Yellow Box grassy tall woodland on flats and hills in the Brigalow Belt South Bioregion and Nandewar Bioregion
Diamond Firetail	Stagonopleura guttata	42-River Red Gum / River Oak riparian woodland wetland in the Hunter Valley
		277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
		281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
		599-Blakely's Red Gum - Yellow Box grassy tall woodland on flats and hills in the Brigalow Belt South Bioregion and Nandewar Bioregion
Dusky Woodswallow	Artamus cyanopterus cyanopterus	277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
		281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
		479-Narrow-leaved Ironbark- Black Cypress Pine - stringybark +/- Grey Gum +/- Narrow-leaved Wattle shrubby open forest on sandstone hills in the southern Brigalow Belt South Bioregion and Sydney Basin Bioregion
		599-Blakely's Red Gum - Yellow Box grassy tall woodland on flats and hills in the Brigalow Belt South Bioregion and Nandewar Bioregion
Eastern Coastal Free-tailed Bat	Micronomus norfolkensis	42-River Red Gum / River Oak riparian woodland wetland in the Hunter Valley
Eastern False Pipistrelle	Falsistrellus tasmaniensis	42-River Red Gum / River Oak riparian woodland wetland in the Hunter Valley

Eastern False Pipistrelle	Falsistrellus tasmaniensis	277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
Flame Robin	Petroica phoenicea	42-River Red Gum / River Oak riparian woodland wetland in the Hunter Valley
		277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
		281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
		599-Blakely's Red Gum - Yellow Box grassy tall woodland on flats and hills in the Brigalow Belt South Bioregion and Nandewar Bioregion
Freckled Duck	Stictonetta naevosa	42-River Red Gum / River Oak riparian woodland wetland in the Hunter Valley
Gang-gang Cockatoo	Callocephalon fimbriatum	42-River Red Gum / River Oak riparian woodland wetland in the Hunter Valley
		277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
		281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
Glossy Black-Cockatoo	Calyptorhynchus lathami	42-River Red Gum / River Oak riparian woodland wetland in the Hunter Valley
		440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
		599-Blakely's Red Gum - Yellow Box grassy tall woodland on flats and hills in the Brigalow Belt South Bioregion and Nandewar Bioregion
Greater Broad-nosed Bat	Scoteanax rueppellii	42-River Red Gum / River Oak riparian woodland wetland in the Hunter Valley
Grey-crowned Babbler (eastern subspecies)	Pomatostomus temporalis temporalis	277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion

Grey-crowned Babbler (eastern subspecies)	Pomatostomus temporalis temporalis	281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		599-Blakely's Red Gum - Yellow Box grassy tall woodland on flats and hills in the Brigalow Belt South Bioregion and Nandewar Bioregion
Grey-headed Flying-fox	Pteropus poliocephalus	42-River Red Gum / River Oak riparian woodland wetland in the Hunter Valley
		277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
		281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
		599-Blakely's Red Gum - Yellow Box grassy tall woodland on flats and hills in the Brigalow Belt South Bioregion and Nandewar Bioregion
Hooded Robin (south-eastern form)	Melanodryas cucullata cucullata	277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
		281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
		599-Blakely's Red Gum - Yellow Box grassy tall woodland on flats and hills in the Brigalow Belt South Bioregion and Nandewar Bioregion
Large Bent-winged Bat	Miniopterus orianae oceanensis	42-River Red Gum / River Oak riparian woodland wetland in the Hunter Valley
		277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
		281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion

Large Bent-winged Bat	Miniopterus orianae oceanensis	440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
		599-Blakely's Red Gum - Yellow Box grassy tall woodland on flats and hills in the Brigalow Belt South Bioregion and Nandewar Bioregion
Little Bent-winged Bat	Miniopterus australis	42-River Red Gum / River Oak riparian woodland wetland in the Hunter Valley
Little Eagle	Hieraaetus morphnoides	42-River Red Gum / River Oak riparian woodland wetland in the Hunter Valley
		277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
		281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
		599-Blakely's Red Gum - Yellow Box grassy tall woodland on flats and hills in the Brigalow Belt South Bioregion and Nandewar Bioregion
Little Lorikeet	Glossopsitta pusilla	42-River Red Gum / River Oak riparian woodland wetland in the Hunter Valley
		277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
		281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
		479-Narrow-leaved Ironbark- Black Cypress Pine - stringybark +/- Grey Gum +/- Narrow-leaved Wattle shrubby open forest on sandstone hills in the southern Brigalow Belt South Bioregion and Sydney Basin Bioregion
		481-Rough-barked Apple - Blakely's Red Gum - Narrow-leaved Stringybark +/- Grey Gum sandstone riparian grass fern open forest on in the southern Brigalow Belt South Bioregion and Upper Hunter region

Little Lorikeet	Glossopsitta pusilla	599-Blakely's Red Gum - Yellow Box grassy tall woodland on flats and hills in the Brigalow Belt South Bioregion and Nandewar Bioregion
		618-White Box x Grey Box - red gum - Rough-barked Apple grassy woodland on rich soils on hills in the upper Hunter Valley
Masked Owl	Tyto novaehollandiae	277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
		281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
		599-Blakely's Red Gum - Yellow Box grassy tall woodland on flats and hills in the Brigalow Belt South Bioregion and Nandewar Bioregion
New Holland Mouse	Pseudomys novaehollandiae	440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
Painted Honeyeater	Grantiella picta	42-River Red Gum / River Oak riparian woodland wetland in the Hunter Valley
		277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
		281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
		479-Narrow-leaved Ironbark- Black Cypress Pine - stringybark +/- Grey Gum +/- Narrow-leaved Wattle shrubby open forest on sandstone hills in the southern Brigalow Belt South Bioregion and Sydney Basin Bioregion
		481-Rough-barked Apple - Blakely's Red Gum - Narrow-leaved Stringybark +/- Grey Gum sandstone riparian grass fern open forest on in the southern Brigalow Belt South Bioregion and Upper Hunter region

Painted Honeyeater	Grantiella picta	599-Blakely's Red Gum - Yellow Box grassy tall woodland on flats and hills in the Brigalow Belt South Bioregion and Nandewar Bioregion
		618-White Box x Grey Box - red gum - Rough-barked Apple grassy woodland on rich soils on hills in the upper Hunter Valley
Powerful Owl	Ninox strenua	281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
Regent Honeyeater	Anthochaera phrygia	42-River Red Gum / River Oak riparian woodland wetland in the Hunter Valley
		277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
		281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		479-Narrow-leaved Ironbark- Black Cypress Pine - stringybark +/- Grey Gum +/- Narrow-leaved Wattle shrubby open forest on sandstone hills in the southern Brigalow Belt South Bioregion and Sydney Basin Bioregion
		481-Rough-barked Apple - Blakely's Red Gum - Narrow-leaved Stringybark +/- Grey Gum sandstone riparian grass fern open forest on in the southern Brigalow Belt South Bioregion and Upper Hunter region
		599-Blakely's Red Gum - Yellow Box grassy tall woodland on flats and hills in the Brigalow Belt South Bioregion and Nandewar Bioregion
		618-White Box x Grey Box - red gum - Rough-barked Apple grassy woodland on rich soils on hills in the upper Hunter Valley
Rosenberg's Goanna	Varanus rosenbergi	281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
Scarlet Robin	Petroica boodang	42-River Red Gum / River Oak riparian woodland wetland in the Hunter Valley
		277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion

Scarlet Robin	Petroica boodang	281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
		599-Blakely's Red Gum - Yellow Box grassy tall woodland on flats and hills in the Brigalow Belt South Bioregion and Nandewar Bioregion
Speckled Warbler	Chthonicola sagittata	42-River Red Gum / River Oak riparian woodland wetland in the Hunter Valley
		277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
		281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
		599-Blakely's Red Gum - Yellow Box grassy tall woodland on flats and hills in the Brigalow Belt South Bioregion and Nandewar Bioregion
Spotted Harrier	Circus assimilis	42-River Red Gum / River Oak riparian woodland wetland in the Hunter Valley
		277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
		281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
		599-Blakely's Red Gum - Yellow Box grassy tall woodland on flats and hills in the Brigalow Belt South Bioregion and Nandewar Bioregion
Spotted-tailed Quoll	Dasyurus maculatus	42-River Red Gum / River Oak riparian woodland wetland in the Hunter Valley

Spotted-tailed Quoll	Dasyurus maculatus	277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
		281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
		599-Blakely's Red Gum - Yellow Box grassy tall woodland on flats and hills in the Brigalow Belt South Bioregion and Nandewar Bioregion
Square-tailed Kite	Lophoictinia isura	277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
		281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
		599-Blakely's Red Gum - Yellow Box grassy tall woodland on flats and hills in the Brigalow Belt South Bioregion and Nandewar Bioregion
		618-White Box x Grey Box - red gum - Rough-barked Apple grassy woodland on rich soils on hills in the upper Hunter Valley
Swift Parrot	Lathamus discolor	42-River Red Gum / River Oak riparian woodland wetland in the Hunter Valley
		277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
		281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion

Swift Parrot	Lathamus discolor	479-Narrow-leaved Ironbark- Black Cypress Pine - stringybark +/- Grey Gum +/- Narrow-leaved Wattle shrubby open forest on sandstone hills in the southern Brigalow Belt South Bioregion and Sydney Basin Bioregion
		599-Blakely's Red Gum - Yellow Box grassy tall woodland on flats and hills in the Brigalow Belt South Bioregion and Nandewar Bioregion
		618-White Box x Grey Box - red gum - Rough-barked Apple grassy woodland on rich soils on hills in the upper Hunter Valley
Turquoise Parrot	Neophema pulchella	277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
		281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
		479-Narrow-leaved Ironbark- Black Cypress Pine - stringybark +/- Grey Gum +/- Narrow-leaved Wattle shrubby open forest on sandstone hills in the southern Brigalow Belt South Bioregion and Sydney Basin Bioregion
		481-Rough-barked Apple - Blakely's Red Gum - Narrow-leaved Stringybark +/- Grey Gum sandstone riparian grass fern open forest on in the southern Brigalow Belt South Bioregion and Upper Hunter region
		599-Blakely's Red Gum - Yellow Box grassy tall woodland on flats and hills in the Brigalow Belt South Bioregion and Nandewar Bioregion
		618-White Box x Grey Box - red gum - Rough-barked Apple grassy woodland on rich soils on hills in the upper Hunter Valley
Varied Sittella	Daphoenositta chrysoptera	42-River Red Gum / River Oak riparian woodland wetland in the Hunter Valley
		277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
		281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion

Varied Sittella	Daphoenositta chrysoptera	440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
		599-Blakely's Red Gum - Yellow Box grassy tall woodland on flats and hills in the Brigalow Belt South Bioregion and Nandewar Bioregion
White-bellied Sea-Eagle	Haliaeetus leucogaster	42-River Red Gum / River Oak riparian woodland wetland in the Hunter Valley
		277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
		281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		599-Blakely's Red Gum - Yellow Box grassy tall woodland on flats and hills in the Brigalow Belt South Bioregion and Nandewar Bioregion
White-throated Needletail	Hirundapus caudacutus	42-River Red Gum / River Oak riparian woodland wetland in the Hunter Valley
		277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
		281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
		479-Narrow-leaved Ironbark- Black Cypress Pine - stringybark +/- Grey Gum +/- Narrow-leaved Wattle shrubby open forest on sandstone hills in the southern Brigalow Belt South Bioregion and Sydney Basin Bioregion
		481-Rough-barked Apple - Blakely's Red Gum - Narrow-leaved Stringybark +/- Grey Gum sandstone riparian grass fern open forest on in the southern Brigalow Belt South Bioregion and Upper Hunter region
		599-Blakely's Red Gum - Yellow Box grassy tall woodland on flats and hills in the Brigalow Belt South Bioregion and Nandewar Bioregion

White-throated Needletail	Hirundapus caudacutus	618-White Box x Grey Box - red gum - Rough-barked Apple grassy woodland on rich soils on hills in the upper Hunter Valley
Yellow-bellied Sheathtail-bat	Saccolaimus flaviventris	42-River Red Gum / River Oak riparian woodland wetland in the Hunter Valley
		277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
		281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
		599-Blakely's Red Gum - Yellow Box grassy tall woodland on flats and hills in the Brigalow Belt South Bioregion and Nandewar Bioregion

Threatened species Manually Added

None added

Threatened species assessed as not within the vegetation zone(s) for the PCT(s)

Refer to BAR for detailed justification

Common Name	Scientific Name	Justification in the BAM-C

BAM Vegetation Zones Report

Proposal Details

Assessment Id
00038891/BAAS17060/23/00038892

Assessment name
CWOREZ Kerrabee subregion - Valley of Winds

BAM data last updated *
22/06/2023

Assessor Name
Lukas Leslie Clews

Report Created
27/07/2023

BAM Data version *
61

Assessor Number
BAAS17060

Assessment Type
Major Projects

BAM Case Status
Open

Assessment Revision
2

Date Finalised
To be finalised

* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.

Vegetation Zones

#	Name	PCT	Condition	Area	Minimum number of plots	Management zones
1	42_DNG	42-River Red Gum / River Oak riparian woodland wetland in the Hunter Valley	DNG	0.18	1	A (0.18 ha)

2	42_Thinned	42-River Red Gum / River Oak riparian woodland wetland in the Hunter Valley	Thinned	0.62	1	A (0.2 ha) B (0.42 ha)
3	277_Mod_Good	277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion	Mod_Good	0.14	1	A (0.14 ha)
4	281_Mod_Good	281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion	Mod_Good	6.67	3	A (3.56 ha) B (3.11 ha)
5	281_Thinned	281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion	Thinned	6.88	3	A (2.55 ha) B (4.33 ha)
6	440_Mod_Good	440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion	Mod_Good	0.78	1	A (0.48 ha) B (0.3 ha)
7	440_Thinned	440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion	Thinned	0.03	1	A (0.03 ha)

8	479_DNG	479-Narrow-leaved Ironbark- Black Cypress Pine - stringybark +/- Grey Gum +/- Narrow-leaved Wattle shrubby open forest on sandstone hills in the southern Brigalow Belt South Bioregion and Sydney Basin Bioregion	DNG	0.16	1	A (0.16 ha)
9	479_Mod_Good	479-Narrow-leaved Ironbark- Black Cypress Pine - stringybark +/- Grey Gum +/- Narrow-leaved Wattle shrubby open forest on sandstone hills in the southern Brigalow Belt South Bioregion and Sydney Basin Bioregion	Mod_Good	8.85	3	A (4.31 ha) B (4.54 ha)
10	479_Thinned	479-Narrow-leaved Ironbark- Black Cypress Pine - stringybark +/- Grey Gum +/- Narrow-leaved Wattle shrubby open forest on sandstone hills in the southern Brigalow Belt South Bioregion and Sydney Basin Bioregion	Thinned	2.45	2	A (1.15 ha) B (1.3 ha)
11	481_DNG	481-Rough-barked Apple - Blakely's Red Gum - Narrow-leaved Stringybark +/- Grey Gum sandstone riparian grass fern open forest on in the southern Brigalow Belt South Bioregion and Upper Hunter region	DNG	0.05	1	A (0.05 ha)

12	481_Thinned	481-Rough-barked Apple - Blakely's Red Gum - Narrow-leaved Stringybark +/- Grey Gum sandstone riparian grass fern open forest on in the southern Brigalow Belt South Bioregion and Upper Hunter region	Thinned	0.12	1	A (0.03 ha) B (0.09 ha)
13	599_DNG	599-Blakely's Red Gum - Yellow Box grassy tall woodland on flats and hills in the Brigalow Belt South Bioregion and Nandewar Bioregion	DNG	1.68	1	A (1.68 ha)
14	599_Mod_Good	599-Blakely's Red Gum - Yellow Box grassy tall woodland on flats and hills in the Brigalow Belt South Bioregion and Nandewar Bioregion	Mod_Good	1.5	1	A (0.45 ha) B (1.05 ha)
15	599_Thinned	599-Blakely's Red Gum - Yellow Box grassy tall woodland on flats and hills in the Brigalow Belt South Bioregion and Nandewar Bioregion	Thinned	2.06	2	A (0.86 ha) B (1.2 ha)
16	618_DNG	618-White Box x Grey Box - red gum - Rough-barked Apple grassy woodland on rich soils on hills in the upper Hunter Valley	DNG	9.01	3	A (9.01 ha)
17	618_Mod_Good	618-White Box x Grey Box - red gum - Rough-barked Apple grassy woodland on rich soils on hills in the upper Hunter Valley	Mod_Good	7.37	3	A (3.03 ha) B (4.34 ha)

18	618_Thinned	618-White Box x Grey Box - red gum - Rough-barked Apple grassy woodland on rich soils on hills in the upper Hunter Valley	Thinned	11.25	3	A (4.25 ha) B (7 ha)

BAM Biodiversity Credit Report (Like for like)

Proposal Details

Assessment Id
00038226/BAAS17060/23/00038227

Proposal Name
CWOREZ Liverpool Ranges subregion - Liverpool Range

BAM data last updated *
14/04/2023

Assessor Name
Lukas Leslie Clews

Assessor Number
BAAS17060

BAM Data version *
58

Proponent Names

Report Created
15/06/2023

BAM Case Status
Open

Assessment Revision
2

Assessment Type
Major Projects

Date Finalised
To be finalised

* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.

Potential Serious and Irreversible Impacts

Name of threatened ecological community	Listing status	Name of Plant Community Type/ID
White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla	Critically Endangered Ecological Community	483-Grey Box x White Box grassy open woodland on basalt hills in the Merriwa region, upper Hunter Valley
Species		

Nil

Additional Information for Approval

PCT Outside Ibra Added

PCT
483-Grey Box x White Box grassy open woodland on basalt hills in the Merriwa region, upper Hunter Valley

PCTs With Customized Benchmarks

PCT
No Changes

Predicted Threatened Species Not On Site

Name
No Changes

Ecosystem Credit Summary (Number and class of biodiversity credits to be retired)

Name of Plant Community Type/ID	Name of threatened ecological community	Area of impact	HBT Cr	No HBT Cr	Total credits to be retired
483-Grey Box x White Box grassy open woodland on basalt hills in the Merriwa region, upper Hunter Valley	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla	60.3	1674	0	1674

483-Grey Box x White Box grassy open woodland on basalt hills in the Merriwa region, upper Hunter Valley	Like-for-like credit retirement options					
	Name of offset trading group	Trading group	Zone	HBT	Credits	IBRA region
	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla This includes PCT's: 74, 75, 83, 250, 266, 267, 268, 270, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 298, 302, 312, 341, 342, 347, 350, 352, 356, 367, 381, 382, 395, 401, 403, 421, 433, 434, 435, 436, 437, 451, 483, 484, 488, 492, 496, 508, 509, 510, 511, 528, 538, 544, 563, 567, 571, 589, 590, 597, 599, 618, 619, 622, 633, 654,	-	483_DNG	Yes	318	Liverpool Range, Hunter, Kerrabee, Liverpool Plains, Peel and Pilliga. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	702, 703, 704, 705, 710, 711, 796, 797, 799, 847, 851, 921, 1099, 1303, 1304, 1307, 1324, 1329, 1330, 1332, 1383, 1606, 1608, 1611, 1691, 1693, 1695, 1698, 3314, 3359, 3363, 3373, 3376, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3406, 3415, 3533, 4147, 4149, 4150					
	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla This includes PCT's: 74, 75, 83, 250, 266, 267, 268, 270, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 298,	-	483_Mod_Good	Yes	432	Liverpool Range, Hunter, Kerrabee, Liverpool Plains, Peel and Pilliga. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	302, 312, 341, 342, 347, 350, 352, 356, 367, 381, 382, 395, 401, 403, 421, 433, 434, 435, 436, 437, 451, 483, 484, 488, 492, 496, 508, 509, 510, 511, 528, 538, 544, 563, 567, 571, 589, 590, 597, 599, 618, 619, 622, 633, 654, 702, 703, 704, 705, 710, 711, 796, 797, 799, 847, 851, 921, 1099, 1303, 1304, 1307, 1324, 1329, 1330, 1332, 1383, 1606, 1608, 1611, 1691, 1693, 1695, 1698, 3314, 3359, 3363, 3373, 3376, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3406, 3415, 3533, 4147, 4149, 4150					
	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New	-	483_Poor	Yes	105	Liverpool Range, Hunter, Kerrabee, Liverpool Plains, Peel and Pilliga. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla This includes PCT's: 74, 75, 83, 250, 266, 267, 268, 270, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 298, 302, 312, 341, 342, 347, 350, 352, 356, 367, 381, 382, 395, 401, 403, 421, 433, 434, 435, 436, 437, 451, 483, 484, 488, 492, 496, 508, 509, 510, 511, 528, 538, 544, 563, 567, 571, 589, 590, 597, 599, 618, 619, 622, 633, 654, 702, 703, 704, 705, 710, 711, 796, 797, 799, 847, 851, 921, 1099, 1303, 1304, 1307, 1324, 1329, 1330, 1332, 1383, 1606, 1608, 1611, 1691, 1693, 1695, 1698, 3314, 3359, 3363, 3373, 3376, 3387, 3388, 3394, 3395, 3396,					

	3397, 3398, 3399, 3406, 3415, 3533, 4147, 4149, 4150					
	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla This includes PCT's: 74, 75, 83, 250, 266, 267, 268, 270, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 298, 302, 312, 341, 342, 347, 350, 352, 356, 367, 381, 382, 395, 401, 403, 421, 433, 434, 435, 436, 437, 451, 483, 484, 488, 492, 496, 508, 509, 510, 511, 528, 538, 544, 563, 567, 571, 589, 590, 597, 599, 618, 619, 622, 633, 654,	-	483_Thinned	Yes	819	Liverpool Range, Hunter, Kerrabee, Liverpool Plains, Peel and Pilliga. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	702, 703, 704, 705, 710, 711, 796, 797, 799, 847, 851, 921, 1099, 1303, 1304, 1307, 1324, 1329, 1330, 1332, 1383, 1606, 1608, 1611, 1691, 1693, 1695, 1698, 3314, 3359, 3363, 3373, 3376, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3406, 3415, 3533, 4147, 4149, 4150					

Species Credit Summary

Species	Vegetation Zone/s	Area / Count	Credits
Dichanthium setosum / Bluegrass	**483_DNG, 483_Thinned**	7.4	124.00
Phascolarctos cinereus / Koala	**483_Mod_Good, 483_Poor, 483_Thinned**	43.5	1077.00

Credit Retirement Options

Like-for-like credit retirement options

	Spp	IBRA subregion
Dichanthium setosum / Bluegrass	**Dichanthium setosum /** Bluegrass	Any in NSW

Phascolarctos cinereus / Koala	Spp	IBRA subregion
	Phascolarctos cinereus / Koala	Any in NSW

BAM Biodiversity Credit Report (Variations)

Proposal Details

Assessment Id
00038226/BAAS17060/23/00038227

Proposal Name
CWOREZ Liverpool Ranges subregion - Liverpool Range

BAM data last updated *
14/04/2023

Assessor Name
Lukas Leslie Clews

Assessor Number
BAAS17060

BAM Data version *
58

Proponent Name(s)

Report Created
15/06/2023

BAM Case Status
Open

Assessment Revision
2

Assessment Type
Major Projects

Date Finalised
To be finalised

* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.

Potential Serious and Irreversible Impacts

Name of threatened ecological community	Listing status	Name of Plant Community Type/ID
White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla	Critically Endangered Ecological Community	483-Grey Box x White Box grassy open woodland on basalt hills in the Merriwa region, upper Hunter Valley

Species
Nil

Additional Information for Approval

PCT Outside Ibra Added

PCT
483-Grey Box x White Box grassy open woodland on basalt hills in the Merriwa region, upper Hunter Valley

PCTs With Customized Benchmarks

PCT
No Changes

Predicted Threatened Species Not On Site

Name
No Changes

Ecosystem Credit Summary (Number and class of biodiversity credits to be retired)

Name of Plant Community Type/ID	Name of threatened ecological community	Area of impact	HBT Cr	No HBT Cr	Total credits to be retired
483-Grey Box x White Box grassy open woodland on basalt hills in the Merriwa region, upper Hunter Valley	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla	60.3	1674	0	1674.00

483-Grey Box x White Box grassy open woodland on basalt hills in the Merriwa region, upper Hunter Valley

Like-for-like credit retirement options

Class	Trading group	Zone	HBT	Credits	IBRA region
White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt	-	483_DNG	Yes	318	Liverpool Range,Hunter, Kerrabee, Liverpool Plains, Peel and Pilliga. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	South, Sydney Basin, South Eastern Highla This includes PCT's: 74, 75, 83, 250, 266, 267, 268, 270, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 298, 302, 312, 341, 342, 347, 350, 352, 356, 367, 381, 382, 395, 401, 403, 421, 433, 434, 435, 436, 437, 451, 483, 484, 488, 492, 496, 508, 509, 510, 511, 528, 538, 544, 563, 567, 571, 589, 590, 597, 599, 618, 619, 622, 633, 654, 702, 703, 704, 705, 710, 711, 796, 797, 799, 847, 851, 921, 1099, 1303, 1304, 1307, 1324, 1329, 1330, 1332, 1383, 1606, 1608, 1611, 1691, 1693, 1695, 1698, 3314, 3359, 3363, 3373, 3376, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3406, 3415, 3533, 4147, 4149, 4150					
	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived	-	483_Mod_ Good	Yes	432	Liverpool Range,Hunter, Kerrabee, Liverpool Plains, Peel and Pilliga. or

	Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla This includes PCT's: 74, 75, 83, 250, 266, 267, 268, 270, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 298, 302, 312, 341, 342, 347, 350, 352, 356, 367, 381, 382, 395, 401, 403, 421, 433, 434, 435, 436, 437, 451, 483, 484, 488, 492, 496, 508, 509, 510, 511, 528, 538, 544, 563, 567, 571, 589, 590, 597, 599, 618, 619, 622, 633, 654, 702, 703, 704, 705, 710, 711, 796, 797, 799, 847, 851, 921, 1099, 1303, 1304, 1307, 1324, 1329, 1330, 1332, 1383, 1606, 1608, 1611, 1691, 1693, 1695, 1698, 3314, 3359, 3363, 3373, 3376, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3406, 3415, 3533, 4147, 4149,					Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	4150					
	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla This includes PCT's: 74, 75, 83, 250, 266, 267, 268, 270, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 298, 302, 312, 341, 342, 347, 350, 352, 356, 367, 381, 382, 395, 401, 403, 421, 433, 434, 435, 436, 437, 451, 483, 484, 488, 492, 496, 508, 509, 510, 511, 528, 538, 544, 563, 567, 571, 589, 590, 597, 599, 618, 619, 622, 633, 654, 702, 703, 704, 705, 710, 711, 796, 797, 799, 847, 851, 921, 1099, 1303, 1304, 1307, 1324, 1329, 1330, 1332, 1383, 1606, 1608, 1611, 1691, 1693, 1695, 1698, 3314, 3359,	-	483_Poor	Yes	105	Liverpool Range,Hunter, Kerrabee, Liverpool Plains, Peel and Pilliga. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	3363, 3373, 3376, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3406, 3415, 3533, 4147, 4149, 4150					
	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla This includes PCT's: 74, 75, 83, 250, 266, 267, 268, 270, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 298, 302, 312, 341, 342, 347, 350, 352, 356, 367, 381, 382, 395, 401, 403, 421, 433, 434, 435, 436, 437, 451, 483, 484, 488, 492, 496, 508, 509, 510, 511, 528, 538, 544, 563, 567, 571, 589, 590, 597, 599, 618, 619, 622, 633, 654, 702, 703, 704, 705, 710, 711, 796, 797, 799, 847, 851, 921, 1099, 1303,	-	483_Thinned	Yes	819	Liverpool Range,Hunter, Kerrabee, Liverpool Plains, Peel and Pilliga. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	1304, 1307, 1324, 1329, 1330, 1332, 1383, 1606, 1608, 1611, 1691, 1693, 1695, 1698, 3314, 3359, 3363, 3373, 3376, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3406, 3415, 3533, 4147, 4149, 4150					

Species Credit Summary

Species	Vegetation Zone/s	Area / Count	Credits
Dichanthium setosum / Bluegrass	**483_DNG, 483_Thinned**	7.4	124.00
Phascolarctos cinereus / Koala	**483_Mod_Good, 483_Poor, 483_Thinned**	43.5	1077.00

Credit Retirement Options

Like-for-like options

Dichanthium setosum/ Bluegrass

Spp	IBRA region
Dichanthium setosum/Bluegrass	Any in NSW

Variation options

Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act shown below	IBRA region

	Flora	Vulnerable	Liverpool Range, Hunter, Kerrabee, Liverpool Plains, Peel and Pilliga. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Phascolarctos cinereus/ Koala	Spp	IBRA region	
	Phascolarctos cinereus/Koala	Any in NSW	
	Variation options		
	Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act shown below	IBRA region
	Fauna	Endangered	Liverpool Range, Hunter, Kerrabee, Liverpool Plains, Peel and Pilliga. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

BAM Candidate Species Report

Proposal Details

Assessment Id 00038226/BAAS17060/23/00038227	Proposal Name CWOREZ Liverpool Ranges subregion - Liverpool Range	BAM data last updated * 14/04/2023
Assessor Name Lukas Leslie Clews	Report Created 15/06/2023	BAM Data version * 58
Assessor Number BAAS17060	Assessment Type Major Projects	BAM Case Status Open
Assessment Revision 2	Date Finalised To be finalised	

* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.

List of Species Requiring Survey

Name	Presence	Survey Months
Dichanthium setosum Bluegrass	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Phascolarctos cinereus Koala	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?

Threatened species Manually Added

None added

Threatened species assessed as not on site

Refer to BAR for detailed justification

BAM Candidate Species Report

Common name	Scientific name	Justification in the BAM-C
Barking Owl	Ninox connivens	Refer to BAR
Pink-tailed Legless Lizard	Aprasia parapulchella	Refer to BAR
Regent Honeyeater	Anthochaera phrygia	Habitat constraints
Striped Legless Lizard	Delma impar	Refer to BAR
Swift Parrot	Lathamus discolor	Refer to BAR

BAM Credit Summary Report

Proposal Details

Assessment Id
00038226/BAAS17060/23/00038227

Proposal Name
CWOREZ Liverpool Ranges subregion - Liverpool Range

BAM data last updated *
14/04/2023

Assessor Name
Lukas Leslie Clews

Report Created
15/06/2023

BAM Data version *
58

Assessor Number
BAAS17060

BAM Case Status
Open

Date Finalised
To be finalised

Assessment Revision
2

Assessment Type
Major Projects

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Ecosystem credits for plant communities types (PCT), ecological communities & threatened species habitat

Zone	Vegetation zone name	TEC name	Current Vegetation integrity score	Change in Vegetation integrity (loss / gain)	Area (ha)	Sensitivity to loss (Justification)	Species sensitivity to gain class	BC Act Listing status	EPBC Act listing status	Biodiversity risk weighting	Potential SAII	Ecosystem credits

Grey Box x White Box grassy open woodland on basalt hills in the Merriwa region, upper Hunter Valley												
1	483_DNG	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla	30.9	30.9	16.5	Population size	High Sensitivity to Gain	Critically Endangered Ecological Community	Not Listed	2.50	True	318

2	483_Mod_Good	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla	85.1	53.1	13	Population size	High Sensitivity to Gain	Critically Endangered Ecological Community	Not Listed	2.50	True	432

3	483_Poor	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla	33.9	25.9	6.5	Population size	High Sensitivity to Gain	Critically Endangered Ecological Community	Not Listed	2.50	True	105

4	483_Thinned	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla	78.3	53.9	24.3	Population size	High Sensitivity to Gain	Critically Endangered Ecological Community	Not Listed	2.50	True	819
											Subtotal	**1674**
											Total	**1674**

Species credits for threatened species

Vegetation zone name	Habitat condition (Vegetation Integrity)	Change in habitat condition	Area (ha)/Count (no. individuals)	Sensitivity to loss (Justification)	Sensitivity to gain (Justification)	BC Act Listing status	EPBC Act listing status	Potential SAII	Species credits

Dichanthium setosum / Bluegrass (Flora)									
483_DNG	30.9	30.9	6.6	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Vulnerable	False	102
483_Thinned	53.9	53.9	0.82	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Vulnerable	False	22
								Subtotal	**124**
Phascolarctos cinereus / Koala (Fauna)									
483_Mod_Good	53.1	53.1	13	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Endangered	False	346
483_Poor	25.9	25.9	6.4	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Endangered	False	84
483_Thinned	53.9	53.9	24	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Endangered	False	647
								Subtotal	**1077**

BAM Predicted Species Report

Proposal Details

Assessment Id	Proposal Name	BAM data last updated *
00038226/BAAS17060/23/00038227	CWOREZ Liverpool Ranges subregion - Liverpool Range	14/04/2023
Assessor Name	**Report Created**	**BAM Data version ***
Lukas Leslie Clews	15/06/2023	58
Assessor Number	**Assessment Type**	**BAM Case Status**
BAAS17060	Major Projects	Open
Assessment Revision		**Date Finalised**
2		To be finalised

* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.

Threatened species reliably predicted to utilise the site. No surveys are required for these species. Ecosystem credits apply to these species.

Common Name	Scientific Name	Vegetation Types(s)
Barking Owl	Ninox connivens	483-Grey Box x White Box grassy open woodland on basalt hills in the Merriwa region, upper Hunter Valley
Little Lorikeet	Glossopsitta pusilla	483-Grey Box x White Box grassy open woodland on basalt hills in the Merriwa region, upper Hunter Valley
Painted Honeyeater	Grantiella picta	483-Grey Box x White Box grassy open woodland on basalt hills in the Merriwa region, upper Hunter Valley
Regent Honeyeater	Anthochaera phrygia	483-Grey Box x White Box grassy open woodland on basalt hills in the Merriwa region, upper Hunter Valley
Swift Parrot	Lathamus discolor	483-Grey Box x White Box grassy open woodland on basalt hills in the Merriwa region, upper Hunter Valley
Turquoise Parrot	Neophema pulchella	483-Grey Box x White Box grassy open woodland on basalt hills in the Merriwa region, upper Hunter Valley
White-throated Needletail	Hirundapus caudacutus	483-Grey Box x White Box grassy open woodland on basalt hills in the Merriwa region, upper Hunter Valley

Threatened species Manually Added

None added

Threatened species assessed as not within the vegetation zone(s) for the PCT(s)

Refer to BAR for detailed justification

BAM Predicted Species Report

Common Name	Scientific Name	Justification in the BAM-C

BAM Vegetation Zones Report

Proposal Details

Assessment Id
00038226/BAAS17060/23/00038227

Assessment name
CWOREZ Liverpool Ranges subregion - Liverpool Range

BAM data last updated *
14/04/2023

Assessor Name
Lukas Leslie Clews

Report Created
15/06/2023

BAM Data version *
58

Assessor Number
BAAS17060

Assessment Type
Major Projects

BAM Case Status
Open

Assessment Revision
2

Date Finalised
To be finalised

* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.

Vegetation Zones

#	Name	PCT	Condition	Area	Minimum number of plots	Management zones
1	483_DNG	483-Grey Box x White Box grassy open woodland on basalt hills in the Merriwa region, upper Hunter Valley	DNG	16.47	3	A (16.47 ha)

2	483_Mod_Good	483-Grey Box x White Box grassy open woodland on basalt hills in the Merriwa region, upper Hunter Valley	Mod_Good	13.02	3	A (4.79 ha) B (8.23 ha)
3	483_Poor	483-Grey Box x White Box grassy open woodland on basalt hills in the Merriwa region, upper Hunter Valley	Poor	6.48	3	A (3.21 ha) B (3.24 ha) HZ (0.03 ha)
4	483_Thinned	483-Grey Box x White Box grassy open woodland on basalt hills in the Merriwa region, upper Hunter Valley	Thinned	24.32	4	A (9.94 ha) B (14.33 ha) HZ (0.05 ha)

BAM Biodiversity Credit Report (Like for like)

Proposal Details

Assessment Id
00038224/BAAS17060/23/00038225

Proposal Name
CWOREZ Liverpool Ranges subregion - Valley of Winds

BAM data last updated *
14/04/2023

Assessor Name
Lukas Leslie Clews

Assessor Number
BAAS17060

BAM Data version *
58

Proponent Names

Report Created
13/06/2023

BAM Case Status
Open

Assessment Revision
2

Assessment Type
Major Projects

Date Finalised
To be finalised

* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.

Potential Serious and Irreversible Impacts

Name of threatened ecological community	Listing status	Name of Plant Community Type/ID
White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri	Critically Endangered Ecological Community	281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion

White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri	Critically Endangered Ecological Community	483-Grey Box x White Box grassy open woodland on basalt hills in the Merriwa region, upper Hunter Valley

Species
Nil

Additional Information for Approval

PCT Outside Ibra Added

PCT
281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion

PCTs With Customized Benchmarks

PCT
No Changes

Predicted Threatened Species Not On Site

Name
No Changes

BAM Biodiversity Credit Report (Like for like)

Ecosystem Credit Summary (Number and class of biodiversity credits to be retired)

Name of Plant Community Type/ID	Name of threatened ecological community	Area of impact	HBT Cr	No HBT Cr	Total credits to be retired
281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri	0.7	17	2	19
440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion	Not a TEC	1.1	13	0	13
483-Grey Box x White Box grassy open woodland on basalt hills in the Merriwa region, upper Hunter Valley	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri	7.9	270	0	270

281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion	Like-for-like credit retirement options					
	Name of offset trading group	Trading group	Zone	HBT	Credits	IBRA region
	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri This includes PCT's: 74, 75, 83, 250, 266, 267, 268, 270, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 298, 302, 312, 341, 342, 347, 350, 352, 356, 367, 381, 382, 395, 401, 403, 421, 433, 434, 435, 436, 437, 451, 483, 484, 488, 492, 496, 508, 509, 510, 511,	-	281_DNG	No	2	Liverpool Range, Hunter, Kerrabee, Liverpool Plains, Peel and Pilliga. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	528, 538, 544, 563, 567, 571, 589, 590, 597, 599, 618, 619, 622, 633, 654, 702, 703, 704, 705, 710, 711, 796, 797, 799, 847, 851, 921, 1099, 1303, 1304, 1307, 1324, 1329, 1330, 1332, 1383, 1606, 1608, 1611, 1691, 1693, 1695, 1698, 3314, 3359, 3363, 3373, 3376, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3406, 3415, 3533, 4147, 4149, 4150					
	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South	-	281_Thinned	Yes	17	Liverpool Range, Hunter, Kerrabee, Liverpool Plains, Peel and Pilliga. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	East Corner and Ri This includes PCT's: 74, 75, 83, 250, 266, 267, 268, 270, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 298, 302, 312, 341, 342, 347, 350, 352, 356, 367, 381, 382, 395, 401, 403, 421, 433, 434, 435, 436, 437, 451, 483, 484, 488, 492, 496, 508, 509, 510, 511, 528, 538, 544, 563, 567, 571, 589, 590, 597, 599, 618, 619, 622, 633, 654, 702, 703, 704, 705, 710, 711, 796, 797, 799, 847, 851, 921, 1099, 1303, 1304, 1307, 1324, 1329, 1330, 1332, 1383, 1606, 1608, 1611, 1691, 1693, 1695, 1698, 3314, 3359, 3363, 3373, 3376, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3406, 3415, 3533, 4147, 4149, 4150					

440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion

Like-for-like credit retirement options

Class	Trading group	Zone	HBT	Credits	IBRA region
Western Slopes Dry Sclerophyll Forests This includes PCT's: 54, 110, 179, 217, 243, 255, 270, 273, 287, 291, 309, 321, 322, 323, 324, 325, 327, 330, 331, 333, 341, 343, 346, 348, 354, 358, 379, 387, 396, 398, 399, 401, 402, 403, 404, 405, 406, 407, 408, 409, 414, 415, 417, 419, 420, 423, 425, 430, 431, 440, 443, 449, 455, 456, 457, 459, 462, 463, 467, 468, 469, 470, 471, 472, 473, 476, 477, 478, 479, 480, 482, 515, 531, 532, 576, 577, 581, 592, 610, 617,	Western Slopes Dry Sclerophyll Forests <50%	440_DNG	No	0	Liverpool Range, Hunter, Kerrabee, Liverpool Plains, Peel and Pilliga. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	671, 673, 676, 712, 713, 714, 746, 863, 889, 940, 956, 1133, 1176, 1277, 1278, 1279, 1307, 1313, 1314, 1316, 1381, 1610, 1654, 1655, 1656, 1660, 1661, 1663, 1668, 1669, 1671, 1672, 1674, 1676, 1679, 1709, 1711, 1770, 1771, 3753, 3754, 3756, 3757, 3758, 3759, 3760, 3761, 3762, 3763, 3766, 3767, 3768, 3769, 3770, 3771, 3772, 3773, 3774, 3775, 3776, 3777, 3778, 3780, 3781, 3782, 3783, 3784, 3785, 3786, 4153					
	Western Slopes Dry Sclerophyll Forests This includes PCT's: 54, 110, 179, 217, 243, 255, 270, 273, 287, 291, 309, 321, 322, 323, 324, 325, 327, 330, 331, 333, 341, 343, 346, 348, 354, 358, 379, 387, 396, 398, 399, 401, 402, 403, 404,	Western Slopes Dry Sclerophyll Forests <50%	440_Thinned	Yes	13	Liverpool Range, Hunter, Kerrabee, Liverpool Plains, Peel and Pilliga. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	405, 406, 407, 408, 409, 414, 415, 417, 419, 420, 423, 425, 430, 431, 440, 443, 449, 455, 456, 457, 459, 462, 463, 467, 468, 469, 470, 471, 472, 473, 476, 477, 478, 479, 480, 482, 515, 531, 532, 576, 577, 581, 592, 610, 617, 671, 673, 676, 712, 713, 714, 746, 863, 889, 940, 956, 1133, 1176, 1277, 1278, 1279, 1307, 1313, 1314, 1316, 1381, 1610, 1654, 1655, 1656, 1660, 1661, 1663, 1668, 1669, 1671, 1672, 1674, 1676, 1679, 1709, 1711, 1770, 1771, 3753, 3754, 3756, 3757, 3758, 3759, 3760, 3761, 3762, 3763, 3766, 3767, 3768, 3769, 3770, 3771, 3772, 3773, 3774, 3775, 3776, 3777, 3778, 3780, 3781, 3782, 3783, 3784, 3785, 3786, 4153					

483-Grey Box x White Box grassy open woodland on basalt hills in the Merriwa region, upper Hunter Valley	**Like-for-like credit retirement options**

Name of offset trading group	Trading group	Zone	HBT	Credits	IBRA region
White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri This includes PCT's: 74, 75, 83, 250, 266, 267, 268, 270, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 298, 302, 312, 341, 342, 347, 350, 352, 356, 367, 381, 382, 395, 401, 403, 421,	-	483_DNG	Yes	45	Liverpool Range, Hunter, Kerrabee, Liverpool Plains, Peel and Pilliga. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	433, 434, 435, 436, 437, 451, 483, 484, 488, 492, 496, 508, 509, 510, 511, 528, 538, 544, 563, 567, 571, 589, 590, 597, 599, 618, 619, 622, 633, 654, 702, 703, 704, 705, 710, 711, 796, 797, 799, 847, 851, 921, 1099, 1303, 1304, 1307, 1324, 1329, 1330, 1332, 1383, 1606, 1608, 1611, 1691, 1693, 1695, 1698, 3314, 3359, 3363, 3373, 3376, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3406, 3415, 3533, 4147, 4149, 4150					
	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin,	-	483_Thinned	Yes	225	Liverpool Range, Hunter, Kerrabee, Liverpool Plains, Peel and Pilliga. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri This includes PCT's: 74, 75, 83, 250, 266, 267, 268, 270, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 298, 302, 312, 341, 342, 347, 350, 352, 356, 367, 381, 382, 395, 401, 403, 421, 433, 434, 435, 436, 437, 451, 483, 484, 488, 492, 496, 508, 509, 510, 511, 528, 538, 544, 563, 567, 571, 589, 590, 597, 599, 618, 619, 622, 633, 654, 702, 703, 704, 705, 710, 711, 796, 797, 799, 847, 851, 921, 1099, 1303, 1304, 1307, 1324, 1329, 1330, 1332, 1383, 1606, 1608, 1611, 1691, 1693, 1695, 1698, 3314, 3359, 3363, 3373, 3376, 3387, 3388, 3394, 3395, 3396,					

	3397, 3398, 3399, 3406, 3415, 3533, 4147, 4149, 4150					

Species Credit Summary

Species	Vegetation Zone/s	Area / Count	Credits
Aprasia parapulchella / Pink-tailed Legless Lizard	**440_Thinned**	0.7	17.00
Cercartetus nanus / Eastern Pygmy-possum	**440_Thinned**	0.7	17.00
Dichanthium setosum / Bluegrass	**281_DNG, 281_Thinned, 483_DNG, 483_Thinned**	6.3	161.00
Hoplocephalus bitorquatus / Pale-headed Snake	**440_Thinned**	0.7	17.00
Petaurus norfolcensis / Squirrel Glider	**281_Thinned, 440_Thinned**	1.3	30.00
Phascolarctos cinereus / Koala	**281_Thinned, 440_Thinned, 483_Thinned**	6.7	206.00

Credit Retirement Options

Like-for-like credit retirement options

Aprasia parapulchella / Pink-tailed Legless Lizard	Spp	IBRA subregion
	Aprasia parapulchella / Pink-tailed Legless Lizard	Any in NSW
Cercartetus nanus / Eastern Pygmy-possum	Spp	IBRA subregion
	Cercartetus nanus / Eastern Pygmy-possum	Any in NSW

Dichanthium setosum / Bluegrass	Spp	IBRA subregion
	Dichanthium setosum / Bluegrass	Any in NSW
Hoplocephalus bitorquatus / Pale-headed Snake	Spp	IBRA subregion
	Hoplocephalus bitorquatus / Pale-headed Snake	Any in NSW
Petaurus norfolcensis / Squirrel Glider	Spp	IBRA subregion
	Petaurus norfolcensis / Squirrel Glider	Any in NSW
Phascolarctos cinereus / Koala	Spp	IBRA subregion
	Phascolarctos cinereus / Koala	Any in NSW

BAM Biodiversity Credit Report (Variations)

Proposal Details

Assessment Id
00038224/BAAS17060/23/00038225

Proposal Name
CWOREZ Liverpool Ranges subregion - Valley of Winds

BAM data last updated *
14/04/2023

Assessor Name
Lukas Leslie Clews

Assessor Number
BAAS17060

BAM Data version *
58

Proponent Name(s)

Report Created
13/06/2023

BAM Case Status
Open

Assessment Revision
2

Assessment Type
Major Projects

Date Finalised
To be finalised

* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.

Potential Serious and Irreversible Impacts

Name of threatened ecological community	Listing status	Name of Plant Community Type/ID
White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri	Critically Endangered Ecological Community	281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion

White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri	Critically Endangered Ecological Community	483-Grey Box x White Box grassy open woodland on basalt hills in the Merriwa region, upper Hunter Valley

Species
Nil

Additional Information for Approval

PCT Outside Ibra Added

PCT
281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion

PCTs With Customized Benchmarks

PCT
No Changes

Predicted Threatened Species Not On Site

Name
No Changes

Ecosystem Credit Summary (Number and class of biodiversity credits to be retired)

BAM Biodiversity Credit Report (Variations)

Name of Plant Community Type/ID	Name of threatened ecological community	Area of impact	HBT Cr	No HBT Cr	Total credits to be retired
281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri	0.7	17	2	19.00
440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion	Not a TEC	1.1	13	0	13.00
483-Grey Box x White Box grassy open woodland on basalt hills in the Merriwa region, upper Hunter Valley	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri	7.9	270	0	270.00

281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion

Like-for-like credit retirement options

Class	Trading group	Zone	HBT	Credits	IBRA region
White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin,	-	281_DNG	No	2	Liverpool Range,Hunter, Kerrabee, Liverpool Plains, Peel and Pilliga. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri This includes PCT's: 74, 75, 83, 250, 266, 267, 268, 270, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 298, 302, 312, 341, 342, 347, 350, 352, 356, 367, 381, 382, 395, 401, 403, 421, 433, 434, 435, 436, 437, 451, 483, 484, 488, 492, 496, 508, 509, 510, 511, 528, 538, 544, 563, 567, 571, 589, 590, 597, 599, 618, 619, 622, 633, 654, 702, 703, 704, 705, 710, 711, 796, 797, 799, 847, 851, 921, 1099, 1303, 1304, 1307, 1324, 1329, 1330, 1332, 1383, 1606, 1608, 1611, 1691, 1693, 1695, 1698, 3314, 3359, 3363, 3373, 3376, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3406, 3415, 3533, 4147, 4149, 4150					
	White Box - Yellow Box -	-	281_Thinne	Yes	17	Liverpool Range,Hunter, Kerrabee,

	Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri This includes PCT's: 74, 75, 83, 250, 266, 267, 268, 270, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 298, 302, 312, 341, 342, 347, 350, 352, 356, 367, 381, 382, 395, 401, 403, 421, 433, 434, 435, 436, 437, 451, 483, 484, 488, 492, 496, 508, 509, 510, 511, 528, 538, 544, 563, 567, 571, 589, 590, 597, 599, 618, 619, 622, 633, 654, 702, 703, 704, 705, 710, 711, 796, 797, 799, 847, 851, 921, 1099, 1303, 1304, 1307, 1324, 1329, 1330, 1332, 1383, 1606, 1608, 1611, 1691, 1693,		d			Liverpool Plains, Peel and Pilliga. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	1695, 1698, 3314, 3359, 3363, 3373, 3376, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3406, 3415, 3533, 4147, 4149, 4150					
440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion	**Like-for-like credit retirement options**					
	Class	Trading group	Zone	HBT	Credits	IBRA region
	Western Slopes Dry Sclerophyll Forests This includes PCT's: 54, 110, 179, 217, 243, 255, 270, 273, 287, 291, 309, 321, 322, 323, 324, 325, 327, 330, 331, 333, 341, 343, 346, 348, 354, 358, 379, 387, 396, 398, 399, 401, 402, 403, 404, 405, 406, 407, 408, 409, 414, 415, 417, 419, 420, 423, 425, 430, 431, 440, 443, 449, 455, 456, 457, 459, 462, 463, 467, 468, 469, 470, 471, 472, 473, 476, 477, 478, 479, 480, 482, 515, 531, 532, 576, 577, 581, 592, 610, 617, 671, 673, 676, 712, 713, 714, 746, 863, 889, 940, 956, 1133, 1176, 1277,	Western Slopes Dry Sclerophyll Forests <50%	440_DNG	No	0	Liverpool Range,Hunter, Kerrabee, Liverpool Plains, Peel and Pilliga. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	1278, 1279, 1307, 1313, 1314, 1316, 1381, 1610, 1654, 1655, 1656, 1660, 1661, 1663, 1668, 1669, 1671, 1672, 1674, 1676, 1679, 1709, 1711, 1770, 1771, 3753, 3754, 3756, 3757, 3758, 3759, 3760, 3761, 3762, 3763, 3766, 3767, 3768, 3769, 3770, 3771, 3772, 3773, 3774, 3775, 3776, 3777, 3778, 3780, 3781, 3782, 3783, 3784, 3785, 3786, 4153					
	Western Slopes Dry Sclerophyll Forests This includes PCT's: 54, 110, 179, 217, 243, 255, 270, 273, 287, 291, 309, 321, 322, 323, 324, 325, 327, 330, 331, 333, 341, 343, 346, 348, 354, 358, 379, 387, 396, 398, 399, 401, 402, 403, 404, 405, 406, 407, 408, 409, 414, 415, 417, 419, 420, 423, 425, 430, 431, 440, 443, 449, 455, 456, 457, 459, 462, 463, 467, 468, 469, 470, 471, 472, 473, 476, 477, 478, 479, 480,	Western Slopes Dry Sclerophyll Forests <50%	440_Thinned	Yes	13	Liverpool Range,Hunter, Kerrabee, Liverpool Plains, Peel and Pilliga. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

482, 515, 531, 532, 576, 577, 581, 592, 610, 617, 671, 673, 676, 712, 713, 714, 746, 863, 889, 940, 956, 1133, 1176, 1277, 1278, 1279, 1307, 1313, 1314, 1316, 1381, 1610, 1654, 1655, 1656, 1660, 1661, 1663, 1668, 1669, 1671, 1672, 1674, 1676, 1679, 1709, 1711, 1770, 1771, 3753, 3754, 3756, 3757, 3758, 3759, 3760, 3761, 3762, 3763, 3766, 3767, 3768, 3769, 3770, 3771, 3772, 3773, 3774, 3775, 3776, 3777, 3778, 3780, 3781, 3782, 3783, 3784, 3785, 3786, 4153					

Variation options

Formation	Trading group	Zone	HBT	Credits	IBRA region
Dry Sclerophyll Forests (Shrubby sub-formation)	Tier 4 or higher threat status	440_DNG	No	0	IBRA Region: Brigalow Belt South, or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	Dry Sclerophyll Forests (Shrubby sub-formation)	Tier 4 or higher threat status	440_Thinned	Yes (including artificial)	13	IBRA Region: Brigalow Belt South, or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
483-Grey Box x White Box grassy open woodland on basalt hills in the Merriwa region, upper Hunter Valley	**Like-for-like credit retirement options**					
	Class	Trading group	Zone	HBT	Credits	IBRA region
	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri This includes PCT's: 74, 75, 83, 250, 266, 267, 268, 270, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 298, 302, 312, 341, 342, 347, 350, 352, 356, 367, 381, 382, 395, 401, 403, 421, 433, 434, 435, 436, 437, 451, 483, 484, 488, 492, 496, 508, 509, 510, 511,	-	483_DNG	Yes	45	Liverpool Range,Hunter, Kerrabee, Liverpool Plains, Peel and Pilliga. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	528, 538, 544, 563, 567, 571, 589, 590, 597, 599, 618, 619, 622, 633, 654, 702, 703, 704, 705, 710, 711, 796, 797, 799, 847, 851, 921, 1099, 1303, 1304, 1307, 1324, 1329, 1330, 1332, 1383, 1606, 1608, 1611, 1691, 1693, 1695, 1698, 3314, 3359, 3363, 3373, 3376, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3406, 3415, 3533, 4147, 4149, 4150					
	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri This includes PCT's: 74, 75, 83, 250, 266, 267, 268, 270, 274, 275, 276, 277, 278, 279, 280, 281,	-	483_Thinned	Yes	225	Liverpool Range,Hunter, Kerrabee, Liverpool Plains, Peel and Pilliga. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	282, 283, 284, 286, 298, 302, 312, 341, 342, 347, 350, 352, 356, 367, 381, 382, 395, 401, 403, 421, 433, 434, 435, 436, 437, 451, 483, 484, 488, 492, 496, 508, 509, 510, 511, 528, 538, 544, 563, 567, 571, 589, 590, 597, 599, 618, 619, 622, 633, 654, 702, 703, 704, 705, 710, 711, 796, 797, 799, 847, 851, 921, 1099, 1303, 1304, 1307, 1324, 1329, 1330, 1332, 1383, 1606, 1608, 1611, 1691, 1693, 1695, 1698, 3314, 3359, 3363, 3373, 3376, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3406, 3415, 3533, 4147, 4149, 4150					

Species Credit Summary

Species	Vegetation Zone/s	Area / Count	Credits
Aprasia parapulchella / Pink-tailed Legless Lizard	**440_Thinned**	0.7	17.00
Cercartetus nanus / Eastern Pygmy-possum	**440_Thinned**	0.7	17.00
Dichanthium setosum / Bluegrass	**281_DNG, 281_Thinned, 483_DNG, 483_Thinned**	6.3	161.00
Hoplocephalus bitorquatus / Pale-headed Snake	**440_Thinned**	0.7	17.00

Petaurus norfolcensis / Squirrel Glider	**281_Thinned, 440_Thinned**	1.3	30.00
Phascolarctos cinereus / Koala	**281_Thinned, 440_Thinned, 483_Thinned**	6.7	206.00

Credit Retirement Options

Like-for-like options

Aprasia parapulchella/ Pink-tailed Legless Lizard	Spp	IBRA region	
	Aprasia parapulchella/Pink-tailed Legless Lizard	Any in NSW	
	Variation options		
	Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act shown below	IBRA region
	Fauna	Vulnerable	Liverpool Range, Hunter, Kerrabee, Liverpool Plains, Peel and Pilliga. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Cercartetus nanus/ Eastern Pygmy-possum	Spp	IBRA region	
	Cercartetus nanus/Eastern Pygmy-possum	Any in NSW	
	Variation options		
	Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act shown below	IBRA region

	Fauna	Vulnerable	Liverpool Range, Hunter, Kerrabee, Liverpool Plains, Peel and Pilliga. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Dichanthium setosum/ Bluegrass	Spp	IBRA region	
	Dichanthium setosum/Bluegrass	Any in NSW	
	Variation options		
	Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act shown below	IBRA region
	Flora	Vulnerable	Liverpool Range, Hunter, Kerrabee, Liverpool Plains, Peel and Pilliga. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Hoplocephalus bitorquatus/ Pale-headed Snake	Spp	IBRA region	
	Hoplocephalus bitorquatus/Pale-headed Snake	Any in NSW	
	Variation options		
	Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act shown below	IBRA region

	Fauna	Vulnerable	Liverpool Range, Hunter, Kerrabee, Liverpool Plains, Peel and Pilliga. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Petaurus norfolcensis/ Squirrel Glider	Spp	IBRA region	
	Petaurus norfolcensis/Squirrel Glider	Any in NSW	
	Variation options		
	Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act shown below	IBRA region
	Fauna	Vulnerable	Liverpool Range, Hunter, Kerrabee, Liverpool Plains, Peel and Pilliga. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Phascolarctos cinereus/ Koala	Spp	IBRA region	
	Phascolarctos cinereus/Koala	Any in NSW	
	Variation options		
	Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act shown below	IBRA region

	Fauna	Endangered	Liverpool Range, Hunter, Kerrabee, Liverpool Plains, Peel and Pilliga. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

BAM Candidate Species Report

Proposal Details

Assessment Id 00038224/BAAS17060/23/00038225	Proposal Name CWOREZ Liverpool Ranges subregion - Valley of Winds	BAM data last updated * 14/04/2023
Assessor Name Lukas Leslie Clews	Report Created 13/06/2023	BAM Data version * 58
Assessor Number BAAS17060	Assessment Type Major Projects	BAM Case Status Open
Assessment Revision 2	Date Finalised To be finalised	

* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.

List of Species Requiring Survey

Name	Presence	Survey Months
Aprasia parapulchella Pink-tailed Legless Lizard	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Burhinus grallarius Bush Stone-curlew	No (surveyed)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☑ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Calyptorhynchus lathami Glossy Black-Cockatoo	No (surveyed)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☑ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?

Cercartetus nanus Eastern Pygmy-possum	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Delma impar Striped Legless Lizard	No (surveyed)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☑ Nov ☐ Dec ☐ Survey month outside the specified months?
Dichanthium setosum Bluegrass	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Hoplocephalus bitorquatus Pale-headed Snake	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Ninox connivens Barking Owl	No (surveyed)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☑ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Ninox strenua Powerful Owl	No (surveyed)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☑ Jul ☑ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?

Petaurus norfolcensis Squirrel Glider	Yes (surveyed)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☑ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Phascolarctos cinereus Koala	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Pomaderris queenslandica Scant Pomaderris	No (surveyed)	☐ Jan ☐ Feb ☑ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☑ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Tyto novaehollandiae Masked Owl	No (surveyed)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☑ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?

Threatened species Manually Added

None added

Threatened species assessed as not on site

Refer to BAR for detailed justification

Common name	Scientific name	Justification in the BAM-C
Brush-tailed Rock-wallaby	Petrogale penicillata	Habitat constraints
Eastern Cave Bat	Vespadelus troughtoni	Habitat constraints
Grey-headed Flying-fox	Pteropus poliocephalus	Habitat constraints
Large Bent-winged Bat	Miniopterus orianae oceanensis	Habitat constraints

Large-eared Pied Bat	Chalinolobus dwyeri	Habitat constraints
Little Eagle	Hieraaetus morphnoides	Habitat constraints
Regent Honeyeater	Anthochaera phrygia	Habitat constraints
Swift Parrot	Lathamus discolor	Habitat constraints
White-bellied Sea-Eagle	Haliaeetus leucogaster	Habitat constraints

BAM Credit Summary Report

Proposal Details

Assessment Id
00038224/BAAS17060/23/00038225

Proposal Name
CWOREZ Liverpool Ranges subregion - Valley of Winds

BAM data last updated *
14/04/2023

Assessor Name
Lukas Leslie Clews

Report Created
13/06/2023

BAM Data version *
58

Assessor Number
BAAS17060

BAM Case Status
Open

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To be finalised

Assessment Revision
2

Assessment Type
Major Projects

* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.

Ecosystem credits for plant communities types (PCT), ecological communities & threatened species habitat

Zone	Vegetation zone name	TEC name	Current Vegetation integrity score	Change in Vegetation integrity (loss / gain)	Area (ha)	Sensitivity to loss (Justification)	Species sensitivity to gain class	BC Act Listing status	EPBC Act listing status	Biodiversity risk weighting	Potential SAII	Ecosystem credits

Grey Box x White Box grassy open woodland on basalt hills in the Merriwa region, upper Hunter Valley												
5	483_DNG	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri	30.9	30.9	2.3	Population size	High Sensitivity to Gain	Critically Endangered Ecological Community	Not Listed	2.50	True	45

6	483_Thinned	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri	78.3	64.6	5.6	Population size	High Sensitivity to Gain	Critically Endangered Ecological Community	Not Listed	2.50	True	225
											Subtotal	**270**
Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion												
3	440_DNG	Not a TEC	7.5	7.5	0.38	PCT Cleared - 34%	High Sensitivity to Gain			1.50		0
4	440_Thinned	Not a TEC	69.1	47.1	0.74	PCT Cleared - 34%	High Sensitivity to Gain			1.50		13

											Subtotal	**13**
Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion												
1	281_DNG	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri	29.6	29.6	0.13	Population size	High Sensitivity to Gain	Critically Endangered Ecological Community	Not Listed	2.50	True	2

2	281_Thinned	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri	87	51.1	0.52	Population size	High Sensitivity to Gain	Critically Endangered Ecological Community	Not Listed	2.50	True	17
											Subtotal	**19**
											Total	**302**

Species credits for threatened species

Vegetation zone name	Habitat condition (Vegetation Integrity)	Change in habitat condition	Area (ha)/Count (no. individuals)	Sensitivity to loss (Justification)	Sensitivity to gain (Justification)	BC Act Listing status	EPBC Act listing status	Potential SAII	Species credits
Aprasia parapulchella / Pink-tailed Legless Lizard (Fauna)									
440_Thinned	47.1	47.1	0.74	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Vulnerable	False	17
								Subtotal	**17**
Cercartetus nanus / Eastern Pygmy-possum (Fauna)									
440_Thinned	47.1	47.1	0.74	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Not Listed	False	17
								Subtotal	**17**
Dichanthium setosum / Bluegrass (Flora)									
281_DNG	29.6	29.6	0.13	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Vulnerable	False	2
281_Thinned	51.1	51.1	0.13	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Vulnerable	False	3

483_DNG	30.9	30.9	2.3	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Vulnerable	False	36
483_Thinned	64.6	64.6	3.7	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Vulnerable	False	120
								Subtotal	**161**
Hoplocephalus bitorquatus / Pale-headed Snake (Fauna)									
440_Thinned	47.1	47.1	0.74	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	17
								Subtotal	**17**
Petaurus norfolcensis / Squirrel Glider (Fauna)									
281_Thinned	51.1	51.1	0.52	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	13
440_Thinned	47.1	47.1	0.74	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	17
								Subtotal	**30**

Phascolarctos cinereus / Koala (Fauna)									
281_Thinned	51.1	51.1	0.52	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Endangered	False	13
440_Thinned	47.1	47.1	0.74	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Endangered	False	17
483_Thinned	64.6	64.6	5.4	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Endangered	False	176
								Subtotal	**206**

BAM Predicted Species Report

Proposal Details

Assessment Id	Proposal Name	BAM data last updated *
00038224/BAAS17060/23/00038225	CWOREZ Liverpool Ranges subregion - Valley of Winds	14/04/2023
Assessor Name	**Report Created**	**BAM Data version ***
Lukas Leslie Clews	13/06/2023	58
Assessor Number	**Assessment Type**	**BAM Case Status**
BAAS17060	Major Projects	Open
Assessment Revision		**Date Finalised**
2		To be finalised

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Threatened species reliably predicted to utilise the site. No surveys are required for these species. Ecosystem credits apply to these species.

Common Name	Scientific Name	Vegetation Types(s)
Barking Owl	Ninox connivens	281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
		483-Grey Box x White Box grassy open woodland on basalt hills in the Merriwa region, upper Hunter Valley
Black Falcon	Falco subniger	281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
Black-chinned Honeyeater (eastern subspecies)	Melithreptus gularis gularis	281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
Brown Treecreeper (eastern subspecies)	Climacteris picumnus victoriae	281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion

Brown Treecreeper (eastern subspecies)	Climacteris picumnus victoriae	440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
Corben's Long-eared Bat	Nyctophilus corbeni	440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
Diamond Firetail	Stagonopleura guttata	281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
Dusky Woodswallow	Artamus cyanopterus cyanopterus	281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
Flame Robin	Petroica phoenicea	281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
Glossy Black-Cockatoo	Calyptorhynchus lathami	440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
Grey-crowned Babbler (eastern subspecies)	Pomatostomus temporalis temporalis	281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
Grey-headed Flying-fox	Pteropus poliocephalus	281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion

Hooded Robin (south-eastern form)	Melanodryas cucullata cucullata	281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
Large Bent-winged Bat	Miniopterus orianae oceanensis	281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
Little Eagle	Hieraaetus morphnoides	281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
Little Lorikeet	Glossopsitta pusilla	281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
		483-Grey Box x White Box grassy open woodland on basalt hills in the Merriwa region, upper Hunter Valley
Masked Owl	Tyto novaehollandiae	281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
Painted Honeyeater	Grantiella picta	281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion

Painted Honeyeater	Grantiella picta	440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
		483-Grey Box x White Box grassy open woodland on basalt hills in the Merriwa region, upper Hunter Valley
Powerful Owl	Ninox strenua	281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
Regent Honeyeater	Anthochaera phrygia	281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		483-Grey Box x White Box grassy open woodland on basalt hills in the Merriwa region, upper Hunter Valley
Scarlet Robin	Petroica boodang	281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
Speckled Warbler	Chthonicola sagittata	281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
Spotted Harrier	Circus assimilis	281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
Spotted-tailed Quoll	Dasyurus maculatus	281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion

Spotted-tailed Quoll	Dasyurus maculatus	440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
Swift Parrot	Lathamus discolor	281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
		483-Grey Box x White Box grassy open woodland on basalt hills in the Merriwa region, upper Hunter Valley
Turquoise Parrot	Neophema pulchella	281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
		483-Grey Box x White Box grassy open woodland on basalt hills in the Merriwa region, upper Hunter Valley
Varied Sittella	Daphoenositta chrysoptera	281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
White-bellied Sea-Eagle	Haliaeetus leucogaster	281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
White-throated Needletail	Hirundapus caudacutus	281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
		483-Grey Box x White Box grassy open woodland on basalt hills in the Merriwa region, upper Hunter Valley

Yellow-bellied Sheathtail-bat	Saccolaimus flaviventris	281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion

Threatened species Manually Added

None added

Threatened species assessed as not within the vegetation zone(s) for the PCT(s)

Refer to BAR for detailed justification

Common Name	Scientific Name	Justification in the BAM-C

BAM Vegetation Zones Report

Proposal Details

Assessment Id
00038224/BAAS17060/23/00038225

Assessment name
CWOREZ Liverpool Ranges subregion - Valley of Winds

BAM data last updated *
14/04/2023

Assessor Name
Lukas Leslie Clews

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13/06/2023

BAM Data version *
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Assessor Number
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Assessment Type
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BAM Case Status
Open

Assessment Revision
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Date Finalised
To be finalised

* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.

Vegetation Zones

#	Name	PCT	Condition	Area	Minimum number of plots	Management zones

1	281_DNG	281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion	DNG	0.13	1	A (0.13 ha)
2	281_Thinned	281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion	Thinned	0.52	1	A (0.13 ha) B (0.39 ha)
3	440_DNG	440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion	DNG	0.38	1	A (0.38 ha)
4	440_Thinned	440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion	Thinned	0.74	1	A (0.25 ha) B (0.49 ha)
5	483_DNG	483-Grey Box x White Box grassy open woodland on basalt hills in the Merriwa region, upper Hunter Valley	DNG	2.31	2	A (2.31 ha)
6	483_Thinned	483-Grey Box x White Box grassy open woodland on basalt hills in the Merriwa region, upper Hunter Valley	Thinned	5.58	3	A (3.73 ha) B (1.85 ha)

BAM Biodiversity Credit Report (Like for like)

Proposal Details

Assessment Id
00038234/BAAS17060/23/00038235

Proposal Name
CWOREZ Pilliga subregion - Liverpool Range

BAM data last updated *
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Assessor Name
Lukas Leslie Clews

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Proponent Names

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Open

Assessment Revision
2

Assessment Type
Major Projects

Date Finalised
To be finalised

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Potential Serious and Irreversible Impacts

Name of threatened ecological community	Listing status	Name of Plant Community Type/ID
White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri	Critically Endangered Ecological Community	281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion

White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri	Critically Endangered Ecological Community	483-Grey Box x White Box grassy open woodland on basalt hills in the Merriwa region, upper Hunter Valley
White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri	Critically Endangered Ecological Community	618-White Box x Grey Box - red gum - Rough-barked Apple grassy woodland on rich soils on hills in the upper Hunter Valley

Species
Nil

Additional Information for Approval

PCT Outside Ibra Added

PCT
281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
477-Inland Scribbly Gum - Red Stringybark - Black Cypress Pine - Red Ironbark open forest on sandstone hills in the southern Brigalow Belt South Bioregion and northern NSW South Western Slopes Bioregion
479-Narrow-leaved Ironbark- Black Cypress Pine - stringybark +/- Grey Gum +/- Narrow-leaved Wattle shrubby open forest on sandstone hills in the southern Brigalow Belt South Bioregion and Sydney Basin Bioregion

483-Grey Box x White Box grassy open woodland on basalt hills in the Merriwa region, upper Hunter Valley

PCTs With Customized Benchmarks

PCT
No Changes

Predicted Threatened Species Not On Site

Name
Lophochroa leadbeateri / Major Mitchell's Cockatoo

Ecosystem Credit Summary (Number and class of biodiversity credits to be retired)

Name of Plant Community Type/ID	Name of threatened ecological community	Area of impact	HBT Cr	No HBT Cr	Total credits to be retired
281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri	8.0	359	16	375
477-Inland Scribbly Gum - Red Stringybark - Black Cypress Pine - Red Ironbark open forest on sandstone hills in the southern Brigalow Belt South Bioregion and northern NSW South Western Slopes Bioregion	Not a TEC	2.2	49	0	49

479-Narrow-leaved Ironbark- Black Cypress Pine - stringybark +/- Grey Gum +/- Narrow-leaved Wattle shrubby open forest on sandstone hills in the southern Brigalow Belt South Bioregion and Sydney Basin Bioregion	Not a TEC	15.7	209	0	209
483-Grey Box x White Box grassy open woodland on basalt hills in the Merriwa region, upper Hunter Valley	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri	35.5	960	0	960
618-White Box x Grey Box - red gum - Rough-barked Apple grassy woodland on rich soils on hills in the upper Hunter Valley	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri	3.1	54	10	64
1661-Narrow-leaved Ironbark - Black Pine - Sifton Bush heathy open forest on sandstone ranges of the upper Hunter and Sydney Basin	Not a TEC	25.7	464	0	464
1696-Blakely's Red Gum - Rough-barked Apple shrubby woodland of central and upper Hunter	Not a TEC	3.6	0	33	33

281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion	Like-for-like credit retirement options					
	Name of offset trading group	Trading group	Zone	HBT	Credits	IBRA region
	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri This includes PCT's: 74, 75, 83, 250, 266, 267, 268, 270, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 298, 302, 312, 341, 342, 347, 350, 352, 356, 367, 381, 382, 395, 401, 403, 421, 433, 434, 435, 436, 437, 451, 483, 484, 488, 492, 496, 508, 509, 510, 511,	-	281_DNG	No	16	Pilliga, Bogan-Macquarie, Castlereagh-Barwon, Inland Slopes, Kerrabee, Liverpool Plains, Liverpool Range, Pilliga Outwash and Talbragar Valley. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	528, 538, 544, 563, 567, 571, 589, 590, 597, 599, 618, 619, 622, 633, 654, 702, 703, 704, 705, 710, 711, 796, 797, 799, 847, 851, 921, 1099, 1303, 1304, 1307, 1324, 1329, 1330, 1332, 1383, 1606, 1608, 1611, 1691, 1693, 1695, 1698, 3314, 3359, 3363, 3373, 3376, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3406, 3415, 3533, 4147, 4149, 4150					
	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South	-	281_Mod_Good	Yes	25	Pilliga, Bogan-Macquarie, Castlereagh-Barwon, Inland Slopes, Kerrabee, Liverpool Plains, Liverpool Range, Pilliga Outwash and Talbragar Valley. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	East Corner and Ri This includes PCT's: 74, 75, 83, 250, 266, 267, 268, 270, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 298, 302, 312, 341, 342, 347, 350, 352, 356, 367, 381, 382, 395, 401, 403, 421, 433, 434, 435, 436, 437, 451, 483, 484, 488, 492, 496, 508, 509, 510, 511, 528, 538, 544, 563, 567, 571, 589, 590, 597, 599, 618, 619, 622, 633, 654, 702, 703, 704, 705, 710, 711, 796, 797, 799, 847, 851, 921, 1099, 1303, 1304, 1307, 1324, 1329, 1330, 1332, 1383, 1606, 1608, 1611, 1691, 1693, 1695, 1698, 3314, 3359, 3363, 3373, 3376, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3406, 3415, 3533, 4147, 4149, 4150					

	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri This includes PCT's: 74, 75, 83, 250, 266, 267, 268, 270, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 298, 302, 312, 341, 342, 347, 350, 352, 356, 367, 381, 382, 395, 401, 403, 421, 433, 434, 435, 436, 437, 451, 483, 484, 488, 492, 496, 508, 509, 510, 511, 528, 538, 544, 563, 567, 571, 589, 590, 597, 599, 618, 619, 622, 633, 654,	-	281_Thinned	Yes	334	Pilliga, Bogan-Macquarie, Castlereagh-Barwon, Inland Slopes, Kerrabee, Liverpool Plains, Liverpool Range, Pilliga Outwash and Talbragar Valley. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	702, 703, 704, 705, 710, 711, 796, 797, 799, 847, 851, 921, 1099, 1303, 1304, 1307, 1324, 1329, 1330, 1332, 1383, 1606, 1608, 1611, 1691, 1693, 1695, 1698, 3314, 3359, 3363, 3373, 3376, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3406, 3415, 3533, 4147, 4149, 4150					
477-Inland Scribbly Gum - Red Stringybark - Black Cypress Pine - Red Ironbark open forest on sandstone hills in the southern Brigalow Belt South Bioregion and northern NSW South Western Slopes Bioregion	**Like-for-like credit retirement options**					
	Class	Trading group	Zone	HBT	Credits	IBRA region
	Western Slopes Dry Sclerophyll Forests This includes PCT's: 54, 110, 179, 217, 243, 255, 270, 273, 287, 291, 309, 321, 322, 323, 324, 325, 327, 330, 331, 333, 341, 343, 346, 348, 354, 358, 379, 387, 396, 398, 399, 401, 402, 403, 404, 405, 406, 407, 408, 409, 414, 415, 417, 419, 420,	Western Slopes Dry Sclerophyll Forests <50%	477_Mod_Good	Yes	48	Pilliga, Bogan-Macquarie, Castlereagh-Barwon, Inland Slopes, Kerrabee, Liverpool Plains, Liverpool Range, Pilliga Outwash and Talbragar Valley. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	423, 425, 430, 431, 440, 443, 449, 455, 456, 457, 459, 462, 463, 467, 468, 469, 470, 471, 472, 473, 476, 477, 478, 479, 480, 482, 515, 531, 532, 576, 577, 581, 592, 610, 617, 671, 673, 676, 712, 713, 714, 746, 863, 889, 940, 956, 1133, 1176, 1277, 1278, 1279, 1307, 1313, 1314, 1316, 1381, 1610, 1654, 1655, 1656, 1660, 1661, 1663, 1668, 1669, 1671, 1672, 1674, 1676, 1679, 1709, 1711, 1770, 1771, 3753, 3754, 3756, 3757, 3758, 3759, 3760, 3761, 3762, 3763, 3766, 3767, 3768, 3769, 3770, 3771, 3772, 3773, 3774, 3775, 3776, 3777, 3778, 3780, 3781, 3782, 3783, 3784, 3785, 3786, 4153					
	Western Slopes Dry Sclerophyll Forests This includes PCT's:	Western Slopes Dry Sclerophyll Forests <50%	477_Thinned	Yes	1	Pilliga, Bogan-Macquarie, Castlereagh-Barwon, Inland Slopes, Kerrabee, Liverpool Plains, Liverpool

	54, 110, 179, 217, 243, 255, 270, 273, 287, 291, 309, 321, 322, 323, 324, 325, 327, 330, 331, 333, 341, 343, 346, 348, 354, 358, 379, 387, 396, 398, 399, 401, 402, 403, 404, 405, 406, 407, 408, 409, 414, 415, 417, 419, 420, 423, 425, 430, 431, 440, 443, 449, 455, 456, 457, 459, 462, 463, 467, 468, 469, 470, 471, 472, 473, 476, 477, 478, 479, 480, 482, 515, 531, 532, 576, 577, 581, 592, 610, 617, 671, 673, 676, 712, 713, 714, 746, 863, 889, 940, 956, 1133, 1176, 1277, 1278, 1279, 1307, 1313, 1314, 1316, 1381, 1610, 1654, 1655, 1656, 1660, 1661, 1663, 1668, 1669, 1671, 1672, 1674, 1676, 1679, 1709, 1711, 1770, 1771, 3753, 3754, 3756, 3757, 3758, 3759, 3760,					Range, Pilliga Outwash and Talbragar Valley. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	3761, 3762, 3763, 3766, 3767, 3768, 3769, 3770, 3771, 3772, 3773, 3774, 3775, 3776, 3777, 3778, 3780, 3781, 3782, 3783, 3784, 3785, 3786, 4153					

479-Narrow-leaved Ironbark-Black Cypress Pine - stringybark +/- Grey Gum +/- Narrow-leaved Wattle shrubby open forest on sandstone hills in the southern Brigalow Belt South Bioregion and Sydney Basin Bioregion	**Like-for-like credit retirement options**					
	Class	Trading group	Zone	HBT	Credits	IBRA region
	Western Slopes Dry Sclerophyll Forests This includes PCT's: 54, 110, 179, 217, 243, 255, 270, 273, 287, 291, 309, 321, 322, 323, 324, 325, 327, 330, 331, 333, 341, 343, 346, 348, 354, 358, 379, 387, 396, 398, 399, 401, 402, 403, 404, 405, 406, 407, 408, 409, 414, 415, 417, 419, 420, 423, 425, 430, 431, 440, 443, 449, 455, 456, 457, 459, 462, 463, 467, 468,	Western Slopes Dry Sclerophyll Forests <50%	479_DNG	No	0	Pilliga, Bogan-Macquarie, Castlereagh-Barwon, Inland Slopes, Kerrabee, Liverpool Plains, Liverpool Range, Pilliga Outwash and Talbragar Valley. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	469, 470, 471, 472, 473, 476, 477, 478, 479, 480, 482, 515, 531, 532, 576, 577, 581, 592, 610, 617, 671, 673, 676, 712, 713, 714, 746, 863, 889, 940, 956, 1133, 1176, 1277, 1278, 1279, 1307, 1313, 1314, 1316, 1381, 1610, 1654, 1655, 1656, 1660, 1661, 1663, 1668, 1669, 1671, 1672, 1674, 1676, 1679, 1709, 1711, 1770, 1771, 3753, 3754, 3756, 3757, 3758, 3759, 3760, 3761, 3762, 3763, 3766, 3767, 3768, 3769, 3770, 3771, 3772, 3773, 3774, 3775, 3776, 3777, 3778, 3780, 3781, 3782, 3783, 3784, 3785, 3786, 4153					
	Western Slopes Dry Sclerophyll Forests This includes PCT's: 54, 110, 179, 217, 243, 255, 270, 273, 287, 291, 309, 321, 322, 323, 324,	Western Slopes Dry Sclerophyll Forests <50%	479_Mod_Good	Yes	208	Pilliga, Bogan-Macquarie, Castlereagh-Barwon, Inland Slopes, Kerrabee, Liverpool Plains, Liverpool Range, Pilliga Outwash and Talbragar Valley. or

	325, 327, 330, 331, 333, 341, 343, 346, 348, 354, 358, 379, 387, 396, 398, 399, 401, 402, 403, 404, 405, 406, 407, 408, 409, 414, 415, 417, 419, 420, 423, 425, 430, 431, 440, 443, 449, 455, 456, 457, 459, 462, 463, 467, 468, 469, 470, 471, 472, 473, 476, 477, 478, 479, 480, 482, 515, 531, 532, 576, 577, 581, 592, 610, 617, 671, 673, 676, 712, 713, 714, 746, 863, 889, 940, 956, 1133, 1176, 1277, 1278, 1279, 1307, 1313, 1314, 1316, 1381, 1610, 1654, 1655, 1656, 1660, 1661, 1663, 1668, 1669, 1671, 1672, 1674, 1676, 1679, 1709, 1711, 1770, 1771, 3753, 3754, 3756, 3757, 3758, 3759, 3760, 3761, 3762, 3763, 3766, 3767, 3768, 3769, 3770, 3771, 3772, 3773, 3774,					Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	3775, 3776, 3777, 3778, 3780, 3781, 3782, 3783, 3784, 3785, 3786, 4153					
	Western Slopes Dry Sclerophyll Forests This includes PCT's: 54, 110, 179, 217, 243, 255, 270, 273, 287, 291, 309, 321, 322, 323, 324, 325, 327, 330, 331, 333, 341, 343, 346, 348, 354, 358, 379, 387, 396, 398, 399, 401, 402, 403, 404, 405, 406, 407, 408, 409, 414, 415, 417, 419, 420, 423, 425, 430, 431, 440, 443, 449, 455, 456, 457, 459, 462, 463, 467, 468, 469, 470, 471, 472, 473, 476, 477, 478, 479, 480, 482, 515, 531, 532, 576, 577, 581, 592, 610, 617, 671, 673, 676, 712, 713, 714, 746, 863, 889, 940, 956, 1133, 1176, 1277, 1278, 1279, 1307, 1313, 1314, 1316, 1381, 1610,	Western Slopes Dry Sclerophyll Forests <50%	479_Thinned	Yes	1	Pilliga, Bogan-Macquarie, Castlereagh-Barwon, Inland Slopes, Kerrabee, Liverpool Plains, Liverpool Range, Pilliga Outwash and Talbragar Valley. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	1654, 1655, 1656, 1660, 1661, 1663, 1668, 1669, 1671, 1672, 1674, 1676, 1679, 1709, 1711, 1770, 1771, 3753, 3754, 3756, 3757, 3758, 3759, 3760, 3761, 3762, 3763, 3766, 3767, 3768, 3769, 3770, 3771, 3772, 3773, 3774, 3775, 3776, 3777, 3778, 3780, 3781, 3782, 3783, 3784, 3785, 3786, 4153					
483-Grey Box x White Box grassy open woodland on basalt hills in the Merriwa region, upper Hunter Valley	**Like-for-like credit retirement options**					
	Name of offset trading group	Trading group	Zone	HBT	Credits	IBRA region
	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt	-	483_DNG	Yes	272	Pilliga, Bogan-Macquarie, Castlereagh-Barwon, Inland Slopes, Kerrabee, Liverpool Plains, Liverpool Range, Pilliga Outwash and Talbragar Valley. or Any IBRA subregion that is within 100 kilometers of the outer edge of the

	South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri This includes PCT's: 74, 75, 83, 250, 266, 267, 268, 270, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 298, 302, 312, 341, 342, 347, 350, 352, 356, 367, 381, 382, 395, 401, 403, 421, 433, 434, 435, 436, 437, 451, 483, 484, 488, 492, 496, 508, 509, 510, 511, 528, 538, 544, 563, 567, 571, 589, 590, 597, 599, 618, 619, 622, 633, 654, 702, 703, 704, 705, 710, 711, 796, 797, 799, 847, 851, 921, 1099, 1303, 1304, 1307, 1324, 1329, 1330, 1332, 1383, 1606, 1608, 1611, 1691, 1693, 1695, 1698, 3314, 3359, 3363, 3373, 3376, 3387,					impacted site.

	3388, 3394, 3395, 3396, 3397, 3398, 3399, 3406, 3415, 3533, 4147, 4149, 4150					
	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri This includes PCT's: 74, 75, 83, 250, 266, 267, 268, 270, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 298, 302, 312, 341, 342, 347, 350, 352, 356, 367, 381, 382, 395, 401, 403, 421, 433, 434, 435, 436, 437, 451, 483, 484, 488, 492,	-	483_DNS	No	0	Pilliga, Bogan-Macquarie, Castlereagh-Barwon, Inland Slopes, Kerrabee, Liverpool Plains, Liverpool Range, Pilliga Outwash and Talbragar Valley. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	496, 508, 509, 510, 511, 528, 538, 544, 563, 567, 571, 589, 590, 597, 599, 618, 619, 622, 633, 654, 702, 703, 704, 705, 710, 711, 796, 797, 799, 847, 851, 921, 1099, 1303, 1304, 1307, 1324, 1329, 1330, 1332, 1383, 1606, 1608, 1611, 1691, 1693, 1695, 1698, 3314, 3359, 3363, 3373, 3376, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3406, 3415, 3533, 4147, 4149, 4150					
	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South	-	483_Mod_Good	Yes	17	Pilliga, Bogan-Macquarie, Castlereagh-Barwon, Inland Slopes, Kerrabee, Liverpool Plains, Liverpool Range, Pilliga Outwash and Talbragar Valley. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	Western Slopes, South East Corner and Ri This includes PCT's: 74, 75, 83, 250, 266, 267, 268, 270, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 298, 302, 312, 341, 342, 347, 350, 352, 356, 367, 381, 382, 395, 401, 403, 421, 433, 434, 435, 436, 437, 451, 483, 484, 488, 492, 496, 508, 509, 510, 511, 528, 538, 544, 563, 567, 571, 589, 590, 597, 599, 618, 619, 622, 633, 654, 702, 703, 704, 705, 710, 711, 796, 797, 799, 847, 851, 921, 1099, 1303, 1304, 1307, 1324, 1329, 1330, 1332, 1383, 1606, 1608, 1611, 1691, 1693, 1695, 1698, 3314, 3359, 3363, 3373, 3376, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3406, 3415, 3533, 4147, 4149,					

	4150					
	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri This includes PCT's: 74, 75, 83, 250, 266, 267, 268, 270, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 298, 302, 312, 341, 342, 347, 350, 352, 356, 367, 381, 382, 395, 401, 403, 421, 433, 434, 435, 436, 437, 451, 483, 484, 488, 492, 496, 508, 509, 510, 511, 528, 538, 544, 563, 567, 571, 589, 590, 597, 599,	-	483_Poor	Yes	4	Pilliga, Bogan-Macquarie, Castlereagh-Barwon, Inland Slopes, Kerrabee, Liverpool Plains, Liverpool Range, Pilliga Outwash and Talbragar Valley. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	618, 619, 622, 633, 654, 702, 703, 704, 705, 710, 711, 796, 797, 799, 847, 851, 921, 1099, 1303, 1304, 1307, 1324, 1329, 1330, 1332, 1383, 1606, 1608, 1611, 1691, 1693, 1695, 1698, 3314, 3359, 3363, 3373, 3376, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3406, 3415, 3533, 4147, 4149, 4150					
	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri This includes PCT's:	-	483_Thinned	Yes	667	Pilliga, Bogan-Macquarie, Castlereagh-Barwon, Inland Slopes, Kerrabee, Liverpool Plains, Liverpool Range, Pilliga Outwash and Talbragar Valley. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	74, 75, 83, 250, 266, 267, 268, 270, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 298, 302, 312, 341, 342, 347, 350, 352, 356, 367, 381, 382, 395, 401, 403, 421, 433, 434, 435, 436, 437, 451, 483, 484, 488, 492, 496, 508, 509, 510, 511, 528, 538, 544, 563, 567, 571, 589, 590, 597, 599, 618, 619, 622, 633, 654, 702, 703, 704, 705, 710, 711, 796, 797, 799, 847, 851, 921, 1099, 1303, 1304, 1307, 1324, 1329, 1330, 1332, 1383, 1606, 1608, 1611, 1691, 1693, 1695, 1698, 3314, 3359, 3363, 3373, 3376, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3406, 3415, 3533, 4147, 4149, 4150					

618-White Box x Grey Box - red gum - Rough-barked Apple grassy woodland on rich soils on hills in the upper Hunter Valley	Like-for-like credit retirement options					
	Name of offset trading group	Trading group	Zone	HBT	Credits	IBRA region
	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri This includes PCT's: 74, 75, 83, 250, 266, 267, 268, 270, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 298, 302, 312, 341, 342, 347, 350, 352, 356, 367, 381, 382, 395, 401, 403, 421, 433, 434, 435, 436, 437, 451, 483, 484, 488, 492, 496, 508, 509, 510, 511,	-	618_DNG	No	10	Pilliga, Bogan-Macquarie, Castlereagh-Barwon, Inland Slopes, Kerrabee, Liverpool Plains, Liverpool Range, Pilliga Outwash and Talbragar Valley. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	528, 538, 544, 563, 567, 571, 589, 590, 597, 599, 618, 619, 622, 633, 654, 702, 703, 704, 705, 710, 711, 796, 797, 799, 847, 851, 921, 1099, 1303, 1304, 1307, 1324, 1329, 1330, 1332, 1383, 1606, 1608, 1611, 1691, 1693, 1695, 1698, 3314, 3359, 3363, 3373, 3376, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3406, 3415, 3533, 4147, 4149, 4150					
	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South	-	618_Mod_Good	Yes	54	Pilliga, Bogan-Macquarie, Castlereagh-Barwon, Inland Slopes, Kerrabee, Liverpool Plains, Liverpool Range, Pilliga Outwash and Talbragar Valley. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	East Corner and Ri This includes PCT's: 74, 75, 83, 250, 266, 267, 268, 270, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 298, 302, 312, 341, 342, 347, 350, 352, 356, 367, 381, 382, 395, 401, 403, 421, 433, 434, 435, 436, 437, 451, 483, 484, 488, 492, 496, 508, 509, 510, 511, 528, 538, 544, 563, 567, 571, 589, 590, 597, 599, 618, 619, 622, 633, 654, 702, 703, 704, 705, 710, 711, 796, 797, 799, 847, 851, 921, 1099, 1303, 1304, 1307, 1324, 1329, 1330, 1332, 1383, 1606, 1608, 1611, 1691, 1693, 1695, 1698, 3314, 3359, 3363, 3373, 3376, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3406, 3415, 3533, 4147, 4149, 4150					

1661-Narrow-leaved Ironbark - Black Pine - Sifton Bush heathy open forest on sandstone ranges of the upper Hunter and Sydney Basin

Like-for-like credit retirement options

Class	Trading group	Zone	HBT	Credits	IBRA region
Western Slopes Dry Sclerophyll Forests This includes PCT's: 54, 110, 217, 255, 273, 287, 330, 333, 341, 343, 346, 348, 358, 403, 455, 456, 472, 577, 581, 592, 617, 673, 676, 713, 940, 956, 1277, 1279, 1313, 1316, 1381, 1610, 1661, 1668, 1709, 3753, 3754, 3756, 3768, 3769, 4153	Western Slopes Dry Sclerophyll Forests >=50% and <70%	1661_DNG	No	0	Pilliga, Bogan-Macquarie, Castlereagh-Barwon, Inland Slopes, Kerrabee, Liverpool Plains, Liverpool Range, Pilliga Outwash and Talbragar Valley. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

Western Slopes Dry Sclerophyll Forests This includes PCT's: 54, 110, 217, 255, 273, 287, 330, 333, 341, 343, 346, 348, 358, 403, 455, 456, 472, 577, 581, 592, 617, 673, 676, 713, 940, 956, 1277, 1279, 1313, 1316, 1381, 1610, 1661, 1668, 1709, 3753, 3754, 3756, 3768, 3769, 4153	Western Slopes Dry Sclerophyll Forests >=50% and <70%	1661_Mod_Good	Yes	367	Pilliga, Bogan-Macquarie, Castlereagh-Barwon, Inland Slopes, Kerrabee, Liverpool Plains, Liverpool Range, Pilliga Outwash and Talbragar Valley. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Western Slopes Dry Sclerophyll Forests This includes PCT's: 54, 110, 217, 255, 273, 287, 330, 333, 341, 343, 346, 348, 358, 403, 455, 456, 472, 577, 581, 592, 617, 673, 676, 713, 940, 956, 1277, 1279, 1313, 1316, 1381, 1610, 1661, 1668, 1709, 3753, 3754, 3756, 3768, 3769, 4153	Western Slopes Dry Sclerophyll Forests >=50% and <70%	1661_Thinned	Yes	97	Pilliga, Bogan-Macquarie, Castlereagh-Barwon, Inland Slopes, Kerrabee, Liverpool Plains, Liverpool Range, Pilliga Outwash and Talbragar Valley. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

1696-Blakely's Red Gum - Rough-barked Apple shrubby woodland of central and upper Hunter	Like-for-like credit retirement options					
	Class	Trading group	Zone	HBT	Credits	IBRA region
	Coastal Valley Grassy Woodlands This includes PCT's: 618, 622, 623, 1603, 1604, 1691, 1692, 1696, 3269, 3312, 3313, 3314, 3315, 3316, 3317, 3318, 3319, 3320, 3321, 3322, 3323, 3324, 3325, 3326, 3327, 3328, 3329, 3330, 3331, 3332, 3334, 3336, 4052	Coastal Valley Grassy Woodlands <50%	1696_DNG	No	0	Pilliga, Bogan-Macquarie, Castlereagh-Barwon, Inland Slopes, Kerrabee, Liverpool Plains, Liverpool Range, Pilliga Outwash and Talbragar Valley. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

Coastal Valley Grassy Woodlands This includes PCT's: 618, 622, 623, 1603, 1604, 1691, 1692, 1696, 3269, 3312, 3313, 3314, 3315, 3316, 3317, 3318, 3319, 3320, 3321, 3322, 3323, 3324, 3325, 3326, 3327, 3328, 3329, 3330, 3331, 3332, 3334, 3336, 4052	Coastal Valley Grassy Woodlands <50%	1696_DNS	No	10	Pilliga, Bogan-Macquarie, Castlereagh-Barwon, Inland Slopes, Kerrabee, Liverpool Plains, Liverpool Range, Pilliga Outwash and Talbragar Valley. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Coastal Valley Grassy Woodlands This includes PCT's: 618, 622, 623, 1603, 1604, 1691, 1692, 1696, 3269, 3312, 3313, 3314, 3315, 3316, 3317, 3318, 3319, 3320, 3321, 3322, 3323, 3324, 3325, 3326, 3327, 3328, 3329, 3330, 3331, 3332, 3334, 3336, 4052	Coastal Valley Grassy Woodlands <50%	1696_Mod_Good	No	23	Pilliga, Bogan-Macquarie, Castlereagh-Barwon, Inland Slopes, Kerrabee, Liverpool Plains, Liverpool Range, Pilliga Outwash and Talbragar Valley. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

Species Credit Summary

Species	Vegetation Zone/s	Area / Count	Credits
Calyptorhynchus lathami / Glossy Black-Cockatoo	**477_Mod_Good, 1661_Mod_Good**	2.4	66.00
Cercartetus nanus / Eastern Pygmy-possum	**477_Mod_Good**	2.2	64.00
Commersonia procumbens / Commersonia procumbens	**477_Mod_Good, 479_Mod_Good, 479_Thinned**	4.8	153.00
Dichanthium setosum / Bluegrass	**281_Mod_Good, 281_Thinned, 483_DNG, 483_DNS, 483_Mod_Good, 483_Thinned, 281_DNG**	25.3	598.00
Eucalyptus cannonii / Capertee Stringybark	**1661_Mod_Good**	1.0	2.00
Homoranthus darwinioides / Fairy Bells	**477_Mod_Good, 477_Thinned**	1.3	39.00
Hoplocephalus bitorquatus / Pale-headed Snake	**477_Mod_Good, 477_Thinned**	2.2	66.00
Monotaxis macrophylla / Large-leafed Monotaxis	**477_Mod_Good, 477_Thinned, 479_Mod_Good, 479_Thinned, 483_Thinned, 1661_Mod_Good, 1661_Thinned**	12.4	351.00

Petaurus norfolcensis / Squirrel Glider	**281_Mod_Good, 281_Thinned, 477_Mod_Good, 477_Thinned, 479_Mod_Good, 618_Mod_Good**	10.3	364.00
Phascolarctos cinereus / Koala	**281_Mod_Good, 281_Thinned, 477_Mod_Good, 479_Mod_Good, 483_Mod_Good, 483_Thinned, 618_Mod_Good, 1661_Mod_Good, 1661_Thinned, 1696_Mod_Good, 477_Thinned**	62.7	1766.00
Pomaderris queenslandica / Scant Pomaderris	**1661_Mod_Good, 1661_Thinned**	0.7	17.00
Swainsona sericea / Silky Swainson-pea	**281_Mod_Good, 281_Thinned, 477_Mod_Good**	6.7	267.00
Tylophora linearis / Tylophora linearis	**479_Mod_Good, 477_Thinned**	1.8	59.00

Credit Retirement Options

Like-for-like credit retirement options

Calyptorhynchus lathami / Glossy Black-Cockatoo	Spp	IBRA subregion
	Calyptorhynchus lathami / Glossy Black-Cockatoo	Any in NSW
Cercartetus nanus / Eastern Pygmy-possum	Spp	IBRA subregion
	Cercartetus nanus / Eastern Pygmy-possum	Any in NSW
Commersonia procumbens / Commersonia procumbens	Spp	IBRA subregion
	Commersonia procumbens / Commersonia procumbens	Any in NSW
Dichanthium setosum / Bluegrass	Spp	IBRA subregion
	Dichanthium setosum / Bluegrass	Any in NSW
Eucalyptus cannonii / Capertee Stringybark	Spp	IBRA subregion
	Eucalyptus cannonii / Capertee Stringybark	Any in NSW
Homoranthus darwinioides / Fairy Bells	Spp	IBRA subregion
	Homoranthus darwinioides / Fairy Bells	Any in NSW
Hoplocephalus bitorquatus / Pale-headed Snake	Spp	IBRA subregion

	Hoplocephalus bitorquatus / Pale-headed Snake	Any in NSW
Monotaxis macrophylla / Large-leafed Monotaxis	Spp	IBRA subregion
	Monotaxis macrophylla / Large-leafed Monotaxis	Any in NSW
Petaurus norfolcensis / Squirrel Glider	Spp	IBRA subregion
	Petaurus norfolcensis / Squirrel Glider	Any in NSW
Phascolarctos cinereus / Koala	Spp	IBRA subregion
	Phascolarctos cinereus / Koala	Any in NSW
Pomaderris queenslandica / Scant Pomaderris	Spp	IBRA subregion
	Pomaderris queenslandica / Scant Pomaderris	Any in NSW
Swainsona sericea / Silky Swainson-pea	Spp	IBRA subregion
	Swainsona sericea / Silky Swainson-pea	Any in NSW
Tylophora linearis / Tylophora linearis	Spp	IBRA subregion
	Tylophora linearis / Tylophora linearis	Any in NSW

BAM Biodiversity Credit Report (Variations)

Proposal Details

Assessment Id
00038234/BAAS17060/23/00038235

Proposal Name
CWOREZ Pilliga subregion - Liverpool Range

BAM data last updated *
14/04/2023

Assessor Name
Lukas Leslie Clews

Assessor Number
BAAS17060

BAM Data version *
58

Proponent Name(s)

Report Created
13/06/2023

BAM Case Status
Open

Assessment Revision
2

Assessment Type
Major Projects

Date Finalised
To be finalised

* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.

Potential Serious and Irreversible Impacts

Name of threatened ecological community	Listing status	Name of Plant Community Type/ID
White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri	Critically Endangered Ecological Community	281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion

White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri	Critically Endangered Ecological Community	483-Grey Box x White Box grassy open woodland on basalt hills in the Merriwa region, upper Hunter Valley
White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri	Critically Endangered Ecological Community	618-White Box x Grey Box - red gum - Rough-barked Apple grassy woodland on rich soils on hills in the upper Hunter Valley

Species
Nil

Additional Information for Approval

PCT Outside Ibra Added

PCT
281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
477-Inland Scribbly Gum - Red Stringybark - Black Cypress Pine - Red Ironbark open forest on sandstone hills in the southern Brigalow Belt South Bioregion and northern NSW South Western Slopes Bioregion
479-Narrow-leaved Ironbark- Black Cypress Pine - stringybark +/- Grey Gum +/- Narrow-leaved Wattle shrubby open forest on sandstone hills in the southern Brigalow Belt South Bioregion and Sydney Basin Bioregion
483-Grey Box x White Box grassy open woodland on basalt hills in the Merriwa region, upper Hunter Valley

PCTs With Customized Benchmarks

PCT

No Changes

Predicted Threatened Species Not On Site

Name
Lophochroa leadbeateri / Major Mitchell's Cockatoo

Ecosystem Credit Summary (Number and class of biodiversity credits to be retired)

Name of Plant Community Type/ID	Name of threatened ecological community	Area of impact	HBT Cr	No HBT Cr	Total credits to be retired
281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri	8.0	359	16	375.00
477-Inland Scribbly Gum - Red Stringybark - Black Cypress Pine - Red Ironbark open forest on sandstone hills in the southern Brigalow Belt South Bioregion and northern NSW South Western Slopes Bioregion	Not a TEC	2.2	49	0	49.00
479-Narrow-leaved Ironbark- Black Cypress Pine - stringybark +/- Grey Gum +/- Narrow-leaved Wattle shrubby open forest on sandstone hills in the southern Brigalow Belt South Bioregion and Sydney Basin Bioregion	Not a TEC	15.7	209	0	209.00

483-Grey Box x White Box grassy open woodland on basalt hills in the Merriwa region, upper Hunter Valley	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri	35.5	960	0	960.00
618-White Box x Grey Box - red gum - Rough-barked Apple grassy woodland on rich soils on hills in the upper Hunter Valley	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri	3.1	54	10	64.00
1661-Narrow-leaved Ironbark - Black Pine - Sifton Bush heathy open forest on sandstone ranges of the upper Hunter and Sydney Basin	Not a TEC	25.7	464	0	464.00
1696-Blakely's Red Gum - Rough-barked Apple shrubby woodland of central and upper Hunter	Not a TEC	3.6	0	33	33.00

281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion

Like-for-like credit retirement options

Class	Trading group	Zone	HBT	Credits	IBRA region
White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin,	-	281_DNG	No	16	Pilliga,Bogan-Macquarie, Castlereagh-Barwon, Inland Slopes, Kerrabee, Liverpool Plains, Liverpool Range, Pilliga Outwash and Talbragar Valley. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri This includes PCT's: 74, 75, 83, 250, 266, 267, 268, 270, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 298, 302, 312, 341, 342, 347, 350, 352, 356, 367, 381, 382, 395, 401, 403, 421, 433, 434, 435, 436, 437, 451, 483, 484, 488, 492, 496, 508, 509, 510, 511, 528, 538, 544, 563, 567, 571, 589, 590, 597, 599, 618, 619, 622, 633, 654, 702, 703, 704, 705, 710, 711, 796, 797, 799, 847, 851, 921, 1099, 1303, 1304, 1307, 1324, 1329, 1330, 1332, 1383, 1606, 1608, 1611, 1691, 1693, 1695, 1698, 3314, 3359, 3363, 3373, 3376, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3406, 3415, 3533, 4147, 4149, 4150					
	White Box - Yellow Box -	-	281_Mod_	Yes	25	Pilliga,Bogan-Macquarie, Castlereagh-

	Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri This includes PCT's: 74, 75, 83, 250, 266, 267, 268, 270, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 298, 302, 312, 341, 342, 347, 350, 352, 356, 367, 381, 382, 395, 401, 403, 421, 433, 434, 435, 436, 437, 451, 483, 484, 488, 492, 496, 508, 509, 510, 511, 528, 538, 544, 563, 567, 571, 589, 590, 597, 599, 618, 619, 622, 633, 654, 702, 703, 704, 705, 710, 711, 796, 797, 799, 847, 851, 921, 1099, 1303, 1304, 1307, 1324, 1329, 1330, 1332, 1383, 1606, 1608, 1611, 1691, 1693,		Good			Barwon, Inland Slopes, Kerrabee, Liverpool Plains, Liverpool Range, Pilliga Outwash and Talbragar Valley. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	1695, 1698, 3314, 3359, 3363, 3373, 3376, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3406, 3415, 3533, 4147, 4149, 4150					
	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri This includes PCT's: 74, 75, 83, 250, 266, 267, 268, 270, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 298, 302, 312, 341, 342, 347, 350, 352, 356, 367, 381, 382, 395, 401, 403, 421, 433, 434, 435, 436, 437, 451, 483, 484, 488, 492, 496, 508, 509, 510, 511, 528, 538, 544, 563, 567, 571, 589, 590, 597, 599,	-	281_Thinned	Yes	334	Pilliga,Bogan-Macquarie, Castlereagh-Barwon, Inland Slopes, Kerrabee, Liverpool Plains, Liverpool Range, Pilliga Outwash and Talbragar Valley. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	618, 619, 622, 633, 654, 702, 703, 704, 705, 710, 711, 796, 797, 799, 847, 851, 921, 1099, 1303, 1304, 1307, 1324, 1329, 1330, 1332, 1383, 1606, 1608, 1611, 1691, 1693, 1695, 1698, 3314, 3359, 3363, 3373, 3376, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3406, 3415, 3533, 4147, 4149, 4150					
477-Inland Scribbly Gum - Red Stringybark - Black Cypress Pine - Red Ironbark open forest on sandstone hills in the southern Brigalow Belt South Bioregion and northern NSW South Western Slopes Bioregion	**Like-for-like credit retirement options**					
	Class	Trading group	Zone	HBT	Credits	IBRA region
	Western Slopes Dry Sclerophyll Forests This includes PCT's: 54, 110, 179, 217, 243, 255, 270, 273, 287, 291, 309, 321, 322, 323, 324, 325, 327, 330, 331, 333, 341, 343, 346, 348, 354, 358, 379, 387, 396, 398, 399, 401, 402, 403, 404, 405, 406, 407, 408, 409, 414, 415, 417, 419, 420, 423, 425, 430, 431, 440, 443, 449, 455, 456, 457, 459, 462, 463, 467, 468,	Western Slopes Dry Sclerophyll Forests <50%	477_Mod_ Good	Yes	48	Pilliga,Bogan-Macquarie, Castlereagh-Barwon, Inland Slopes, Kerrabee, Liverpool Plains, Liverpool Range, Pilliga Outwash and Talbragar Valley. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	469, 470, 471, 472, 473, 476, 477, 478, 479, 480, 482, 515, 531, 532, 576, 577, 581, 592, 610, 617, 671, 673, 676, 712, 713, 714, 746, 863, 889, 940, 956, 1133, 1176, 1277, 1278, 1279, 1307, 1313, 1314, 1316, 1381, 1610, 1654, 1655, 1656, 1660, 1661, 1663, 1668, 1669, 1671, 1672, 1674, 1676, 1679, 1709, 1711, 1770, 1771, 3753, 3754, 3756, 3757, 3758, 3759, 3760, 3761, 3762, 3763, 3766, 3767, 3768, 3769, 3770, 3771, 3772, 3773, 3774, 3775, 3776, 3777, 3778, 3780, 3781, 3782, 3783, 3784, 3785, 3786, 4153					
	Western Slopes Dry Sclerophyll Forests This includes PCT's: 54, 110, 179, 217, 243, 255, 270, 273, 287, 291, 309, 321, 322, 323, 324, 325, 327, 330, 331, 333, 341, 343, 346, 348, 354, 358, 379, 387, 396, 398, 399, 401, 402, 403, 404,	Western Slopes Dry Sclerophyll Forests <50%	477_Thinned	Yes	1	Pilliga,Bogan-Macquarie, Castlereagh-Barwon, Inland Slopes, Kerrabee, Liverpool Plains, Liverpool Range, Pilliga Outwash and Talbragar Valley. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	405, 406, 407, 408, 409, 414, 415, 417, 419, 420, 423, 425, 430, 431, 440, 443, 449, 455, 456, 457, 459, 462, 463, 467, 468, 469, 470, 471, 472, 473, 476, 477, 478, 479, 480, 482, 515, 531, 532, 576, 577, 581, 592, 610, 617, 671, 673, 676, 712, 713, 714, 746, 863, 889, 940, 956, 1133, 1176, 1277, 1278, 1279, 1307, 1313, 1314, 1316, 1381, 1610, 1654, 1655, 1656, 1660, 1661, 1663, 1668, 1669, 1671, 1672, 1674, 1676, 1679, 1709, 1711, 1770, 1771, 3753, 3754, 3756, 3757, 3758, 3759, 3760, 3761, 3762, 3763, 3766, 3767, 3768, 3769, 3770, 3771, 3772, 3773, 3774, 3775, 3776, 3777, 3778, 3780, 3781, 3782, 3783, 3784, 3785, 3786, 4153					
	Variation options					
	Formation	Trading group	Zone	HBT	Credits	IBRA region

	Dry Sclerophyll Forests (Shrubby sub-formation)	Tier 4 or higher threat status	477_Mod_Good	Yes (including artificial)	48	IBRA Region: Brigalow Belt South, or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
	Dry Sclerophyll Forests (Shrubby sub-formation)	Tier 4 or higher threat status	477_Thinned	Yes (including artificial)	1	IBRA Region: Brigalow Belt South, or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
479-Narrow-leaved Ironbark-Black Cypress Pine - stringybark +/- Grey Gum +/- Narrow-leaved Wattle shrubby open forest on sandstone hills in the southern Brigalow Belt South Bioregion and Sydney Basin Bioregion	**Like-for-like credit retirement options**					
	Class	Trading group	Zone	HBT	Credits	IBRA region
	Western Slopes Dry Sclerophyll Forests This includes PCT's: 54, 110, 179, 217, 243, 255, 270, 273, 287, 291, 309, 321, 322, 323, 324, 325, 327, 330, 331, 333, 341, 343, 346, 348, 354, 358, 379, 387, 396, 398, 399, 401, 402, 403, 404, 405, 406, 407, 408, 409, 414, 415, 417, 419, 420, 423, 425, 430, 431, 440, 443, 449, 455, 456, 457, 459, 462, 463, 467, 468, 469, 470, 471, 472, 473, 476, 477, 478, 479, 480, 482, 515, 531, 532, 576,	Western Slopes Dry Sclerophyll Forests <50%	479_DNG	No	0	Pilliga,Bogan-Macquarie, Castlereagh-Barwon, Inland Slopes, Kerrabee, Liverpool Plains, Liverpool Range, Pilliga Outwash and Talbragar Valley. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	577, 581, 592, 610, 617, 671, 673, 676, 712, 713, 714, 746, 863, 889, 940, 956, 1133, 1176, 1277, 1278, 1279, 1307, 1313, 1314, 1316, 1381, 1610, 1654, 1655, 1656, 1660, 1661, 1663, 1668, 1669, 1671, 1672, 1674, 1676, 1679, 1709, 1711, 1770, 1771, 3753, 3754, 3756, 3757, 3758, 3759, 3760, 3761, 3762, 3763, 3766, 3767, 3768, 3769, 3770, 3771, 3772, 3773, 3774, 3775, 3776, 3777, 3778, 3780, 3781, 3782, 3783, 3784, 3785, 3786, 4153					
	Western Slopes Dry Sclerophyll Forests This includes PCT's: 54, 110, 179, 217, 243, 255, 270, 273, 287, 291, 309, 321, 322, 323, 324, 325, 327, 330, 331, 333, 341, 343, 346, 348, 354, 358, 379, 387, 396, 398, 399, 401, 402, 403, 404, 405, 406, 407, 408, 409, 414, 415, 417, 419, 420, 423, 425, 430, 431, 440,	Western Slopes Dry Sclerophyll Forests <50%	479_Mod_ Good	Yes	208	Pilliga,Bogan-Macquarie, Castlereagh-Barwon, Inland Slopes, Kerrabee, Liverpool Plains, Liverpool Range, Pilliga Outwash and Talbragar Valley. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	443, 449, 455, 456, 457, 459, 462, 463, 467, 468, 469, 470, 471, 472, 473, 476, 477, 478, 479, 480, 482, 515, 531, 532, 576, 577, 581, 592, 610, 617, 671, 673, 676, 712, 713, 714, 746, 863, 889, 940, 956, 1133, 1176, 1277, 1278, 1279, 1307, 1313, 1314, 1316, 1381, 1610, 1654, 1655, 1656, 1660, 1661, 1663, 1668, 1669, 1671, 1672, 1674, 1676, 1679, 1709, 1711, 1770, 1771, 3753, 3754, 3756, 3757, 3758, 3759, 3760, 3761, 3762, 3763, 3766, 3767, 3768, 3769, 3770, 3771, 3772, 3773, 3774, 3775, 3776, 3777, 3778, 3780, 3781, 3782, 3783, 3784, 3785, 3786, 4153					
	Western Slopes Dry Sclerophyll Forests This includes PCT's: 54, 110, 179, 217, 243, 255, 270, 273, 287, 291, 309, 321, 322, 323, 324, 325, 327, 330, 331, 333, 341, 343, 346, 348, 354,	Western Slopes Dry Sclerophyll Forests <50%	479_Thinned	Yes	1	Pilliga,Bogan-Macquarie, Castlereagh-Barwon, Inland Slopes, Kerrabee, Liverpool Plains, Liverpool Range, Pilliga Outwash and Talbragar Valley. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	358, 379, 387, 396, 398, 399, 401, 402, 403, 404, 405, 406, 407, 408, 409, 414, 415, 417, 419, 420, 423, 425, 430, 431, 440, 443, 449, 455, 456, 457, 459, 462, 463, 467, 468, 469, 470, 471, 472, 473, 476, 477, 478, 479, 480, 482, 515, 531, 532, 576, 577, 581, 592, 610, 617, 671, 673, 676, 712, 713, 714, 746, 863, 889, 940, 956, 1133, 1176, 1277, 1278, 1279, 1307, 1313, 1314, 1316, 1381, 1610, 1654, 1655, 1656, 1660, 1661, 1663, 1668, 1669, 1671, 1672, 1674, 1676, 1679, 1709, 1711, 1770, 1771, 3753, 3754, 3756, 3757, 3758, 3759, 3760, 3761, 3762, 3763, 3766, 3767, 3768, 3769, 3770, 3771, 3772, 3773, 3774, 3775, 3776, 3777, 3778, 3780, 3781, 3782, 3783, 3784, 3785, 3786, 4153					
	Variation options					
	Formation	Trading group	Zone	HBT	Credits	IBRA region

	Dry Sclerophyll Forests (Shrubby sub-formation)	Tier 4 or higher threat status	479_DNG	No	0	IBRA Region: Brigalow Belt South, or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
	Dry Sclerophyll Forests (Shrubby sub-formation)	Tier 4 or higher threat status	479_Mod_Good	Yes (including artificial)	208	IBRA Region: Brigalow Belt South, or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
	Dry Sclerophyll Forests (Shrubby sub-formation)	Tier 4 or higher threat status	479_Thinned	Yes (including artificial)	1	IBRA Region: Brigalow Belt South, or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
483-Grey Box x White Box grassy open woodland on basalt hills in the Merriwa region, upper Hunter Valley	**Like-for-like credit retirement options**					
	Class	Trading group	Zone	HBT	Credits	IBRA region
	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri	-	483_DNG	Yes	272	Pilliga,Bogan-Macquarie, Castlereagh-Barwon, Inland Slopes, Kerrabee, Liverpool Plains, Liverpool Range, Pilliga Outwash and Talbragar Valley. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	This includes PCT's: 74, 75, 83, 250, 266, 267, 268, 270, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 298, 302, 312, 341, 342, 347, 350, 352, 356, 367, 381, 382, 395, 401, 403, 421, 433, 434, 435, 436, 437, 451, 483, 484, 488, 492, 496, 508, 509, 510, 511, 528, 538, 544, 563, 567, 571, 589, 590, 597, 599, 618, 619, 622, 633, 654, 702, 703, 704, 705, 710, 711, 796, 797, 799, 847, 851, 921, 1099, 1303, 1304, 1307, 1324, 1329, 1330, 1332, 1383, 1606, 1608, 1611, 1691, 1693, 1695, 1698, 3314, 3359, 3363, 3373, 3376, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3406, 3415, 3533, 4147, 4149, 4150					
	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New	-	483_DNS	No	0	Pilliga,Bogan-Macquarie, Castlereagh-Barwon, Inland Slopes, Kerrabee, Liverpool Plains, Liverpool Range, Pilliga Outwash and Talbragar Valley. or

	England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri This includes PCT's: 74, 75, 83, 250, 266, 267, 268, 270, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 298, 302, 312, 341, 342, 347, 350, 352, 356, 367, 381, 382, 395, 401, 403, 421, 433, 434, 435, 436, 437, 451, 483, 484, 488, 492, 496, 508, 509, 510, 511, 528, 538, 544, 563, 567, 571, 589, 590, 597, 599, 618, 619, 622, 633, 654, 702, 703, 704, 705, 710, 711, 796, 797, 799, 847, 851, 921, 1099, 1303, 1304, 1307, 1324, 1329, 1330, 1332, 1383, 1606, 1608, 1611, 1691, 1693, 1695, 1698, 3314, 3359, 3363, 3373, 3376, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3406,					Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	3415, 3533, 4147, 4149, 4150					
	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri This includes PCT's: 74, 75, 83, 250, 266, 267, 268, 270, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 298, 302, 312, 341, 342, 347, 350, 352, 356, 367, 381, 382, 395, 401, 403, 421, 433, 434, 435, 436, 437, 451, 483, 484, 488, 492, 496, 508, 509, 510, 511, 528, 538, 544, 563, 567, 571, 589, 590, 597, 599, 618, 619, 622, 633, 654, 702, 703, 704, 705, 710, 711, 796, 797, 799, 847, 851, 921, 1099, 1303,	-	483_Mod_Good	Yes	17	Pilliga,Bogan-Macquarie, Castlereagh-Barwon, Inland Slopes, Kerrabee, Liverpool Plains, Liverpool Range, Pilliga Outwash and Talbragar Valley. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	1304, 1307, 1324, 1329, 1330, 1332, 1383, 1606, 1608, 1611, 1691, 1693, 1695, 1698, 3314, 3359, 3363, 3373, 3376, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3406, 3415, 3533, 4147, 4149, 4150					
	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri This includes PCT's: 74, 75, 83, 250, 266, 267, 268, 270, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 298, 302, 312, 341, 342, 347, 350, 352, 356, 367, 381, 382, 395, 401, 403, 421, 433, 434, 435, 436, 437, 451, 483, 484, 488, 492,	-	483_Poor	Yes	4	Pilliga,Bogan-Macquarie, Castlereagh-Barwon, Inland Slopes, Kerrabee, Liverpool Plains, Liverpool Range, Pilliga Outwash and Talbragar Valley. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	496, 508, 509, 510, 511, 528, 538, 544, 563, 567, 571, 589, 590, 597, 599, 618, 619, 622, 633, 654, 702, 703, 704, 705, 710, 711, 796, 797, 799, 847, 851, 921, 1099, 1303, 1304, 1307, 1324, 1329, 1330, 1332, 1383, 1606, 1608, 1611, 1691, 1693, 1695, 1698, 3314, 3359, 3363, 3373, 3376, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3406, 3415, 3533, 4147, 4149, 4150					
	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri This includes PCT's: 74, 75, 83, 250, 266, 267, 268, 270, 274, 275, 276,	-	483_Thinned	Yes	667	Pilliga,Bogan-Macquarie, Castlereagh-Barwon, Inland Slopes, Kerrabee, Liverpool Plains, Liverpool Range, Pilliga Outwash and Talbragar Valley. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	277, 278, 279, 280, 281, 282, 283, 284, 286, 298, 302, 312, 341, 342, 347, 350, 352, 356, 367, 381, 382, 395, 401, 403, 421, 433, 434, 435, 436, 437, 451, 483, 484, 488, 492, 496, 508, 509, 510, 511, 528, 538, 544, 563, 567, 571, 589, 590, 597, 599, 618, 619, 622, 633, 654, 702, 703, 704, 705, 710, 711, 796, 797, 799, 847, 851, 921, 1099, 1303, 1304, 1307, 1324, 1329, 1330, 1332, 1383, 1606, 1608, 1611, 1691, 1693, 1695, 1698, 3314, 3359, 3363, 3373, 3376, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3406, 3415, 3533, 4147, 4149, 4150					
618-White Box x Grey Box - red gum - Rough-barked Apple grassy woodland on rich soils on hills in the upper Hunter Valley	**Like-for-like credit retirement options**					
	Class	Trading group	Zone	HBT	Credits	IBRA region
	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New	-	618_DNG	No	10	Pilliga,Bogan-Macquarie, Castlereagh-Barwon, Inland Slopes, Kerrabee, Liverpool Plains, Liverpool Range, Pilliga Outwash and Talbragar Valley. or

	England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri This includes PCT's: 74, 75, 83, 250, 266, 267, 268, 270, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 298, 302, 312, 341, 342, 347, 350, 352, 356, 367, 381, 382, 395, 401, 403, 421, 433, 434, 435, 436, 437, 451, 483, 484, 488, 492, 496, 508, 509, 510, 511, 528, 538, 544, 563, 567, 571, 589, 590, 597, 599, 618, 619, 622, 633, 654, 702, 703, 704, 705, 710, 711, 796, 797, 799, 847, 851, 921, 1099, 1303, 1304, 1307, 1324, 1329, 1330, 1332, 1383, 1606, 1608, 1611, 1691, 1693, 1695, 1698, 3314, 3359, 3363, 3373, 3376, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3406,					Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	3415, 3533, 4147, 4149, 4150					
	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri This includes PCT's: 74, 75, 83, 250, 266, 267, 268, 270, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 298, 302, 312, 341, 342, 347, 350, 352, 356, 367, 381, 382, 395, 401, 403, 421, 433, 434, 435, 436, 437, 451, 483, 484, 488, 492, 496, 508, 509, 510, 511, 528, 538, 544, 563, 567, 571, 589, 590, 597, 599, 618, 619, 622, 633, 654, 702, 703, 704, 705, 710, 711, 796, 797, 799, 847, 851, 921, 1099, 1303,	-	618_Mod_Good	Yes	54	Pilliga,Bogan-Macquarie, Castlereagh-Barwon, Inland Slopes, Kerrabee, Liverpool Plains, Liverpool Range, Pilliga Outwash and Talbragar Valley. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	1304, 1307, 1324, 1329, 1330, 1332, 1383, 1606, 1608, 1611, 1691, 1693, 1695, 1698, 3314, 3359, 3363, 3373, 3376, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3406, 3415, 3533, 4147, 4149, 4150					
1661-Narrow-leaved Ironbark - Black Pine - Sifton Bush heathy open forest on sandstone ranges of the upper Hunter and Sydney Basin	**Like-for-like credit retirement options**					
	Class	Trading group	Zone	HBT	Credits	IBRA region
	Western Slopes Dry Sclerophyll Forests This includes PCT's: 54, 110, 217, 255, 273, 287, 330, 333, 341, 343, 346, 348, 358, 403, 455, 456, 472, 577, 581, 592, 617, 673, 676, 713, 940, 956, 1277, 1279, 1313, 1316, 1381, 1610, 1661, 1668, 1709, 3753, 3754, 3756, 3768, 3769, 4153	Western Slopes Dry Sclerophyll Forests >=50% and <70%	1661_DNG	No	0	Pilliga,Bogan-Macquarie, Castlereagh-Barwon, Inland Slopes, Kerrabee, Liverpool Plains, Liverpool Range, Pilliga Outwash and Talbragar Valley. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

Western Slopes Dry Sclerophyll Forests This includes PCT's: 54, 110, 217, 255, 273, 287, 330, 333, 341, 343, 346, 348, 358, 403, 455, 456, 472, 577, 581, 592, 617, 673, 676, 713, 940, 956, 1277, 1279, 1313, 1316, 1381, 1610, 1661, 1668, 1709, 3753, 3754, 3756, 3768, 3769, 4153	Western Slopes Dry Sclerophyll Forests >=50% and <70%	1661_Mod_Good	Yes	367	Pilliga,Bogan-Macquarie, Castlereagh-Barwon, Inland Slopes, Kerrabee, Liverpool Plains, Liverpool Range, Pilliga Outwash and Talbragar Valley. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Western Slopes Dry Sclerophyll Forests This includes PCT's: 54, 110, 217, 255, 273, 287, 330, 333, 341, 343, 346, 348, 358, 403, 455, 456, 472, 577, 581, 592, 617, 673, 676, 713, 940, 956, 1277, 1279, 1313, 1316, 1381, 1610, 1661, 1668, 1709, 3753, 3754, 3756, 3768, 3769, 4153	Western Slopes Dry Sclerophyll Forests >=50% and <70%	1661_Thinned	Yes	97	Pilliga,Bogan-Macquarie, Castlereagh-Barwon, Inland Slopes, Kerrabee, Liverpool Plains, Liverpool Range, Pilliga Outwash and Talbragar Valley. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

Variation options

Formation	Trading group	Zone	HBT	Credits	IBRA region

	Dry Sclerophyll Forests (Shrubby sub-formation)	Tier 3 or higher threat status	1661_DNG	No	0	IBRA Region: Brigalow Belt South, or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
	Dry Sclerophyll Forests (Shrubby sub-formation)	Tier 3 or higher threat status	1661_Mod_Good	Yes (including artificial)	367	IBRA Region: Brigalow Belt South, or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
	Dry Sclerophyll Forests (Shrubby sub-formation)	Tier 3 or higher threat status	1661_Thinned	Yes (including artificial)	97	IBRA Region: Brigalow Belt South, or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
1696-Blakely's Red Gum - Rough-barked Apple shrubby woodland of central and upper Hunter	**Like-for-like credit retirement options**					
	Class	Trading group	Zone	HBT	Credits	IBRA region
	Coastal Valley Grassy Woodlands This includes PCT's: 618, 622, 623, 1603, 1604, 1691, 1692, 1696, 3269, 3312, 3313, 3314, 3315, 3316, 3317, 3318, 3319, 3320, 3321, 3322, 3323, 3324, 3325, 3326, 3327, 3328, 3329, 3330, 3331, 3332, 3334, 3336, 4052	Coastal Valley Grassy Woodlands <50%	1696_DNG	No	0	Pilliga,Bogan-Macquarie, Castlereagh-Barwon, Inland Slopes, Kerrabee, Liverpool Plains, Liverpool Range, Pilliga Outwash and Talbragar Valley. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

Coastal Valley Grassy Woodlands This includes PCT's: 618, 622, 623, 1603, 1604, 1691, 1692, 1696, 3269, 3312, 3313, 3314, 3315, 3316, 3317, 3318, 3319, 3320, 3321, 3322, 3323, 3324, 3325, 3326, 3327, 3328, 3329, 3330, 3331, 3332, 3334, 3336, 4052	Coastal Valley Grassy Woodlands <50%	1696_DNS	No	10	Pilliga,Bogan-Macquarie, Castlereagh-Barwon, Inland Slopes, Kerrabee, Liverpool Plains, Liverpool Range, Pilliga Outwash and Talbragar Valley. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Coastal Valley Grassy Woodlands This includes PCT's: 618, 622, 623, 1603, 1604, 1691, 1692, 1696, 3269, 3312, 3313, 3314, 3315, 3316, 3317, 3318, 3319, 3320, 3321, 3322, 3323, 3324, 3325, 3326, 3327, 3328, 3329, 3330, 3331, 3332, 3334, 3336, 4052	Coastal Valley Grassy Woodlands <50%	1696_Mod_Good	No	23	Pilliga,Bogan-Macquarie, Castlereagh-Barwon, Inland Slopes, Kerrabee, Liverpool Plains, Liverpool Range, Pilliga Outwash and Talbragar Valley. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

Variation options

Formation	Trading group	Zone	HBT	Credits	IBRA region
Grassy Woodlands	Tier 4 or higher threat status	1696_DNG	No	0	IBRA Region: Brigalow Belt South, or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	Grassy Woodlands	Tier 4 or higher threat status	1696_DNS	No	10	IBRA Region: Brigalow Belt South, or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
	Grassy Woodlands	Tier 4 or higher threat status	1696_Mod_Good	No	23	IBRA Region: Brigalow Belt South, or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

Species Credit Summary

Species	Vegetation Zone/s	Area / Count	Credits
Calyptorhynchus lathami / Glossy Black-Cockatoo	**477_Mod_Good, 1661_Mod_Good**	2.4	66.00
Cercartetus nanus / Eastern Pygmy-possum	**477_Mod_Good**	2.2	64.00
Commersonia procumbens / Commersonia procumbens	**477_Mod_Good, 479_Mod_Good, 479_Thinned**	4.8	153.00
Dichanthium setosum / Bluegrass	**281_Mod_Good, 281_Thinned, 483_DNG, 483_DNS, 483_Mod_Good, 483_Thinned, 281_DNG**	25.3	598.00
Eucalyptus cannonii / Capertee Stringybark	**1661_Mod_Good**	1.0	2.00
Homoranthus darwinioides / Fairy Bells	**477_Mod_Good, 477_Thinned**	1.3	39.00
Hoplocephalus bitorquatus / Pale-headed Snake	**477_Mod_Good, 477_Thinned**	2.2	66.00

Monotaxis macrophylla / Large-leafed Monotaxis	**477_Mod_Good, 477_Thinned, 479_Mod_Good, 479_Thinned, 483_Thinned, 1661_Mod_Good, 1661_Thinned**	12.4	351.00
Petaurus norfolcensis / Squirrel Glider	**281_Mod_Good, 281_Thinned, 477_Mod_Good, 477_Thinned, 479_Mod_Good, 618_Mod_Good**	10.3	364.00
Phascolarctos cinereus / Koala	**281_Mod_Good, 281_Thinned, 477_Mod_Good, 479_Mod_Good, 483_Mod_Good, 483_Thinned, 618_Mod_Good, 1661_Mod_Good, 1661_Thinned, 1696_Mod_Good, 477_Thinned**	62.7	1766.00
Pomaderris queenslandica / Scant Pomaderris	**1661_Mod_Good, 1661_Thinned**	0.7	17.00
Swainsona sericea / Silky Swainson-pea	**281_Mod_Good, 281_Thinned, 477_Mod_Good**	6.7	267.00
Tylophora linearis / Tylophora linearis	**479_Mod_Good, 477_Thinned**	1.8	59.00

Credit Retirement Options

Like-for-like options

Calyptorhynchus lathami/ Glossy Black-Cockatoo	Spp	IBRA region	
	Calyptorhynchus lathami/Glossy Black-Cockatoo	Any in NSW	
	Variation options		
	Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act	IBRA region

		shown below	
	Fauna	Vulnerable	Pilliga, Bogan-Macquarie, Castlereagh-Barwon, Inland Slopes, Kerrabee, Liverpool Plains, Liverpool Range, Pilliga Outwash and Talbragar Valley. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Cercartetus nanus/ Eastern Pygmy-possum	Spp	IBRA region	
	Cercartetus nanus/Eastern Pygmy-possum	Any in NSW	
	Variation options		
	Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act shown below	IBRA region
	Fauna	Vulnerable	Pilliga, Bogan-Macquarie, Castlereagh-Barwon, Inland Slopes, Kerrabee, Liverpool Plains, Liverpool Range, Pilliga Outwash and Talbragar Valley. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Commersonia procumbens/ Commersonia procumbens	Spp	IBRA region	
	Commersonia procumbens/Commersonia procumbens	Any in NSW	

Commersonia procumbens/ Commersonia procumbens	**Variation options**		
	Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act shown below	IBRA region
	Flora	Vulnerable	Pilliga, Bogan-Macquarie, Castlereagh-Barwon, Inland Slopes, Kerrabee, Liverpool Plains, Liverpool Range, Pilliga Outwash and Talbragar Valley. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Dichanthium setosum/ Bluegrass	Spp	IBRA region	
	Dichanthium setosum/Bluegrass	Any in NSW	
	Variation options		
	Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act shown below	IBRA region

	Flora	Vulnerable	Pilliga, Bogan-Macquarie, Castlereagh-Barwon, Inland Slopes, Kerrabee, Liverpool Plains, Liverpool Range, Pilliga Outwash and Talbragar Valley. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Eucalyptus cannonii/ Capertee Stringybark	Spp	IBRA region	
	Eucalyptus cannonii/Capertee Stringybark	Any in NSW	
	Variation options		
	Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act shown below	IBRA region
	Flora	Vulnerable	Pilliga, Bogan-Macquarie, Castlereagh-Barwon, Inland Slopes, Kerrabee, Liverpool Plains, Liverpool Range, Pilliga Outwash and Talbragar Valley. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Homoranthus darwinioides/ Fairy Bells	Spp	IBRA region	
	Homoranthus darwinioides/Fairy Bells	Any in NSW	
	Variation options		

	Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act shown below	IBRA region
	Flora	Vulnerable	Pilliga, Bogan-Macquarie, Castlereagh-Barwon, Inland Slopes, Kerrabee, Liverpool Plains, Liverpool Range, Pilliga Outwash and Talbragar Valley. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Hoplocephalus bitorquatus/ Pale-headed Snake	Spp	IBRA region	
	Hoplocephalus bitorquatus/Pale-headed Snake	Any in NSW	
	Variation options		
	Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act shown below	IBRA region
	Fauna	Vulnerable	Pilliga, Bogan-Macquarie, Castlereagh-Barwon, Inland Slopes, Kerrabee, Liverpool Plains, Liverpool Range, Pilliga Outwash and Talbragar Valley. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

Monotaxis macrophylla/ Large-leafed Monotaxis	Spp		IBRA region
	Monotaxis macrophylla/Large-leafed Monotaxis		Any in NSW
	Variation options		
	Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act shown below	IBRA region
	Flora	Endangered	Pilliga, Bogan-Macquarie, Castlereagh-Barwon, Inland Slopes, Kerrabee, Liverpool Plains, Liverpool Range, Pilliga Outwash and Talbragar Valley. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Petaurus norfolcensis/ Squirrel Glider	Spp		IBRA region
	Petaurus norfolcensis/Squirrel Glider		Any in NSW
	Variation options		
	Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act shown below	IBRA region

	Fauna	Vulnerable	Pilliga, Bogan-Macquarie, Castlereagh-Barwon, Inland Slopes, Kerrabee, Liverpool Plains, Liverpool Range, Pilliga Outwash and Talbragar Valley. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Phascolarctos cinereus/ Koala	Spp	IBRA region	
	Phascolarctos cinereus/Koala	Any in NSW	
	Variation options		
	Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act shown below	IBRA region
	Fauna	Endangered	Pilliga, Bogan-Macquarie, Castlereagh-Barwon, Inland Slopes, Kerrabee, Liverpool Plains, Liverpool Range, Pilliga Outwash and Talbragar Valley. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Pomaderris queenslandica/ Scant Pomaderris	Spp	IBRA region	
	Pomaderris queenslandica/Scant Pomaderris	Any in NSW	
	Variation options		

	Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act shown below	IBRA region
	Flora	Endangered	Pilliga, Bogan-Macquarie, Castlereagh-Barwon, Inland Slopes, Kerrabee, Liverpool Plains, Liverpool Range, Pilliga Outwash and Talbragar Valley. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Swainsona sericea/ Silky Swainson-pea	Spp	IBRA region	
	Swainsona sericea/Silky Swainson-pea	Any in NSW	
	Variation options		
	Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act shown below	IBRA region
	Flora	Vulnerable	Pilliga, Bogan-Macquarie, Castlereagh-Barwon, Inland Slopes, Kerrabee, Liverpool Plains, Liverpool Range, Pilliga Outwash and Talbragar Valley. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

Tylophora linearis/ Tylophora linearis	Spp		IBRA region
	Tylophora linearis/Tylophora linearis		Any in NSW
	Variation options		
	Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act shown below	IBRA region
	Flora	Vulnerable	Pilliga, Bogan-Macquarie, Castlereagh-Barwon, Inland Slopes, Kerrabee, Liverpool Plains, Liverpool Range, Pilliga Outwash and Talbragar Valley. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

BAM Candidate Species Report

Proposal Details

Assessment Id 00038234/BAAS17060/23/00038235	Proposal Name CWOREZ Pilliga subregion - Liverpool Range	BAM data last updated * 14/04/2023
Assessor Name Lukas Leslie Clews	Report Created 13/06/2023	BAM Data version * 58
Assessor Number BAAS17060	Assessment Type Major Projects	BAM Case Status Open
Assessment Revision 2	Date Finalised To be finalised	

* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.

List of Species Requiring Survey

Name	Presence	Survey Months
Acacia ausfeldii Ausfeld's Wattle	No (surveyed)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☑ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Aprasia parapulchella Pink-tailed Legless Lizard	No (surveyed)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☑ Oct ☑ Nov ☐ Dec ☐ Survey month outside the specified months?
Burhinus grallarius Bush Stone-curlew	No (surveyed)	☑ Jan ☑ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☑ Aug ☑ Sep ☑ Oct ☑ Nov ☑ Dec ☐ Survey month outside the specified months?

Calyptorhynchus lathami Glossy Black-Cockatoo	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Cercartetus nanus Eastern Pygmy-possum	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Commersonia procumbens Commersonia procumbens	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Dichanthium setosum Bluegrass	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Diuris tricolor Pine Donkey Orchid	No (surveyed)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☑ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Eucalyptus cannonii Capertee Stringybark	Yes (surveyed)	☐ Jan ☐ Feb ☑ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?

Homoranthus darwinioides Fairy Bells	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Hoplocephalus bitorquatus Pale-headed Snake	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Monotaxis macrophylla Large-leafed Monotaxis	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Ninox connivens Barking Owl	No (surveyed)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☑ Aug ☑ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Ninox strenua Powerful Owl	No (surveyed)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☑ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Petaurus norfolcensis Squirrel Glider	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?

Phascolarctos cinereus Koala	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Polytelis swainsonii Superb Parrot	No (surveyed)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☑ Nov ☐ Dec ☐ Survey month outside the specified months?
Pomaderris queenslandica Scant Pomaderris	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Swainsona sericea Silky Swainson-pea	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Tylophora linearis Tylophora linearis	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Tyto novaehollandiae Masked Owl	No (surveyed)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☑ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?

BAM Candidate Species Report

Zieria ingramii Keith's Zieria	No (surveyed)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☑ Nov ☐ Dec ☐ Survey month outside the specified months?

Threatened species Manually Added

Common Name	Scientific Name
Capertee Stringybark	Eucalyptus cannonii

Threatened species assessed as not on site

Refer to BAR for detailed justification

Common name	Scientific name	Justification in the BAM-C
Brush-tailed Rock-wallaby	Petrogale penicillata	Habitat constraints
Eastern Cave Bat	Vespadelus troughtoni	Habitat constraints
Grey-headed Flying-fox	Pteropus poliocephalus	Habitat constraints
Large Bent-winged Bat	Miniopterus orianae oceanensis	Habitat constraints
Large-eared Pied Bat	Chalinolobus dwyeri	Habitat constraints
Little Eagle	Hieraaetus morphnoides	Habitat constraints
Major Mitchell's Cockatoo	Lophochroa leadbeateri	Species is vagrant
Prasophyllum sp. Wybong	Prasophyllum sp. Wybong	Species is vagrant
Regent Honeyeater	Anthochaera phrygia	Habitat constraints
Square-tailed Kite	Lophoictinia isura	Habitat constraints
Swift Parrot	Lathamus discolor	Habitat constraints
White-bellied Sea-Eagle	Haliaeetus leucogaster	Habitat constraints

BAM Credit Summary Report

Proposal Details

Assessment Id
00038234/BAAS17060/23/00038235

Proposal Name
CWOREZ Pilliga subregion - Liverpool Range

BAM data last updated *
14/04/2023

Assessor Name
Lukas Leslie Clews

Report Created
13/06/2023

BAM Data version *
58

Assessor Number
BAAS17060

BAM Case Status
Open

Date Finalised
To be finalised

Assessment Revision
2

Assessment Type
Major Projects

* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.

Ecosystem credits for plant communities types (PCT), ecological communities & threatened species habitat

Zone	Vegetation zone name	TEC name	Current Vegetation integrity score	Change in Vegetation integrity (loss / gain)	Area (ha)	Sensitivity to loss (Justification)	Species sensitivity to gain class	BC Act Listing status	EPBC Act listing status	Biodiversity risk weighting	Potential SAII	Ecosystem credits
Blakely's Red Gum - Rough-barked Apple shrubby woodland of central and upper Hunter												
19	1696_DNG	Not a TEC	12	12.0	0.92	PCT Cleared - 46%	High Sensitivity to Gain			1.50		0

20	1696_DNS	Not a TEC	39.1	39.1	0.67	PCT Cleared - 46%	High Sensitivity to Gain			1.50		10
21	1696_Mod_Good	Not a TEC	64.5	31.2	2	PCT Cleared - 46%	High Sensitivity to Gain			1.50		23
											Subtotal	**33**
Grey Box x White Box grassy open woodland on basalt hills in the Merriwa region, upper Hunter Valley												
9	483_DNG	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri	30.9	30.9	14.1	Population size	High Sensitivity to Gain	Critically Endangered Ecological Community	Not Listed	2.50	True	272

10	483_DNS	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri	14.2	14.2	0.06	Population size	High Sensitivity to Gain	Critically Endangered Ecological Community	Not Listed	2.50	True	0

11	483_Mod_Good	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri	85.1	43.4	0.63	Population size	High Sensitivity to Gain	Critically Endangered Ecological Community	Not Listed	2.50	True	17

12	483_Poor	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri	33.9	22.8	0.3	Population size	High Sensitivity to Gain	Critically Endangered Ecological Community	Not Listed	2.50	True	4

13	483_Thinned	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri	78.3	52.3	20.4	Population size	High Sensitivity to Gain	Critically Endangered Ecological Community	Not Listed	2.50	True	667
											Subtotal	**960**
Inland Scribbly Gum - Red Stringybark - Black Cypress Pine - Red Ironbark open forest on sandstone hills in the southern Brigalow Belt South Bioregion and northern NSW South Western Slopes Bioregion												
4	477_Mod_Good	Not a TEC	78.2	59.4	2.2	PCT Cleared - 40%	High Sensitivity to Gain			1.50		48

5	477_Thinned	Not a TEC	78.2	78.2	0.05	PCT Cleared - 40%	High Sensitivity to Gain			1.50		1
											Subtotal	**49**
Narrow-leaved Ironbark - Black Pine - Sifton Bush heathy open forest on sandstone ranges of the upper Hunter and Sydney Basin												
16	1661_DNG	Not a TEC	13.1	13.1	5.2	PCT Cleared - 50%	High Sensitivity to Gain			1.75		0
17	1661_Mod_Good	Not a TEC	79.1	52.8	15.9	PCT Cleared - 50%	High Sensitivity to Gain			1.75		367
18	1661_Thinned	Not a TEC	66.5	48.1	4.6	PCT Cleared - 50%	High Sensitivity to Gain			1.75		97
											Subtotal	**464**
Narrow-leaved Ironbark- Black Cypress Pine - stringybark +/- Grey Gum +/- Narrow-leaved Wattle shrubby open forest on sandstone hills in the southern Brigalow Belt South Bioregion and Sydney Basin Bioregion												
6	479_DNG	Not a TEC	10	10.0	7.2	PCT Cleared - 40%	High Sensitivity to Gain			1.50		0
7	479_Mod_Good	Not a TEC	90.6	65.9	8.4	PCT Cleared - 40%	High Sensitivity to Gain			1.50		208

8	479_Thinned	Not a TEC	78.2	64.5	0.04	PCT Cleared - 40%	High Sensitivity to Gain			1.50		1
											Subtotal	**209**
Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion												
1	281_DNG	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri	29.6	29.6	0.87	Population size	High Sensitivity to Gain	Critically Endangered Ecological Community	Not Listed	2.50	True	16

2	281_Mod_Good	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri	96.4	49.0	0.82	Population size	High Sensitivity to Gain	Critically Endangered Ecological Community	Not Listed	2.50	True	25

3	281_Thinned	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri	87	84.8	6.3	Population size	High Sensitivity to Gain	Critically Endangered Ecological Community	Not Listed	2.50	True	334
											Subtotal	**375**

White Box x Grey Box - red gum - Rough-barked Apple grassy woodland on rich soils on hills in the upper Hunter Valley												
14	618_DNG	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri	15.9	15.9	1	Population size	High Sensitivity to Gain	Critically Endangered Ecological Community	Not Listed	2.50	True	10

15	618_Mod_Good	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri	72	40.7	2.1	Population size	High Sensitivity to Gain	Critically Endangered Ecological Community	Not Listed	2.50	True	54
											Subtotal	**64**
											Total	**2154**

Species credits for threatened species

Vegetation zone name	Habitat condition (Vegetation Integrity)	Change in habitat condition	Area (ha)/Count (no. individuals)	Sensitivity to loss (Justification)	Sensitivity to gain (Justification)	BC Act Listing status	EPBC Act listing status	Potential SAII	Species credits
Calyptorhynchus lathami / Glossy Black-Cockatoo (Fauna)									
477_Mod_Good	59.4	59.4	1.4	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Vulnerable	False	40
1661_Mod_Good	52.8	52.8	1	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Vulnerable	False	26
								Subtotal	**66**
Cercartetus nanus / Eastern Pygmy-possum (Fauna)									
477_Mod_Good	59.4	59.4	2.2	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Not Listed	False	64
								Subtotal	**64**
Commersonia procumbens / Commersonia procumbens (Flora)									
477_Mod_Good	59.4	59.4	1.1	Biodiversity Conservation Act listing status	Ability to colonise improved habitat	Vulnerable	Vulnerable	False	31

479_Mod_Good	65.9	65.9	3.7	Biodiversity Conservation Act listing status	Ability to colonise improved habitat	Vulnerable	Vulnerable	False	121
479_Thinned	64.5	64.5	0.02	Biodiversity Conservation Act listing status	Ability to colonise improved habitat	Vulnerable	Vulnerable	False	1
								Subtotal	**153**
Dichanthium setosum / Bluegrass (Flora)									
281_Mod_Good	49.0	49.0	0.13	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Vulnerable	False	3
281_Thinned	84.8	84.8	5.6	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Vulnerable	False	237
483_DNG	30.9	30.9	13.4	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Vulnerable	False	207

483_DNS	14.2	14.2	0.06	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Vulnerable	False	1
483_Mod_Good	43.4	43.4	0.11	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Vulnerable	False	2
483_Thinned	52.3	52.3	5.2	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Vulnerable	False	135
281_DNG	29.6	29.6	0.87	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Vulnerable	False	13
								Subtotal	**598**
Eucalyptus cannonii / Capertee Stringybark (Flora)									
1661_Mod_Good	N/A	N/A	1	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Not Listed	False	2
								Subtotal	**2**

Homoranthus darwinioides / Fairy Bells (Flora)									
477_Mod_Good	59.4	59.4	1.2	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Vulnerable	False	37
477_Thinned	78.2	78.2	0.05	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Vulnerable	False	2
								Subtotal	**39**
Hoplocephalus bitorquatus / Pale-headed Snake (Fauna)									
477_Mod_Good	59.4	59.4	2.2	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	64
477_Thinned	78.2	78.2	0.05	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	2
								Subtotal	**66**
Monotaxis macrophylla / Large-leafed Monotaxis (Flora)									
477_Mod_Good	59.4	59.4	1.2	Biodiversity Conservation Act listing status	Ability to colonise improved habitat	Endangered	Not Listed	False	37

477_Thinned	78.2	78.2	0.05	Biodiversity Conservation Act listing status	Ability to colonise improved habitat	Endangered	Not Listed	False	2
479_Mod_Good	65.9	65.9	3.7	Biodiversity Conservation Act listing status	Ability to colonise improved habitat	Endangered	Not Listed	False	121
479_Thinned	64.5	64.5	0.02	Biodiversity Conservation Act listing status	Ability to colonise improved habitat	Endangered	Not Listed	False	1
483_Thinned	52.3	52.3	0.04	Biodiversity Conservation Act listing status	Ability to colonise improved habitat	Endangered	Not Listed	False	1
1661_Mod_Good	52.8	52.8	5.3	Biodiversity Conservation Act listing status	Ability to colonise improved habitat	Endangered	Not Listed	False	140
1661_Thinned	48.1	48.1	2	Biodiversity Conservation Act listing status	Ability to colonise improved habitat	Endangered	Not Listed	False	49
								Subtotal	**351**

Petaurus norfolcensis / Squirrel Glider (Fauna)									
281_Mod_Good	49.0	49.0	0.82	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	20
281_Thinned	84.8	84.8	6.3	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	267
477_Mod_Good	59.4	59.4	0.32	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	10
477_Thinned	78.2	78.2	0.05	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	2
479_Mod_Good	65.9	65.9	0.68	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	22
618_Mod_Good	40.7	40.7	2.1	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	43
								Subtotal	**364**

Phascolarctos cinereus / Koala (Fauna)									
281_Mod_Good	49.0	49.0	0.82	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Endangered	False	20
281_Thinned	84.8	84.8	6.3	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Endangered	False	267
477_Mod_Good	59.4	59.4	2.2	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Endangered	False	64
479_Mod_Good	65.9	65.9	8.4	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Endangered	False	277
483_Mod_Good	43.4	43.4	0.63	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Endangered	False	14

483_Thinned	52.3	52.3	19.9	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Endangered	False	520
618_Mod_Good	40.7	40.7	2.1	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Endangered	False	43
1661_Mod_Good	52.8	52.8	15.9	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Endangered	False	419
1661_Thinned	48.1	48.1	4.5	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Endangered	False	109
1696_Mod_Good	31.2	31.2	2	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Endangered	False	31
477_Thinned	78.2	78.2	0.05	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Endangered	False	2

								Subtotal	**1766**
Pomaderris queenslandica / Scant Pomaderris (Flora)									
1661_Mod_Good	52.8	52.8	0.05	Biodiversity Conservation Act listing status	Ability to colonise improved habitat	Endangered	Not Listed	False	1
1661_Thinned	48.1	48.1	0.68	Biodiversity Conservation Act listing status	Ability to colonise improved habitat	Endangered	Not Listed	False	16
								Subtotal	**17**
Swainsona sericea / Silky Swainson-pea (Flora)									
281_Mod_Good	49.0	49.0	0.05	Biodiversity Conservation Act listing status	Ability to colonise improved habitat	Vulnerable	Not Listed	False	1
281_Thinned	84.8	84.8	5.4	Biodiversity Conservation Act listing status	Ability to colonise improved habitat	Vulnerable	Not Listed	False	229
477_Mod_Good	59.4	59.4	1.2	Biodiversity Conservation Act listing status	Ability to colonise improved habitat	Vulnerable	Not Listed	False	37
								Subtotal	**267**

Tylophora linearis / Tylophora linearis (Flora)									
479_Mod_Good	65.9	65.9	1.7	Biodiversity Conservation Act listing status	Quantity class of viable seeds produced	Vulnerable	Endangered	False	57
477_Thinned	78.2	78.2	0.05	Biodiversity Conservation Act listing status	Quantity class of viable seeds produced	Vulnerable	Endangered	False	2
								Subtotal	**59**

BAM Predicted Species Report

Proposal Details

Assessment Id	Proposal Name	BAM data last updated *
00038234/BAAS17060/23/00038235	CWOREZ Pilliga subregion - Liverpool Range	14/04/2023
Assessor Name	**Report Created**	**BAM Data version ***
Lukas Leslie Clews	13/06/2023	58
Assessor Number	**Assessment Type**	**BAM Case Status**
BAAS17060	Major Projects	Open
Assessment Revision		**Date Finalised**
2		To be finalised

* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.

Threatened species reliably predicted to utilise the site. No surveys are required for these species. Ecosystem credits apply to these species.

Common Name	Scientific Name	Vegetation Types(s)
Barking Owl	Ninox connivens	281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		477-Inland Scribbly Gum - Red Stringybark - Black Cypress Pine - Red Ironbark open forest on sandstone hills in the southern Brigalow Belt South Bioregion and northern NSW South Western Slopes Bioregion
		479-Narrow-leaved Ironbark- Black Cypress Pine - stringybark +/- Grey Gum +/- Narrow-leaved Wattle shrubby open forest on sandstone hills in the southern Brigalow Belt South Bioregion and Sydney Basin Bioregion
		483-Grey Box x White Box grassy open woodland on basalt hills in the Merriwa region, upper Hunter Valley
		618-White Box x Grey Box - red gum - Rough-barked Apple grassy woodland on rich soils on hills in the upper Hunter Valley
		1661-Narrow-leaved Ironbark - Black Pine - Sifton Bush heathy open forest on sandstone ranges of the upper Hunter and Sydney Basin

Barking Owl	Ninox connivens	1696-Blakely's Red Gum - Rough-barked Apple shrubby woodland of central and upper Hunter
Black Falcon	Falco subniger	281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		1661-Narrow-leaved Ironbark - Black Pine - Sifton Bush heathy open forest on sandstone ranges of the upper Hunter and Sydney Basin
Black-chinned Honeyeater (eastern subspecies)	Melithreptus gularis gularis	281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
Brown Treecreeper (eastern subspecies)	Climacteris picumnus victoriae	281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		477-Inland Scribbly Gum - Red Stringybark - Black Cypress Pine - Red Ironbark open forest on sandstone hills in the southern Brigalow Belt South Bioregion and northern NSW South Western Slopes Bioregion
		1661-Narrow-leaved Ironbark - Black Pine - Sifton Bush heathy open forest on sandstone ranges of the upper Hunter and Sydney Basin
		1696-Blakely's Red Gum - Rough-barked Apple shrubby woodland of central and upper Hunter
Corben's Long-eared Bat	Nyctophilus corbeni	477-Inland Scribbly Gum - Red Stringybark - Black Cypress Pine - Red Ironbark open forest on sandstone hills in the southern Brigalow Belt South Bioregion and northern NSW South Western Slopes Bioregion
		1661-Narrow-leaved Ironbark - Black Pine - Sifton Bush heathy open forest on sandstone ranges of the upper Hunter and Sydney Basin
Diamond Firetail	Stagonopleura guttata	281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		477-Inland Scribbly Gum - Red Stringybark - Black Cypress Pine - Red Ironbark open forest on sandstone hills in the southern Brigalow Belt South Bioregion and northern NSW South Western Slopes Bioregion

Dusky Woodswallow	Artamus cyanopterus cyanopterus	281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		477-Inland Scribbly Gum - Red Stringybark - Black Cypress Pine - Red Ironbark open forest on sandstone hills in the southern Brigalow Belt South Bioregion and northern NSW South Western Slopes Bioregion
		479-Narrow-leaved Ironbark- Black Cypress Pine - stringybark +/- Grey Gum +/- Narrow-leaved Wattle shrubby open forest on sandstone hills in the southern Brigalow Belt South Bioregion and Sydney Basin Bioregion
Flame Robin	Petroica phoenicea	281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		477-Inland Scribbly Gum - Red Stringybark - Black Cypress Pine - Red Ironbark open forest on sandstone hills in the southern Brigalow Belt South Bioregion and northern NSW South Western Slopes Bioregion
		1661-Narrow-leaved Ironbark - Black Pine - Sifton Bush heathy open forest on sandstone ranges of the upper Hunter and Sydney Basin
		1696-Blakely's Red Gum - Rough-barked Apple shrubby woodland of central and upper Hunter
Gilbert's Whistler	Pachycephala inornata	477-Inland Scribbly Gum - Red Stringybark - Black Cypress Pine - Red Ironbark open forest on sandstone hills in the southern Brigalow Belt South Bioregion and northern NSW South Western Slopes Bioregion
Glossy Black-Cockatoo	Calyptorhynchus lathami	477-Inland Scribbly Gum - Red Stringybark - Black Cypress Pine - Red Ironbark open forest on sandstone hills in the southern Brigalow Belt South Bioregion and northern NSW South Western Slopes Bioregion
Grey-crowned Babbler (eastern subspecies)	Pomatostomus temporalis temporalis	281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
Grey-headed Flying-fox	Pteropus poliocephalus	281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion

Grey-headed Flying-fox	Pteropus poliocephalus	477-Inland Scribbly Gum - Red Stringybark - Black Cypress Pine - Red Ironbark open forest on sandstone hills in the southern Brigalow Belt South Bioregion and northern NSW South Western Slopes Bioregion
Hooded Robin (south-eastern form)	Melanodryas cucullata cucullata	281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		477-Inland Scribbly Gum - Red Stringybark - Black Cypress Pine - Red Ironbark open forest on sandstone hills in the southern Brigalow Belt South Bioregion and northern NSW South Western Slopes Bioregion
		1661-Narrow-leaved Ironbark - Black Pine - Sifton Bush heathy open forest on sandstone ranges of the upper Hunter and Sydney Basin
		1696-Blakely's Red Gum - Rough-barked Apple shrubby woodland of central and upper Hunter
Large Bent-winged Bat	Miniopterus orianae oceanensis	281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		477-Inland Scribbly Gum - Red Stringybark - Black Cypress Pine - Red Ironbark open forest on sandstone hills in the southern Brigalow Belt South Bioregion and northern NSW South Western Slopes Bioregion
Little Eagle	Hieraaetus morphnoides	281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		477-Inland Scribbly Gum - Red Stringybark - Black Cypress Pine - Red Ironbark open forest on sandstone hills in the southern Brigalow Belt South Bioregion and northern NSW South Western Slopes Bioregion
Little Lorikeet	Glossopsitta pusilla	281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		477-Inland Scribbly Gum - Red Stringybark - Black Cypress Pine - Red Ironbark open forest on sandstone hills in the southern Brigalow Belt South Bioregion and northern NSW South Western Slopes Bioregion

Little Lorikeet	Glossopsitta pusilla	479-Narrow-leaved Ironbark- Black Cypress Pine - stringybark +/- Grey Gum +/- Narrow-leaved Wattle shrubby open forest on sandstone hills in the southern Brigalow Belt South Bioregion and Sydney Basin Bioregion
		483-Grey Box x White Box grassy open woodland on basalt hills in the Merriwa region, upper Hunter Valley
		618-White Box x Grey Box - red gum - Rough-barked Apple grassy woodland on rich soils on hills in the upper Hunter Valley
		1696-Blakely's Red Gum - Rough-barked Apple shrubby woodland of central and upper Hunter
Little Pied Bat	Chalinolobus picatus	281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		477-Inland Scribbly Gum - Red Stringybark - Black Cypress Pine - Red Ironbark open forest on sandstone hills in the southern Brigalow Belt South Bioregion and northern NSW South Western Slopes Bioregion
Malleefowl	Leipoa ocellata	477-Inland Scribbly Gum - Red Stringybark - Black Cypress Pine - Red Ironbark open forest on sandstone hills in the southern Brigalow Belt South Bioregion and northern NSW South Western Slopes Bioregion
Masked Owl	Tyto novaehollandiae	281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		477-Inland Scribbly Gum - Red Stringybark - Black Cypress Pine - Red Ironbark open forest on sandstone hills in the southern Brigalow Belt South Bioregion and northern NSW South Western Slopes Bioregion
Painted Honeyeater	Grantiella picta	281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		477-Inland Scribbly Gum - Red Stringybark - Black Cypress Pine - Red Ironbark open forest on sandstone hills in the southern Brigalow Belt South Bioregion and northern NSW South Western Slopes Bioregion

Painted Honeyeater	Grantiella picta	479-Narrow-leaved Ironbark- Black Cypress Pine - stringybark +/- Grey Gum +/- Narrow-leaved Wattle shrubby open forest on sandstone hills in the southern Brigalow Belt South Bioregion and Sydney Basin Bioregion
		483-Grey Box x White Box grassy open woodland on basalt hills in the Merriwa region, upper Hunter Valley
		618-White Box x Grey Box - red gum - Rough-barked Apple grassy woodland on rich soils on hills in the upper Hunter Valley
		1696-Blakely's Red Gum - Rough-barked Apple shrubby woodland of central and upper Hunter
Powerful Owl	Ninox strenua	281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
Regent Honeyeater	Anthochaera phrygia	281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		479-Narrow-leaved Ironbark- Black Cypress Pine - stringybark +/- Grey Gum +/- Narrow-leaved Wattle shrubby open forest on sandstone hills in the southern Brigalow Belt South Bioregion and Sydney Basin Bioregion
		483-Grey Box x White Box grassy open woodland on basalt hills in the Merriwa region, upper Hunter Valley
		618-White Box x Grey Box - red gum - Rough-barked Apple grassy woodland on rich soils on hills in the upper Hunter Valley
		1696-Blakely's Red Gum - Rough-barked Apple shrubby woodland of central and upper Hunter
Scarlet Robin	Petroica boodang	281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		477-Inland Scribbly Gum - Red Stringybark - Black Cypress Pine - Red Ironbark open forest on sandstone hills in the southern Brigalow Belt South Bioregion and northern NSW South Western Slopes Bioregion
		1661-Narrow-leaved Ironbark - Black Pine - Sifton Bush heathy open forest on sandstone ranges of the upper Hunter and Sydney Basin

Scarlet Robin	Petroica boodang	1696-Blakely's Red Gum - Rough-barked Apple shrubby woodland of central and upper Hunter
Speckled Warbler	Chthonicola sagittata	281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		477-Inland Scribbly Gum - Red Stringybark - Black Cypress Pine - Red Ironbark open forest on sandstone hills in the southern Brigalow Belt South Bioregion and northern NSW South Western Slopes Bioregion
		1661-Narrow-leaved Ironbark - Black Pine - Sifton Bush heathy open forest on sandstone ranges of the upper Hunter and Sydney Basin
		1696-Blakely's Red Gum - Rough-barked Apple shrubby woodland of central and upper Hunter
Spotted Harrier	Circus assimilis	281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		477-Inland Scribbly Gum - Red Stringybark - Black Cypress Pine - Red Ironbark open forest on sandstone hills in the southern Brigalow Belt South Bioregion and northern NSW South Western Slopes Bioregion
Spotted-tailed Quoll	Dasyurus maculatus	281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		477-Inland Scribbly Gum - Red Stringybark - Black Cypress Pine - Red Ironbark open forest on sandstone hills in the southern Brigalow Belt South Bioregion and northern NSW South Western Slopes Bioregion
		1661-Narrow-leaved Ironbark - Black Pine - Sifton Bush heathy open forest on sandstone ranges of the upper Hunter and Sydney Basin
		1696-Blakely's Red Gum - Rough-barked Apple shrubby woodland of central and upper Hunter
Square-tailed Kite	Lophoictinia isura	281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion

Square-tailed Kite	Lophoictinia isura	477-Inland Scribbly Gum - Red Stringybark - Black Cypress Pine - Red Ironbark open forest on sandstone hills in the southern Brigalow Belt South Bioregion and northern NSW South Western Slopes Bioregion
		618-White Box x Grey Box - red gum - Rough-barked Apple grassy woodland on rich soils on hills in the upper Hunter Valley
		1661-Narrow-leaved Ironbark - Black Pine - Sifton Bush heathy open forest on sandstone ranges of the upper Hunter and Sydney Basin
		1696-Blakely's Red Gum - Rough-barked Apple shrubby woodland of central and upper Hunter
Superb Parrot	Polytelis swainsonii	281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		477-Inland Scribbly Gum - Red Stringybark - Black Cypress Pine - Red Ironbark open forest on sandstone hills in the southern Brigalow Belt South Bioregion and northern NSW South Western Slopes Bioregion
Swift Parrot	Lathamus discolor	281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		477-Inland Scribbly Gum - Red Stringybark - Black Cypress Pine - Red Ironbark open forest on sandstone hills in the southern Brigalow Belt South Bioregion and northern NSW South Western Slopes Bioregion
		479-Narrow-leaved Ironbark- Black Cypress Pine - stringybark +/- Grey Gum +/- Narrow-leaved Wattle shrubby open forest on sandstone hills in the southern Brigalow Belt South Bioregion and Sydney Basin Bioregion
		483-Grey Box x White Box grassy open woodland on basalt hills in the Merriwa region, upper Hunter Valley
		618-White Box x Grey Box - red gum - Rough-barked Apple grassy woodland on rich soils on hills in the upper Hunter Valley
		1661-Narrow-leaved Ironbark - Black Pine - Sifton Bush heathy open forest on sandstone ranges of the upper Hunter and Sydney Basin
		1696-Blakely's Red Gum - Rough-barked Apple shrubby woodland of central and upper Hunter

Turquoise Parrot	Neophema pulchella	281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		477-Inland Scribbly Gum - Red Stringybark - Black Cypress Pine - Red Ironbark open forest on sandstone hills in the southern Brigalow Belt South Bioregion and northern NSW South Western Slopes Bioregion
		479-Narrow-leaved Ironbark- Black Cypress Pine - stringybark +/- Grey Gum +/- Narrow-leaved Wattle shrubby open forest on sandstone hills in the southern Brigalow Belt South Bioregion and Sydney Basin Bioregion
		483-Grey Box x White Box grassy open woodland on basalt hills in the Merriwa region, upper Hunter Valley
		618-White Box x Grey Box - red gum - Rough-barked Apple grassy woodland on rich soils on hills in the upper Hunter Valley
		1661-Narrow-leaved Ironbark - Black Pine - Sifton Bush heathy open forest on sandstone ranges of the upper Hunter and Sydney Basin
		1696-Blakely's Red Gum - Rough-barked Apple shrubby woodland of central and upper Hunter
Varied Sittella	Daphoenositta chrysoptera	281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		477-Inland Scribbly Gum - Red Stringybark - Black Cypress Pine - Red Ironbark open forest on sandstone hills in the southern Brigalow Belt South Bioregion and northern NSW South Western Slopes Bioregion
		1661-Narrow-leaved Ironbark - Black Pine - Sifton Bush heathy open forest on sandstone ranges of the upper Hunter and Sydney Basin
		1696-Blakely's Red Gum - Rough-barked Apple shrubby woodland of central and upper Hunter
White-bellied Sea-Eagle	Haliaeetus leucogaster	281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		1696-Blakely's Red Gum - Rough-barked Apple shrubby woodland of central and upper Hunter

White-throated Needletail	Hirundapus caudacutus	281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		477-Inland Scribbly Gum - Red Stringybark - Black Cypress Pine - Red Ironbark open forest on sandstone hills in the southern Brigalow Belt South Bioregion and northern NSW South Western Slopes Bioregion
		479-Narrow-leaved Ironbark- Black Cypress Pine - stringybark +/- Grey Gum +/- Narrow-leaved Wattle shrubby open forest on sandstone hills in the southern Brigalow Belt South Bioregion and Sydney Basin Bioregion
		483-Grey Box x White Box grassy open woodland on basalt hills in the Merriwa region, upper Hunter Valley
		618-White Box x Grey Box - red gum - Rough-barked Apple grassy woodland on rich soils on hills in the upper Hunter Valley
		1661-Narrow-leaved Ironbark - Black Pine - Sifton Bush heathy open forest on sandstone ranges of the upper Hunter and Sydney Basin
		1696-Blakely's Red Gum - Rough-barked Apple shrubby woodland of central and upper Hunter
Yellow-bellied Sheathtail-bat	Saccolaimus flaviventris	281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
		477-Inland Scribbly Gum - Red Stringybark - Black Cypress Pine - Red Ironbark open forest on sandstone hills in the southern Brigalow Belt South Bioregion and northern NSW South Western Slopes Bioregion

Threatened species Manually Added

None added

Threatened species assessed as not within the vegetation zone(s) for the PCT(s)

Common Name	Scientific Name	Plant Community Type(s)
Major Mitchell's Cockatoo	Lophochroa leadbeateri	477-Inland Scribbly Gum - Red Stringybark - Black Cypress Pine - Red Ironbark open forest on sandstone hills in the southern Brigalow Belt South Bioregion and northern NSW South Western Slopes Bioregion

BAM Predicted Species Report

Threatened species assessed as not within the vegetation zone(s) for the PCT(s)

Refer to BAR for detailed justification

Common Name	Scientific Name	Justification in the BAM-C
Major Mitchell's Cockatoo	Lophochroa leadbeateri	Species is vagrant

BAM Vegetation Zones Report

Proposal Details

Assessment Id
00038234/BAAS17060/23/00038235

Assessment name
CWOREZ Pilliga subregion - Liverpool Range

BAM data last updated *
14/04/2023

Assessor Name
Lukas Leslie Clews

Report Created
13/06/2023

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Assessor Number
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Assessment Type
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Open

Assessment Revision
2

Date Finalised
To be finalised

* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.

Vegetation Zones

#	Name	PCT	Condition	Area	Minimum number of plots	Management zones

1	281_DNG	281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion	DNG	0.87	1	A (0.87 ha)
2	281_Mod_Good	281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion	Mod_Good	0.82	1	A (0.13 ha) B (0.69 ha)
3	281_Thinned	281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion	Thinned	6.29	3	A (6.01 ha) B (0.28 ha)
4	477_Mod_Good	477-Inland Scribbly Gum - Red Stringybark - Black Cypress Pine - Red Ironbark open forest on sandstone hills in the southern Brigalow Belt South Bioregion and northern NSW South Western Slopes Bioregion	Mod_Good	2.15	2	A (1.25 ha) B (0.9 ha)

5	477_Thinned	477-Inland Scribbly Gum - Red Stringybark - Black Cypress Pine - Red Ironbark open forest on sandstone hills in the southern Brigalow Belt South Bioregion and northern NSW South Western Slopes Bioregion	Thinned	0.05	1	A (0.05 ha)
6	479_DNG	479-Narrow-leaved Ironbark- Black Cypress Pine - stringybark +/- Grey Gum +/- Narrow-leaved Wattle shrubby open forest on sandstone hills in the southern Brigalow Belt South Bioregion and Sydney Basin Bioregion	DNG	7.25	3	A (7.25 ha)
7	479_Mod_Good	479-Narrow-leaved Ironbark- Black Cypress Pine - stringybark +/- Grey Gum +/- Narrow-leaved Wattle shrubby open forest on sandstone hills in the southern Brigalow Belt South Bioregion and Sydney Basin Bioregion	Mod_Good	8.4	3	A (3.67 ha) B (4.73 ha)
8	479_Thinned	479-Narrow-leaved Ironbark- Black Cypress Pine - stringybark +/- Grey Gum +/- Narrow-leaved Wattle shrubby open forest on sandstone hills in the southern Brigalow Belt South Bioregion and Sydney Basin Bioregion	Thinned	0.04	1	A (0.02 ha) B (0.02 ha)

9	483_DNG	483-Grey Box x White Box grassy open woodland on basalt hills in the Merriwa region, upper Hunter Valley	DNG	14.07	3	A (14.07 ha)
10	483_DNS	483-Grey Box x White Box grassy open woodland on basalt hills in the Merriwa region, upper Hunter Valley	DNS	0.06	1	A (0.06 ha)
11	483_Mod_Good	483-Grey Box x White Box grassy open woodland on basalt hills in the Merriwa region, upper Hunter Valley	Mod_Good	0.63	1	A (0.11 ha) B (0.52 ha)
12	483_Poor	483-Grey Box x White Box grassy open woodland on basalt hills in the Merriwa region, upper Hunter Valley	Poor	0.3	1	A (0.09 ha) B (0.21 ha)
13	483_Thinned	483-Grey Box x White Box grassy open woodland on basalt hills in the Merriwa region, upper Hunter Valley	Thinned	20.43	3	A (7.57 ha) B (12.86 ha)
14	618_DNG	618-White Box x Grey Box - red gum - Rough-barked Apple grassy woodland on rich soils on hills in the upper Hunter Valley	DNG	1	1	A (1 ha)
15	618_Mod_Good	618-White Box x Grey Box - red gum - Rough-barked Apple grassy woodland on rich soils on hills in the upper Hunter Valley	Mod_Good	2.13	2	A (0.55 ha) B (1.58 ha)

16	1661_DNG	1661-Narrow-leaved Ironbark - Black Pine - Sifton Bush heathy open forest on sandstone ranges of the upper Hunter and Sydney Basin	DNG	5.23	3	A (5.23 ha)
17	1661_Mod_Good	1661-Narrow-leaved Ironbark - Black Pine - Sifton Bush heathy open forest on sandstone ranges of the upper Hunter and Sydney Basin	Mod_Good	15.88	3	A (5.3 ha) B (10.58 ha)
18	1661_Thinned	1661-Narrow-leaved Ironbark - Black Pine - Sifton Bush heathy open forest on sandstone ranges of the upper Hunter and Sydney Basin	Thinned	4.61	2	A (2.05 ha) B (2.56 ha)
19	1696_DNG	1696-Blakely's Red Gum - Rough-barked Apple shrubby woodland of central and upper Hunter	DNG	0.92	1	A (0.92 ha)
20	1696_DNS	1696-Blakely's Red Gum - Rough-barked Apple shrubby woodland of central and upper Hunter	DNS	0.67	1	A (0.67 ha)
21	1696_Mod_Good	1696-Blakely's Red Gum - Rough-barked Apple shrubby woodland of central and upper Hunter	Mod_Good	1.99	1	A (0.29 ha) B (1.7 ha)

BAM Biodiversity Credit Report (Like for like)

Proposal Details

Assessment Id
00038232/BAAS17060/23/00038233

Proposal Name
CWOREZ Pilliga subregion - Valley of Winds

BAM data last updated *
14/04/2023

Assessor Name
Lukas Leslie Clews

Assessor Number
BAAS17060

BAM Data version *
58

Proponent Names

Report Created
13/06/2023

BAM Case Status
Open

Assessment Revision
2

Assessment Type
Major Projects

Date Finalised
To be finalised

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Potential Serious and Irreversible Impacts

Name of threatened ecological community	Listing status	Name of Plant Community Type/ID
White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri	Critically Endangered Ecological Community	483-Grey Box x White Box grassy open woodland on basalt hills in the Merriwa region, upper Hunter Valley

White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri	Critically Endangered Ecological Community	599-Blakely's Red Gum - Yellow Box grassy tall woodland on flats and hills in the Brigalow Belt South Bioregion and Nandewar Bioregion

Species
Nil

Additional Information for Approval

PCT Outside Ibra Added

PCT
440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
481-Rough-barked Apple - Blakely's Red Gum - Narrow-leaved Stringybark +/- Grey Gum sandstone riparian grass fern open forest on in the southern Brigalow Belt South Bioregion and Upper Hunter region
483-Grey Box x White Box grassy open woodland on basalt hills in the Merriwa region, upper Hunter Valley
599-Blakely's Red Gum - Yellow Box grassy tall woodland on flats and hills in the Brigalow Belt South Bioregion and Nandewar Bioregion

PCTs With Customized Benchmarks

PCT
No Changes

Predicted Threatened Species Not On Site

BAM Biodiversity Credit Report (Like for like)

Name
No Changes

Ecosystem Credit Summary (Number and class of biodiversity credits to be retired)

Name of Plant Community Type/ID	Name of threatened ecological community	Area of impact	HBT Cr	No HBT Cr	Total credits to be retired
440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion	Not a TEC	9.6	211	0	211
477-Inland Scribbly Gum - Red Stringybark - Black Cypress Pine - Red Ironbark open forest on sandstone hills in the southern Brigalow Belt South Bioregion and northern NSW South Western Slopes Bioregion	Not a TEC	0.2	3	0	3
481-Rough-barked Apple - Blakely's Red Gum - Narrow-leaved Stringybark +/- Grey Gum sandstone riparian grass fern open forest on in the southern Brigalow Belt South Bioregion and Upper Hunter region	Not a TEC	6.8	147	0	147
483-Grey Box x White Box grassy open woodland on basalt hills in the Merriwa region, upper Hunter Valley	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri	0.9	25	0	25

599-Blakely's Red Gum - Yellow Box grassy tall woodland on flats and hills in the Brigalow Belt South Bioregion and Nandewar Bioregion	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri	3.3	55	16	71

440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion

Like-for-like credit retirement options

Class	Trading group	Zone	HBT	Credits	IBRA region
Western Slopes Dry Sclerophyll Forests This includes PCT's: 54, 110, 179, 217, 243, 255, 270, 273, 287, 291, 309, 321, 322, 323, 324, 325, 327, 330, 331, 333, 341, 343, 346, 348, 354, 358, 379, 387, 396, 398, 399, 401, 402, 403, 404, 405, 406, 407, 408, 409, 414, 415, 417, 419, 420, 423, 425, 430, 431, 440, 443, 449, 455, 456, 457, 459, 462, 463, 467, 468, 469, 470, 471, 472, 473, 476, 477, 478, 479, 480,	Western Slopes Dry Sclerophyll Forests <50%	440_DNG	No	0	Pilliga, Bogan-Macquarie, Castlereagh-Barwon, Inland Slopes, Kerrabee, Liverpool Plains, Liverpool Range, Pilliga Outwash and Talbragar Valley. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	482, 515, 531, 532, 576, 577, 581, 592, 610, 617, 671, 673, 676, 712, 713, 714, 746, 863, 889, 940, 956, 1133, 1176, 1277, 1278, 1279, 1307, 1313, 1314, 1316, 1381, 1610, 1654, 1655, 1656, 1660, 1661, 1663, 1668, 1669, 1671, 1672, 1674, 1676, 1679, 1709, 1711, 1770, 1771, 3753, 3754, 3756, 3757, 3758, 3759, 3760, 3761, 3762, 3763, 3766, 3767, 3768, 3769, 3770, 3771, 3772, 3773, 3774, 3775, 3776, 3777, 3778, 3780, 3781, 3782, 3783, 3784, 3785, 3786, 4153					
	Western Slopes Dry Sclerophyll Forests This includes PCT's: 54, 110, 179, 217, 243, 255, 270, 273, 287, 291, 309, 321, 322, 323, 324, 325, 327, 330, 331, 333, 341, 343, 346, 348, 354,	Western Slopes Dry Sclerophyll Forests <50%	440_Mod_Good	Yes	182	Pilliga, Bogan-Macquarie, Castlereagh-Barwon, Inland Slopes, Kerrabee, Liverpool Plains, Liverpool Range, Pilliga Outwash and Talbragar Valley. or Any IBRA subregion that is within 100 kilometers of the outer edge of the

	358, 379, 387, 396, 398, 399, 401, 402, 403, 404, 405, 406, 407, 408, 409, 414, 415, 417, 419, 420, 423, 425, 430, 431, 440, 443, 449, 455, 456, 457, 459, 462, 463, 467, 468, 469, 470, 471, 472, 473, 476, 477, 478, 479, 480, 482, 515, 531, 532, 576, 577, 581, 592, 610, 617, 671, 673, 676, 712, 713, 714, 746, 863, 889, 940, 956, 1133, 1176, 1277, 1278, 1279, 1307, 1313, 1314, 1316, 1381, 1610, 1654, 1655, 1656, 1660, 1661, 1663, 1668, 1669, 1671, 1672, 1674, 1676, 1679, 1709, 1711, 1770, 1771, 3753, 3754, 3756, 3757, 3758, 3759, 3760, 3761, 3762, 3763, 3766, 3767, 3768, 3769, 3770, 3771, 3772, 3773, 3774, 3775, 3776, 3777, 3778, 3780, 3781, 3782, 3783,					impacted site.

	3784, 3785, 3786, 4153					
	Western Slopes Dry Sclerophyll Forests This includes PCT's: 54, 110, 179, 217, 243, 255, 270, 273, 287, 291, 309, 321, 322, 323, 324, 325, 327, 330, 331, 333, 341, 343, 346, 348, 354, 358, 379, 387, 396, 398, 399, 401, 402, 403, 404, 405, 406, 407, 408, 409, 414, 415, 417, 419, 420, 423, 425, 430, 431, 440, 443, 449, 455, 456, 457, 459, 462, 463, 467, 468, 469, 470, 471, 472, 473, 476, 477, 478, 479, 480, 482, 515, 531, 532, 576, 577, 581, 592, 610, 617, 671, 673, 676, 712, 713, 714, 746, 863, 889, 940, 956, 1133, 1176, 1277, 1278, 1279, 1307, 1313, 1314, 1316, 1381, 1610, 1654, 1655, 1656, 1660, 1661, 1663, 1668, 1669,	Western Slopes Dry Sclerophyll Forests <50%	440_Thinned	Yes	29	Pilliga, Bogan-Macquarie, Castlereagh-Barwon, Inland Slopes, Kerrabee, Liverpool Plains, Liverpool Range, Pilliga Outwash and Talbragar Valley. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	1671, 1672, 1674, 1676, 1679, 1709, 1711, 1770, 1771, 3753, 3754, 3756, 3757, 3758, 3759, 3760, 3761, 3762, 3763, 3766, 3767, 3768, 3769, 3770, 3771, 3772, 3773, 3774, 3775, 3776, 3777, 3778, 3780, 3781, 3782, 3783, 3784, 3785, 3786, 4153					

477-Inland Scribbly Gum - Red Stringybark - Black Cypress Pine - Red Ironbark open forest on sandstone hills in the southern Brigalow Belt South Bioregion and northern NSW South Western Slopes Bioregion	**Like-for-like credit retirement options**					
	Class	Trading group	Zone	HBT	Credits	IBRA region
	Western Slopes Dry Sclerophyll Forests This includes PCT's: 54, 110, 179, 217, 243, 255, 270, 273, 287, 291, 309, 321, 322, 323, 324, 325, 327, 330, 331, 333, 341, 343, 346, 348, 354, 358, 379, 387, 396, 398, 399, 401, 402, 403, 404, 405, 406, 407, 408, 409,	Western Slopes Dry Sclerophyll Forests <50%	477_Mod_Good	Yes	3	Pilliga, Bogan-Macquarie, Castlereagh-Barwon, Inland Slopes, Kerrabee, Liverpool Plains, Liverpool Range, Pilliga Outwash and Talbragar Valley. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	414, 415, 417, 419, 420, 423, 425, 430, 431, 440, 443, 449, 455, 456, 457, 459, 462, 463, 467, 468, 469, 470, 471, 472, 473, 476, 477, 478, 479, 480, 482, 515, 531, 532, 576, 577, 581, 592, 610, 617, 671, 673, 676, 712, 713, 714, 746, 863, 889, 940, 956, 1133, 1176, 1277, 1278, 1279, 1307, 1313, 1314, 1316, 1381, 1610, 1654, 1655, 1656, 1660, 1661, 1663, 1668, 1669, 1671, 1672, 1674, 1676, 1679, 1709, 1711, 1770, 1771, 3753, 3754, 3756, 3757, 3758, 3759, 3760, 3761, 3762, 3763, 3766, 3767, 3768, 3769, 3770, 3771, 3772, 3773, 3774, 3775, 3776, 3777, 3778, 3780, 3781, 3782, 3783, 3784, 3785, 3786, 4153					

481-Rough-barked Apple - Blakely's Red Gum - Narrow-leaved Stringybark +/- Grey Gum sandstone riparian grass fern open forest on in the southern Brigalow Belt South Bioregion and Upper Hunter region

Like-for-like credit retirement options

Class	Trading group	Zone	HBT	Credits	IBRA region
North Coast Dry Sclerophyll Forests This includes PCT's: 481, 2247, 2250, 3557, 3558, 3559, 3560, 3561, 3563, 3564, 3565, 3566, 3567, 3568, 3569, 3570, 3571, 3572, 3573, 3574, 3575, 3576, 3577	North Coast Dry Sclerophyll Forests <50%	481_Mod_Good	Yes	124	Pilliga, Bogan-Macquarie, Castlereagh-Barwon, Inland Slopes, Kerrabee, Liverpool Plains, Liverpool Range, Pilliga Outwash and Talbragar Valley. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
North Coast Dry Sclerophyll Forests This includes PCT's: 481, 2247, 2250, 3557, 3558, 3559, 3560, 3561, 3563, 3564, 3565, 3566, 3567, 3568, 3569, 3570, 3571, 3572, 3573, 3574, 3575, 3576, 3577	North Coast Dry Sclerophyll Forests <50%	481_Thinned	Yes	23	Pilliga, Bogan-Macquarie, Castlereagh-Barwon, Inland Slopes, Kerrabee, Liverpool Plains, Liverpool Range, Pilliga Outwash and Talbragar Valley. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

483-Grey Box x White Box grassy open woodland on basalt hills in the Merriwa region, upper Hunter Valley

Like-for-like credit retirement options

Name of offset trading group	Trading group	Zone	HBT	Credits	IBRA region
White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri This includes PCT's: 74, 75, 83, 250, 266, 267, 268, 270, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 298, 302, 312, 341, 342, 347, 350, 352, 356, 367, 381, 382, 395, 401, 403, 421, 433, 434, 435, 436, 437, 451, 483, 484, 488, 492, 496, 508, 509, 510, 511,	-	483_Mod_Good	Yes	25	Pilliga, Bogan-Macquarie, Castlereagh-Barwon, Inland Slopes, Kerrabee, Liverpool Plains, Liverpool Range, Pilliga Outwash and Talbragar Valley. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	528, 538, 544, 563, 567, 571, 589, 590, 597, 599, 618, 619, 622, 633, 654, 702, 703, 704, 705, 710, 711, 796, 797, 799, 847, 851, 921, 1099, 1303, 1304, 1307, 1324, 1329, 1330, 1332, 1383, 1606, 1608, 1611, 1691, 1693, 1695, 1698, 3314, 3359, 3363, 3373, 3376, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3406, 3415, 3533, 4147, 4149, 4150					
599-Blakely's Red Gum - Yellow Box grassy tall woodland on flats and hills in the Brigalow Belt South Bioregion and Nandewar Bioregion	**Like-for-like credit retirement options**					
	Name of offset trading group	Trading group	Zone	HBT	Credits	IBRA region
	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt	-	599_DNG	No	16	Pilliga, Bogan-Macquarie, Castlereagh-Barwon, Inland Slopes, Kerrabee, Liverpool Plains, Liverpool Range, Pilliga Outwash and Talbragar Valley. or Any IBRA subregion that is within 100 kilometers of the outer edge of the

	South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri This includes PCT's: 74, 75, 83, 250, 266, 267, 268, 270, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 298, 302, 312, 341, 342, 347, 350, 352, 356, 367, 381, 382, 395, 401, 403, 421, 433, 434, 435, 436, 437, 451, 483, 484, 488, 492, 496, 508, 509, 510, 511, 528, 538, 544, 563, 567, 571, 589, 590, 597, 599, 618, 619, 622, 633, 654, 702, 703, 704, 705, 710, 711, 796, 797, 799, 847, 851, 921, 1099, 1303, 1304, 1307, 1324, 1329, 1330, 1332, 1383, 1606, 1608, 1611, 1691, 1693, 1695, 1698, 3314, 3359, 3363, 3373, 3376, 3387,					impacted site.

	3388, 3394, 3395, 3396, 3397, 3398, 3399, 3406, 3415, 3533, 4147, 4149, 4150					
	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri This includes PCT's: 74, 75, 83, 250, 266, 267, 268, 270, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 298, 302, 312, 341, 342, 347, 350, 352, 356, 367, 381, 382, 395, 401, 403, 421, 433, 434, 435, 436, 437, 451, 483, 484, 488, 492,	-	599_Mod_Good	Yes	40	Pilliga, Bogan-Macquarie, Castlereagh-Barwon, Inland Slopes, Kerrabee, Liverpool Plains, Liverpool Range, Pilliga Outwash and Talbragar Valley. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	496, 508, 509, 510, 511, 528, 538, 544, 563, 567, 571, 589, 590, 597, 599, 618, 619, 622, 633, 654, 702, 703, 704, 705, 710, 711, 796, 797, 799, 847, 851, 921, 1099, 1303, 1304, 1307, 1324, 1329, 1330, 1332, 1383, 1606, 1608, 1611, 1691, 1693, 1695, 1698, 3314, 3359, 3363, 3373, 3376, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3406, 3415, 3533, 4147, 4149, 4150					
	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South	-	599_Thinned	Yes	15	Pilliga, Bogan-Macquarie, Castlereagh-Barwon, Inland Slopes, Kerrabee, Liverpool Plains, Liverpool Range, Pilliga Outwash and Talbragar Valley. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	Western Slopes, South East Corner and Ri This includes PCT's: 74, 75, 83, 250, 266, 267, 268, 270, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 298, 302, 312, 341, 342, 347, 350, 352, 356, 367, 381, 382, 395, 401, 403, 421, 433, 434, 435, 436, 437, 451, 483, 484, 488, 492, 496, 508, 509, 510, 511, 528, 538, 544, 563, 567, 571, 589, 590, 597, 599, 618, 619, 622, 633, 654, 702, 703, 704, 705, 710, 711, 796, 797, 799, 847, 851, 921, 1099, 1303, 1304, 1307, 1324, 1329, 1330, 1332, 1383, 1606, 1608, 1611, 1691, 1693, 1695, 1698, 3314, 3359, 3363, 3373, 3376, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3406, 3415, 3533, 4147, 4149,					

	4150					

Species Credit Summary

Species	Vegetation Zone/s	Area / Count	Credits
Calyptorhynchus lathami / Glossy Black-Cockatoo	**440_DNG, 440_Mod_Good, 440_Thinned, 483_Mod_Good, 481_Mod_Good, 599_DNG, 599_Mod_Good**	8.9	240.00
Cercartetus nanus / Eastern Pygmy-possum	**440_Mod_Good, 440_Thinned, 477_Mod_Good**	9.6	287.00
Commersonia procumbens / Commersonia procumbens	**440_Mod_Good, 440_Thinned, 477_Mod_Good**	3.8	112.00
Dichanthium setosum / Bluegrass	**483_Mod_Good**	0.2	3.00
Digitaria porrecta / Finger Panic Grass	**599_DNG, 599_Mod_Good, 599_Thinned**	2.2	27.00
Homoranthus darwinioides / Fairy Bells	**477_Mod_Good**	0.1	2.00
Hoplocephalus bitorquatus / Pale-headed Snake	**440_Mod_Good, 440_Thinned, 477_Mod_Good**	9.6	287.00
Monotaxis macrophylla / Large-leafed Monotaxis	**440_Mod_Good, 440_Thinned, 477_Mod_Good**	3.8	112.00
Petaurus norfolcensis / Squirrel Glider	**440_Mod_Good, 440_Thinned, 477_Mod_Good**	9.6	287.00

Phascolarctos cinereus / Koala	**440_Mod_Good, 440_Thinned, 477_Mod_Good, 483_Mod_Good, 481_Mod_Good, 481_Thinned**	17.3	502.00
Thesium australe / Austral Toadflax	**599_DNG, 599_Mod_Good, 599_Thinned**	2.2	20.00
Tylophora linearis / Tylophora linearis	**440_Mod_Good, 440_Thinned**	1.8	54.00
Tyto novaehollandiae / Masked Owl	**481_Mod_Good**	0.5	15.00

Credit Retirement Options

Like-for-like credit retirement options

Calyptorhynchus lathami / Glossy Black-Cockatoo	Spp	IBRA subregion
	Calyptorhynchus lathami / Glossy Black-Cockatoo	Any in NSW
Cercartetus nanus / Eastern Pygmy-possum	Spp	IBRA subregion
	Cercartetus nanus / Eastern Pygmy-possum	Any in NSW
Commersonia procumbens / Commersonia procumbens	Spp	IBRA subregion
	Commersonia procumbens / Commersonia procumbens	Any in NSW
Dichanthium setosum / Bluegrass	Spp	IBRA subregion

	Dichanthium setosum / Bluegrass	Any in NSW
Digitaria porrecta / Finger Panic Grass	Spp	IBRA subregion
	Digitaria porrecta / Finger Panic Grass	Any in NSW
Homoranthus darwinioides / Fairy Bells	Spp	IBRA subregion
	Homoranthus darwinioides / Fairy Bells	Any in NSW
Hoplocephalus bitorquatus / Pale-headed Snake	Spp	IBRA subregion
	Hoplocephalus bitorquatus / Pale-headed Snake	Any in NSW
Monotaxis macrophylla / Large-leafed Monotaxis	Spp	IBRA subregion
	Monotaxis macrophylla / Large-leafed Monotaxis	Any in NSW
Petaurus norfolcensis / Squirrel Glider	Spp	IBRA subregion
	Petaurus norfolcensis / Squirrel Glider	Any in NSW
Phascolarctos cinereus / Koala	Spp	IBRA subregion
	Phascolarctos cinereus / Koala	Any in NSW

Thesium australe / Austral Toadflax	Spp	IBRA subregion
	Thesium australe / Austral Toadflax	Any in NSW
Tylophora linearis / Tylophora linearis	Spp	IBRA subregion
	Tylophora linearis / Tylophora linearis	Any in NSW
Tyto novaehollandiae / Masked Owl	Spp	IBRA subregion
	Tyto novaehollandiae / Masked Owl	Any in NSW

BAM Biodiversity Credit Report (Variations)

Proposal Details

Assessment Id
00038232/BAAS17060/23/00038233

Proposal Name
CWOREZ Pilliga subregion - Valley of Winds

BAM data last updated *
14/04/2023

Assessor Name
Lukas Leslie Clews

Assessor Number
BAAS17060

BAM Data version *
58

Proponent Name(s)

Report Created
13/06/2023

BAM Case Status
Open

Assessment Revision
2

Assessment Type
Major Projects

Date Finalised
To be finalised

* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.

Potential Serious and Irreversible Impacts

Name of threatened ecological community	Listing status	Name of Plant Community Type/ID
White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri	Critically Endangered Ecological Community	483-Grey Box x White Box grassy open woodland on basalt hills in the Merriwa region, upper Hunter Valley

White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri	Critically Endangered Ecological Community	599-Blakely's Red Gum - Yellow Box grassy tall woodland on flats and hills in the Brigalow Belt South Bioregion and Nandewar Bioregion

Species
Nil

Additional Information for Approval

PCT Outside Ibra Added

PCT
440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
481-Rough-barked Apple - Blakely's Red Gum - Narrow-leaved Stringybark +/- Grey Gum sandstone riparian grass fern open forest on in the southern Brigalow Belt South Bioregion and Upper Hunter region
483-Grey Box x White Box grassy open woodland on basalt hills in the Merriwa region, upper Hunter Valley
599-Blakely's Red Gum - Yellow Box grassy tall woodland on flats and hills in the Brigalow Belt South Bioregion and Nandewar Bioregion

PCTs With Customized Benchmarks

PCT
No Changes

Predicted Threatened Species Not On Site

Name
No Changes

Ecosystem Credit Summary (Number and class of biodiversity credits to be retired)

BAM Biodiversity Credit Report (Variations)

Name of Plant Community Type/ID	Name of threatened ecological community	Area of impact	HBT Cr	No HBT Cr	Total credits to be retired
440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion	Not a TEC	9.6	211	0	211.00
477-Inland Scribbly Gum - Red Stringybark - Black Cypress Pine - Red Ironbark open forest on sandstone hills in the southern Brigalow Belt South Bioregion and northern NSW South Western Slopes Bioregion	Not a TEC	0.2	3	0	3.00
481-Rough-barked Apple - Blakely's Red Gum - Narrow-leaved Stringybark +/- Grey Gum sandstone riparian grass fern open forest on in the southern Brigalow Belt South Bioregion and Upper Hunter region	Not a TEC	6.8	147	0	147.00
483-Grey Box x White Box grassy open woodland on basalt hills in the Merriwa region, upper Hunter Valley	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri	0.9	25	0	25.00
599-Blakely's Red Gum - Yellow Box grassy tall woodland on flats and hills in the Brigalow Belt South Bioregion and Nandewar Bioregion	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri	3.3	55	16	71.00

440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion	Like-for-like credit retirement options					
	Class	Trading group	Zone	HBT	Credits	IBRA region
	Western Slopes Dry Sclerophyll Forests This includes PCT's: 54, 110, 179, 217, 243, 255, 270, 273, 287, 291, 309, 321, 322, 323, 324, 325, 327, 330, 331, 333, 341, 343, 346, 348, 354, 358, 379, 387, 396, 398, 399, 401, 402, 403, 404, 405, 406, 407, 408, 409, 414, 415, 417, 419, 420, 423, 425, 430, 431, 440, 443, 449, 455, 456, 457, 459, 462, 463, 467, 468, 469, 470, 471, 472, 473, 476, 477, 478, 479, 480, 482, 515, 531, 532, 576, 577, 581, 592, 610, 617, 671, 673, 676, 712, 713, 714, 746, 863, 889, 940, 956, 1133, 1176, 1277, 1278, 1279, 1307, 1313, 1314, 1316, 1381, 1610, 1654, 1655, 1656, 1660, 1661, 1663, 1668, 1669, 1671, 1672, 1674, 1676, 1679, 1709, 1711, 1770,	Western Slopes Dry Sclerophyll Forests <50%	440_DNG	No	0	Pilliga,Bogan-Macquarie, Castlereagh-Barwon, Inland Slopes, Kerrabee, Liverpool Plains, Liverpool Range, Pilliga Outwash and Talbragar Valley. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	1771, 3753, 3754, 3756, 3757, 3758, 3759, 3760, 3761, 3762, 3763, 3766, 3767, 3768, 3769, 3770, 3771, 3772, 3773, 3774, 3775, 3776, 3777, 3778, 3780, 3781, 3782, 3783, 3784, 3785, 3786, 4153					
	Western Slopes Dry Sclerophyll Forests This includes PCT's: 54, 110, 179, 217, 243, 255, 270, 273, 287, 291, 309, 321, 322, 323, 324, 325, 327, 330, 331, 333, 341, 343, 346, 348, 354, 358, 379, 387, 396, 398, 399, 401, 402, 403, 404, 405, 406, 407, 408, 409, 414, 415, 417, 419, 420, 423, 425, 430, 431, 440, 443, 449, 455, 456, 457, 459, 462, 463, 467, 468, 469, 470, 471, 472, 473, 476, 477, 478, 479, 480, 482, 515, 531, 532, 576, 577, 581, 592, 610, 617, 671, 673, 676, 712, 713, 714, 746, 863, 889, 940, 956, 1133, 1176, 1277, 1278, 1279, 1307, 1313,	Western Slopes Dry Sclerophyll Forests <50%	440_Mod_Good	Yes	182	Pilliga,Bogan-Macquarie, Castlereagh-Barwon, Inland Slopes, Kerrabee, Liverpool Plains, Liverpool Range, Pilliga Outwash and Talbragar Valley. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	1314, 1316, 1381, 1610, 1654, 1655, 1656, 1660, 1661, 1663, 1668, 1669, 1671, 1672, 1674, 1676, 1679, 1709, 1711, 1770, 1771, 3753, 3754, 3756, 3757, 3758, 3759, 3760, 3761, 3762, 3763, 3766, 3767, 3768, 3769, 3770, 3771, 3772, 3773, 3774, 3775, 3776, 3777, 3778, 3780, 3781, 3782, 3783, 3784, 3785, 3786, 4153					
	Western Slopes Dry Sclerophyll Forests This includes PCT's: 54, 110, 179, 217, 243, 255, 270, 273, 287, 291, 309, 321, 322, 323, 324, 325, 327, 330, 331, 333, 341, 343, 346, 348, 354, 358, 379, 387, 396, 398, 399, 401, 402, 403, 404, 405, 406, 407, 408, 409, 414, 415, 417, 419, 420, 423, 425, 430, 431, 440, 443, 449, 455, 456, 457, 459, 462, 463, 467, 468, 469, 470, 471, 472, 473, 476, 477, 478, 479, 480, 482, 515, 531, 532, 576,	Western Slopes Dry Sclerophyll Forests <50%	440_Thinned	Yes	29	Pilliga,Bogan-Macquarie, Castlereagh-Barwon, Inland Slopes, Kerrabee, Liverpool Plains, Liverpool Range, Pilliga Outwash and Talbragar Valley. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

577, 581, 592, 610, 617, 671, 673, 676, 712, 713, 714, 746, 863, 889, 940, 956, 1133, 1176, 1277, 1278, 1279, 1307, 1313, 1314, 1316, 1381, 1610, 1654, 1655, 1656, 1660, 1661, 1663, 1668, 1669, 1671, 1672, 1674, 1676, 1679, 1709, 1711, 1770, 1771, 3753, 3754, 3756, 3757, 3758, 3759, 3760, 3761, 3762, 3763, 3766, 3767, 3768, 3769, 3770, 3771, 3772, 3773, 3774, 3775, 3776, 3777, 3778, 3780, 3781, 3782, 3783, 3784, 3785, 3786, 4153					

Variation options

Formation	Trading group	Zone	HBT	Credits	IBRA region
Dry Sclerophyll Forests (Shrubby sub-formation)	Tier 4 or higher threat status	440_DNG	No	0	IBRA Region: Brigalow Belt South, or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Dry Sclerophyll Forests (Shrubby sub-formation)	Tier 4 or higher threat status	440_Mod_Good	Yes (including artificial)	182	IBRA Region: Brigalow Belt South, or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	Dry Sclerophyll Forests (Shrubby sub-formation)	Tier 4 or higher threat status	440_Thinned	Yes (including artificial)	29	IBRA Region: Brigalow Belt South, or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
477-Inland Scribbly Gum - Red Stringybark - Black Cypress Pine - Red Ironbark open forest on sandstone hills in the southern Brigalow Belt South Bioregion and northern NSW South Western Slopes Bioregion	**Like-for-like credit retirement options**					
	Class	Trading group	Zone	HBT	Credits	IBRA region
	Western Slopes Dry Sclerophyll Forests This includes PCT's: 54, 110, 179, 217, 243, 255, 270, 273, 287, 291, 309, 321, 322, 323, 324, 325, 327, 330, 331, 333, 341, 343, 346, 348, 354, 358, 379, 387, 396, 398, 399, 401, 402, 403, 404, 405, 406, 407, 408, 409, 414, 415, 417, 419, 420, 423, 425, 430, 431, 440, 443, 449, 455, 456, 457, 459, 462, 463, 467, 468, 469, 470, 471, 472, 473, 476, 477, 478, 479, 480, 482, 515, 531, 532, 576, 577, 581, 592, 610, 617, 671, 673, 676, 712, 713, 714, 746, 863, 889, 940, 956, 1133, 1176, 1277, 1278, 1279, 1307, 1313,	Western Slopes Dry Sclerophyll Forests <50%	477_Mod_Good	Yes	3	Pilliga,Bogan-Macquarie, Castlereagh-Barwon, Inland Slopes, Kerrabee, Liverpool Plains, Liverpool Range, Pilliga Outwash and Talbragar Valley. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	1314, 1316, 1381, 1610, 1654, 1655, 1656, 1660, 1661, 1663, 1668, 1669, 1671, 1672, 1674, 1676, 1679, 1709, 1711, 1770, 1771, 3753, 3754, 3756, 3757, 3758, 3759, 3760, 3761, 3762, 3763, 3766, 3767, 3768, 3769, 3770, 3771, 3772, 3773, 3774, 3775, 3776, 3777, 3778, 3780, 3781, 3782, 3783, 3784, 3785, 3786, 4153					
	Variation options					
	Formation	Trading group	Zone	HBT	Credits	IBRA region
	Dry Sclerophyll Forests (Shrubby sub-formation)	Tier 4 or higher threat status	477_Mod_Good	Yes (including artificial)	3	IBRA Region: Brigalow Belt South, or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
481-Rough-barked Apple - Blakely's Red Gum - Narrow-leaved Stringybark +/- Grey Gum sandstone riparian grass fern open forest on in the southern Brigalow Belt South Bioregion and Upper Hunter region	**Like-for-like credit retirement options**					
	Class	Trading group	Zone	HBT	Credits	IBRA region

North Coast Dry Sclerophyll Forests This includes PCT's: 481, 2247, 2250, 3557, 3558, 3559, 3560, 3561, 3563, 3564, 3565, 3566, 3567, 3568, 3569, 3570, 3571, 3572, 3573, 3574, 3575, 3576, 3577	North Coast Dry Sclerophyll Forests <50%	481_Mod_ Good	Yes	124	Pilliga,Bogan-Macquarie, Castlereagh-Barwon, Inland Slopes, Kerrabee, Liverpool Plains, Liverpool Range, Pilliga Outwash and Talbragar Valley. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
North Coast Dry Sclerophyll Forests This includes PCT's: 481, 2247, 2250, 3557, 3558, 3559, 3560, 3561, 3563, 3564, 3565, 3566, 3567, 3568, 3569, 3570, 3571, 3572, 3573, 3574, 3575, 3576, 3577	North Coast Dry Sclerophyll Forests <50%	481_Thinne d	Yes	23	Pilliga,Bogan-Macquarie, Castlereagh-Barwon, Inland Slopes, Kerrabee, Liverpool Plains, Liverpool Range, Pilliga Outwash and Talbragar Valley. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

Variation options

Formation	Trading group	Zone	HBT	Credits	IBRA region
Dry Sclerophyll Forests (Shrubby sub-formation)	Tier 4 or higher threat status	481_Mod_ Good	Yes (includi ng artificia l)	124	IBRA Region: Brigalow Belt South, or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	Dry Sclerophyll Forests (Shrubby sub-formation)	Tier 4 or higher threat status	481_Thinned	Yes (including artificial)	23	IBRA Region: Brigalow Belt South, or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
483-Grey Box x White Box grassy open woodland on basalt hills in the Merriwa region, upper Hunter Valley	**Like-for-like credit retirement options**					
	Class	Trading group	Zone	HBT	Credits	IBRA region
	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri This includes PCT's: 74, 75, 83, 250, 266, 267, 268, 270, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 298, 302, 312, 341, 342, 347, 350, 352, 356, 367, 381, 382, 395, 401, 403, 421, 433, 434, 435, 436, 437, 451, 483, 484, 488, 492, 496, 508, 509, 510, 511,	-	483_Mod_Good	Yes	25	Pilliga,Bogan-Macquarie, Castlereagh-Barwon, Inland Slopes, Kerrabee, Liverpool Plains, Liverpool Range, Pilliga Outwash and Talbragar Valley. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	528, 538, 544, 563, 567, 571, 589, 590, 597, 599, 618, 619, 622, 633, 654, 702, 703, 704, 705, 710, 711, 796, 797, 799, 847, 851, 921, 1099, 1303, 1304, 1307, 1324, 1329, 1330, 1332, 1383, 1606, 1608, 1611, 1691, 1693, 1695, 1698, 3314, 3359, 3363, 3373, 3376, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3406, 3415, 3533, 4147, 4149, 4150					
599-Blakely's Red Gum - Yellow Box grassy tall woodland on flats and hills in the Brigalow Belt South Bioregion and Nandewar Bioregion	**Like-for-like credit retirement options**					
	Class	Trading group	Zone	HBT	Credits	IBRA region
	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri This includes PCT's:	-	599_DNG	No	16	Pilliga,Bogan-Macquarie, Castlereagh-Barwon, Inland Slopes, Kerrabee, Liverpool Plains, Liverpool Range, Pilliga Outwash and Talbragar Valley. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	74, 75, 83, 250, 266, 267, 268, 270, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 298, 302, 312, 341, 342, 347, 350, 352, 356, 367, 381, 382, 395, 401, 403, 421, 433, 434, 435, 436, 437, 451, 483, 484, 488, 492, 496, 508, 509, 510, 511, 528, 538, 544, 563, 567, 571, 589, 590, 597, 599, 618, 619, 622, 633, 654, 702, 703, 704, 705, 710, 711, 796, 797, 799, 847, 851, 921, 1099, 1303, 1304, 1307, 1324, 1329, 1330, 1332, 1383, 1606, 1608, 1611, 1691, 1693, 1695, 1698, 3314, 3359, 3363, 3373, 3376, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3406, 3415, 3533, 4147, 4149, 4150					
	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland,	-	599_Mod_ Good	Yes	40	Pilliga,Bogan-Macquarie, Castlereagh-Barwon, Inland Slopes, Kerrabee, Liverpool Plains, Liverpool Range, Pilliga Outwash and Talbragar Valley. or Any IBRA subregion that is within 100

	Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri This includes PCT's: 74, 75, 83, 250, 266, 267, 268, 270, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 298, 302, 312, 341, 342, 347, 350, 352, 356, 367, 381, 382, 395, 401, 403, 421, 433, 434, 435, 436, 437, 451, 483, 484, 488, 492, 496, 508, 509, 510, 511, 528, 538, 544, 563, 567, 571, 589, 590, 597, 599, 618, 619, 622, 633, 654, 702, 703, 704, 705, 710, 711, 796, 797, 799, 847, 851, 921, 1099, 1303, 1304, 1307, 1324, 1329, 1330, 1332, 1383, 1606, 1608, 1611, 1691, 1693, 1695, 1698, 3314, 3359, 3363, 3373, 3376, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3406, 3415, 3533, 4147, 4149,					kilometers of the outer edge of the impacted site.

	4150					
	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri This includes PCT's: 74, 75, 83, 250, 266, 267, 268, 270, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 298, 302, 312, 341, 342, 347, 350, 352, 356, 367, 381, 382, 395, 401, 403, 421, 433, 434, 435, 436, 437, 451, 483, 484, 488, 492, 496, 508, 509, 510, 511, 528, 538, 544, 563, 567, 571, 589, 590, 597, 599, 618, 619, 622, 633, 654, 702, 703, 704, 705, 710, 711, 796, 797, 799, 847, 851, 921, 1099, 1303, 1304, 1307, 1324, 1329,	-	599_Thinned	Yes	15	Pilliga,Bogan-Macquarie, Castlereagh-Barwon, Inland Slopes, Kerrabee, Liverpool Plains, Liverpool Range, Pilliga Outwash and Talbragar Valley. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	1330, 1332, 1383, 1606, 1608, 1611, 1691, 1693, 1695, 1698, 3314, 3359, 3363, 3373, 3376, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3406, 3415, 3533, 4147, 4149, 4150					

Species Credit Summary

Species	Vegetation Zone/s	Area / Count	Credits
Calyptorhynchus lathami / Glossy Black-Cockatoo	**440_DNG, 440_Mod_Good, 440_Thinned, 483_Mod_Good, 481_Mod_Good, 599_DNG, 599_Mod_Good**	8.9	240.00
Cercartetus nanus / Eastern Pygmy-possum	**440_Mod_Good, 440_Thinned, 477_Mod_Good**	9.6	287.00
Commersonia procumbens / Commersonia procumbens	**440_Mod_Good, 440_Thinned, 477_Mod_Good**	3.8	112.00
Dichanthium setosum / Bluegrass	**483_Mod_Good**	0.2	3.00
Digitaria porrecta / Finger Panic Grass	**599_DNG, 599_Mod_Good, 599_Thinned**	2.2	27.00
Homoranthus darwinioides / Fairy Bells	**477_Mod_Good**	0.1	2.00
Hoplocephalus bitorquatus / Pale-headed Snake	**440_Mod_Good, 440_Thinned, 477_Mod_Good**	9.6	287.00
Monotaxis macrophylla / Large-leafed Monotaxis	**440_Mod_Good, 440_Thinned, 477_Mod_Good**	3.8	112.00

Petaurus norfolcensis / Squirrel Glider	**440_Mod_Good, 440_Thinned, 477_Mod_Good**	9.6	287.00
Phascolarctos cinereus / Koala	**440_Mod_Good, 440_Thinned, 477_Mod_Good, 483_Mod_Good, 481_Mod_Good, 481_Thinned**	17.3	502.00
Thesium australe / Austral Toadflax	**599_DNG, 599_Mod_Good, 599_Thinned**	2.2	20.00
Tylophora linearis / Tylophora linearis	**440_Mod_Good, 440_Thinned**	1.8	54.00
Tyto novaehollandiae / Masked Owl	**481_Mod_Good**	0.5	15.00

Credit Retirement Options

Like-for-like options

Calyptorhynchus lathami/ Glossy Black-Cockatoo

Spp	IBRA region
Calyptorhynchus lathami/Glossy Black-Cockatoo	Any in NSW

Variation options

Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act shown below	IBRA region

	Fauna	Vulnerable	Pilliga, Bogan-Macquarie, Castlereagh-Barwon, Inland Slopes, Kerrabee, Liverpool Plains, Liverpool Range, Pilliga Outwash and Talbragar Valley. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Cercartetus nanus/ Eastern Pygmy-possum	Spp	IBRA region	
	Cercartetus nanus/Eastern Pygmy-possum	Any in NSW	
	Variation options		
	Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act shown below	IBRA region
	Fauna	Vulnerable	Pilliga, Bogan-Macquarie, Castlereagh-Barwon, Inland Slopes, Kerrabee, Liverpool Plains, Liverpool Range, Pilliga Outwash and Talbragar Valley. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Commersonia procumbens/ Commersonia procumbens	Spp	IBRA region	
	Commersonia procumbens/Commersonia procumbens	Any in NSW	
	Variation options		

	Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act shown below	IBRA region
	Flora	Vulnerable	Pilliga, Bogan-Macquarie, Castlereagh-Barwon, Inland Slopes, Kerrabee, Liverpool Plains, Liverpool Range, Pilliga Outwash and Talbragar Valley. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Dichanthium setosum/ Bluegrass	Spp	IBRA region	
	Dichanthium setosum/Bluegrass	Any in NSW	
	Variation options		
	Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act shown below	IBRA region
	Flora	Vulnerable	Pilliga, Bogan-Macquarie, Castlereagh-Barwon, Inland Slopes, Kerrabee, Liverpool Plains, Liverpool Range, Pilliga Outwash and Talbragar Valley. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

Digitaria porrecta/ Finger Panic Grass	Spp		IBRA region
	Digitaria porrecta/Finger Panic Grass		Any in NSW
	Variation options		
	Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act shown below	IBRA region
	Flora	Endangered	Pilliga, Bogan-Macquarie, Castlereagh-Barwon, Inland Slopes, Kerrabee, Liverpool Plains, Liverpool Range, Pilliga Outwash and Talbragar Valley. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Homoranthus darwinioides/ Fairy Bells	Spp		IBRA region
	Homoranthus darwinioides/Fairy Bells		Any in NSW
	Variation options		
	Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act shown below	IBRA region

	Flora	Vulnerable	Pilliga, Bogan-Macquarie, Castlereagh-Barwon, Inland Slopes, Kerrabee, Liverpool Plains, Liverpool Range, Pilliga Outwash and Talbragar Valley. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Hoplocephalus bitorquatus/ Pale-headed Snake	Spp	IBRA region	
	Hoplocephalus bitorquatus/Pale-headed Snake	Any in NSW	
	Variation options		
	Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act shown below	IBRA region
	Fauna	Vulnerable	Pilliga, Bogan-Macquarie, Castlereagh-Barwon, Inland Slopes, Kerrabee, Liverpool Plains, Liverpool Range, Pilliga Outwash and Talbragar Valley. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Monotaxis macrophylla/ Large-leafed Monotaxis	Spp	IBRA region	
	Monotaxis macrophylla/Large-leafed Monotaxis	Any in NSW	
	Variation options		

	Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act shown below	IBRA region
	Flora	Endangered	Pilliga, Bogan-Macquarie, Castlereagh-Barwon, Inland Slopes, Kerrabee, Liverpool Plains, Liverpool Range, Pilliga Outwash and Talbragar Valley. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Petaurus norfolcensis/ Squirrel Glider	Spp	IBRA region	
	Petaurus norfolcensis/Squirrel Glider	Any in NSW	
	Variation options		
	Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act shown below	IBRA region
	Fauna	Vulnerable	Pilliga, Bogan-Macquarie, Castlereagh-Barwon, Inland Slopes, Kerrabee, Liverpool Plains, Liverpool Range, Pilliga Outwash and Talbragar Valley. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

Phascolarctos cinereus/ Koala	Spp		IBRA region
	Phascolarctos cinereus/Koala		Any in NSW
	Variation options		
	Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act shown below	IBRA region
	Fauna	Endangered	Pilliga, Bogan-Macquarie, Castlereagh-Barwon, Inland Slopes, Kerrabee, Liverpool Plains, Liverpool Range, Pilliga Outwash and Talbragar Valley. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Thesium australe/ Austral Toadflax	Spp		IBRA region
	Thesium australe/Austral Toadflax		Any in NSW
	Variation options		
	Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act shown below	IBRA region

	Flora	Vulnerable	Pilliga, Bogan-Macquarie, Castlereagh-Barwon, Inland Slopes, Kerrabee, Liverpool Plains, Liverpool Range, Pilliga Outwash and Talbragar Valley. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Tylophora linearis/ Tylophora linearis	Spp	IBRA region	
	Tylophora linearis/Tylophora linearis	Any in NSW	
	Variation options		
	Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act shown below	IBRA region
	Flora	Vulnerable	Pilliga, Bogan-Macquarie, Castlereagh-Barwon, Inland Slopes, Kerrabee, Liverpool Plains, Liverpool Range, Pilliga Outwash and Talbragar Valley. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Tyto novaehollandiae/ Masked Owl	Spp	IBRA region	
	Tyto novaehollandiae/Masked Owl	Any in NSW	
	Variation options		

	Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act shown below	IBRA region
	Fauna	Vulnerable	Pilliga, Bogan-Macquarie, Castlereagh-Barwon, Inland Slopes, Kerrabee, Liverpool Plains, Liverpool Range, Pilliga Outwash and Talbragar Valley. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

BAM Candidate Species Report

Proposal Details

Assessment Id 00038232/BAAS17060/23/00038233	Proposal Name CWOREZ Pilliga subregion - Valley of Winds	BAM data last updated * 14/04/2023
Assessor Name Lukas Leslie Clews	Report Created 13/06/2023	BAM Data version * 58
Assessor Number BAAS17060	Assessment Type Major Projects	BAM Case Status Open
Assessment Revision 2	Date Finalised To be finalised	

* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.

List of Species Requiring Survey

Name	Presence	Survey Months
Ardeotis australis Australian Bustard	No (surveyed)	☑ Jan ☑ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☑ Aug ☑ Sep ☑ Oct ☑ Nov ☑ Dec ☐ Survey month outside the specified months?
Burhinus grallarius Bush Stone-curlew	No (surveyed)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☑ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☑ Dec ☐ Survey month outside the specified months?
Calyptorhynchus lathami Glossy Black-Cockatoo	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?

Cercartetus nanus Eastern Pygmy-possum	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Commersonia procumbens Commersonia procumbens	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Dichanthium setosum Bluegrass	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Digitaria porrecta Finger Panic Grass	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Diuris tricolor Pine Donkey Orchid	No (surveyed)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☑ Sep ☑ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Homoranthus darwinioides Fairy Bells	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?

Hoplocephalus bitorquatus Pale-headed Snake	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Monotaxis macrophylla Large-leafed Monotaxis	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Ninox connivens Barking Owl	No (surveyed)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☑ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Petaurus norfolcensis Squirrel Glider	Yes (surveyed)	☐ Jan ☑ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☑ Aug ☑ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Phascolarctos cinereus Koala	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Polytelis swainsonii Superb Parrot	No (surveyed)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☑ Sep ☑ Oct ☑ Nov ☐ Dec ☐ Survey month outside the specified months?

Pomaderris queenslandica Scant Pomaderris	No (surveyed)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☑ Sep ☑ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Pterostylis cobarensis Greenhood Orchid	No (surveyed) *Survey months are outside of the months specified in Bionet.	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☑ Sep ☑ Oct ☐ Nov ☐ Dec ☑ Survey month outside the specified months?
Swainsona sericea Silky Swainson-pea	No (surveyed)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☑ Sep ☑ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Thesium australe Austral Toadflax	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Tylophora linearis Tylophora linearis	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Tyto novaehollandiae Masked Owl	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?

Zieria ingramii Keith's Zieria	No (surveyed)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☑ Dec ☐ Survey month outside the specified months?

Threatened species Manually Added

None added

Threatened species assessed as not on site

Refer to BAR for detailed justification

Common name	Scientific name	Justification in the BAM-C
Brush-tailed Rock-wallaby	Petrogale penicillata	Habitat constraints
Eastern Cave Bat	Vespadelus troughtoni	Habitat constraints
Grey-headed Flying-fox	Pteropus poliocephalus	Habitat constraints
Large Bent-winged Bat	Miniopterus orianae oceanensis	Habitat constraints
Large-eared Pied Bat	Chalinolobus dwyeri	Habitat constraints
Little Eagle	Hieraaetus morphnoides	Habitat constraints
Major Mitchell's Cockatoo	Lophochroa leadbeateri	Species is vagrant
Pink-tailed Legless Lizard	Aprasia parapulchella	Refer to BAR
Prasophyllum sp. Wybong	Prasophyllum sp. Wybong	Species is vagrant
Regent Honeyeater	Anthochaera phrygia	Habitat constraints
Rufous Bettong	Aepyprymnus rufescens	Habitat degraded Species is vagrant
Square-tailed Kite	Lophoictinia isura	Habitat constraints
Swift Parrot	Lathamus discolor	Habitat constraints
White-bellied Sea-Eagle	Haliaeetus leucogaster	Habitat constraints

BAM Credit Summary Report

Proposal Details

Assessment Id
00038232/BAAS17060/23/00038233

Proposal Name
CWOREZ Pilliga subregion - Valley of Winds

BAM data last updated *
14/04/2023

Assessor Name
Lukas Leslie Clews

Report Created
13/06/2023

BAM Data version *
58

Assessor Number
BAAS17060

BAM Case Status
Open

Date Finalised
To be finalised

Assessment Revision
2

Assessment Type
Major Projects

* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.

Ecosystem credits for plant communities types (PCT), ecological communities & threatened species habitat

Zone	Vegetation zone name	TEC name	Current Vegetation integrity score	Change in Vegetation integrity (loss / gain)	Area (ha)	Sensitivity to loss (Justification)	Species sensitivity to gain class	BC Act Listing status	EPBC Act listing status	Biodiversity risk weighting	Potential SAII	Ecosystem credits

Blakely's Red Gum - Yellow Box grassy tall woodland on flats and hills in the Brigalow Belt South Bioregion and Nandewar Bioregion												
8	599_DNG	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri	16.3	16.3	1.6	Population size	High Sensitivity to Gain	Critically Endangered Ecological Community	Not Listed	2.50	True	16

9	599_Mod_Good	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri	84.3	63.0	1	Population size	High Sensitivity to Gain	Critically Endangered Ecological Community	Not Listed	2.50	True	40

10	599_Thinned	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri	57.2	38.1	0.61	Population size	High Sensitivity to Gain	Critically Endangered Ecological Community	Not Listed	2.50	True	15
											Subtotal	**71**

Grey Box x White Box grassy open woodland on basalt hills in the Merriwa region, upper Hunter Valley												
7	483_Mod_Good	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri	85.1	42.6	0.94	Population size	High Sensitivity to Gain	Critically Endangered Ecological Community	Not Listed	2.50	True	25
											Subtotal	**25**

Inland Scribbly Gum - Red Stringybark - Black Cypress Pine - Red Ironbark open forest on sandstone hills in the southern Brigalow Belt South Bioregion and northern NSW South Western Slopes Bioregion												
4	477_Mod_Good	Not a TEC	78.2	50.7	0.18	PCT Cleared - 40%	High Sensitivity to Gain			1.50		3
											Subtotal	**3**
Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion												
1	440_DNG	Not a TEC	7.5	7.5	0.2	PCT Cleared - 34%	High Sensitivity to Gain			1.50		0
2	440_Mod_Good	Not a TEC	88.2	60.8	8	PCT Cleared - 34%	High Sensitivity to Gain			1.50		182
3	440_Thinned	Not a TEC	69.1	54.6	1.4	PCT Cleared - 34%	High Sensitivity to Gain			1.50		29
											Subtotal	**211**
Rough-barked Apple - Blakely's Red Gum - Narrow-leaved Stringybark +/- Grey Gum sandstone riparian grass fern open forest on in the southern Brigalow Belt South Bioregion and Upper Hunter region												
5	481_Mod_Good	Not a TEC	85.2	55.6	5.9	PCT Cleared - 28%	High Sensitivity to Gain			1.50		124

6	481_Thinned	Not a TEC	92.7	68.5	0.88	PCT Cleared - 28%	High Sensitivity to Gain			1.50		23
											Subtotal	**147**
											Total	**457**

Species credits for threatened species

Vegetation zone name	Habitat condition (Vegetation Integrity)	Change in habitat condition	Area (ha)/Count (no. individuals)	Sensitivity to loss (Justification)	Sensitivity to gain (Justification)	BC Act Listing status	EPBC Act listing status	Potential SAII	Species credits
Calyptorhynchus lathami / Glossy Black-Cockatoo (Fauna)									
440_DNG	7.5	7.5	0.16	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Vulnerable	False	1
440_Mod_Good	60.8	60.8	2.5	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Vulnerable	False	76
440_Thinned	54.6	54.6	0.31	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Vulnerable	False	8

483_Mod_Good	42.6	42.6	0.67	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Vulnerable	False	14
481_Mod_Good	55.6	55.6	4	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Vulnerable	False	111
599_DNG	16.3	16.3	0.36	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Vulnerable	False	3
599_Mod_Good	63.0	63.0	0.87	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Vulnerable	False	27
								Subtotal	**240**
Cercartetus nanus / Eastern Pygmy-possum (Fauna)									
440_Mod_Good	60.8	60.8	8	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Not Listed	False	243
440_Thinned	54.6	54.6	1.4	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Not Listed	False	39

477_Mod_Good	50.7	50.7	0.18	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Not Listed	False	5
								Subtotal	**287**
Commersonia procumbens / Commersonia procumbens (Flora)									
440_Mod_Good	60.8	60.8	2.9	Biodiversity Conservation Act listing status	Ability to colonise improved habitat	Vulnerable	Vulnerable	False	88
440_Thinned	54.6	54.6	0.8	Biodiversity Conservation Act listing status	Ability to colonise improved habitat	Vulnerable	Vulnerable	False	22
477_Mod_Good	50.7	50.7	0.07	Biodiversity Conservation Act listing status	Ability to colonise improved habitat	Vulnerable	Vulnerable	False	2
								Subtotal	**112**
Dichanthium setosum / Bluegrass (Flora)									
483_Mod_Good	42.6	42.6	0.15	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Vulnerable	False	3
								Subtotal	**3**

Digitaria porrecta / Finger Panic Grass (Flora)									
599_DNG	16.3	16.3	1.6	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Not Listed	False	13
599_Mod_Good	63.0	63.0	0.31	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Not Listed	False	10
599_Thinned	38.1	38.1	0.23	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Not Listed	False	4
								Subtotal	**27**
Homoranthus darwinioides / Fairy Bells (Flora)									
477_Mod_Good	50.7	50.7	0.07	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Vulnerable	False	2
								Subtotal	**2**
Hoplocephalus bitorquatus / Pale-headed Snake (Fauna)									
440_Mod_Good	60.8	60.8	8	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	243

440_Thinned	54.6	54.6	1.4	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	39
477_Mod_Good	50.7	50.7	0.18	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	5
								Subtotal	**287**
Monotaxis macrophylla / Large-leafed Monotaxis (Flora)									
440_Mod_Good	60.8	60.8	2.9	Biodiversity Conservation Act listing status	Ability to colonise improved habitat	Endangered	Not Listed	False	88
440_Thinned	54.6	54.6	0.8	Biodiversity Conservation Act listing status	Ability to colonise improved habitat	Endangered	Not Listed	False	22
477_Mod_Good	50.7	50.7	0.07	Biodiversity Conservation Act listing status	Ability to colonise improved habitat	Endangered	Not Listed	False	2
								Subtotal	**112**
Petaurus norfolcensis / Squirrel Glider (Fauna)									
440_Mod_Good	60.8	60.8	8	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	243

440_Thinned	54.6	54.6	1.4	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	39
477_Mod_Good	50.7	50.7	0.18	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	5
								Subtotal	**287**
Phascolarctos cinereus / Koala (Fauna)									
440_Mod_Good	60.8	60.8	8	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Endangered	False	243
440_Thinned	54.6	54.6	1.4	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Endangered	False	39
477_Mod_Good	50.7	50.7	0.18	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Endangered	False	5

483_Mod_Good	42.6	42.6	0.94	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Endangered	False	20
481_Mod_Good	55.6	55.6	5.9	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Endangered	False	165
481_Thinned	68.5	68.5	0.88	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Endangered	False	30
								Subtotal	**502**
Thesium australe / Austral Toadflax (Flora)									
599_DNG	16.3	16.3	1.6	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Vulnerable	False	10
599_Mod_Good	63.0	63.0	0.31	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Vulnerable	False	7

599_Thinned	38.1	38.1	0.23	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Vulnerable	False	3
								Subtotal	**20**
Tylophora linearis / Tylophora linearis (Flora)									
440_Mod_Good	60.8	60.8	1	Biodiversity Conservation Act listing status	Quantity class of viable seeds produced	Vulnerable	Endangered	False	32
440_Thinned	54.6	54.6	0.8	Biodiversity Conservation Act listing status	Quantity class of viable seeds produced	Vulnerable	Endangered	False	22
								Subtotal	**54**
Tyto novaehollandiae / Masked Owl (Fauna)									
481_Mod_Good	55.6	55.6	0.53	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	15
								Subtotal	**15**

BAM Predicted Species Report

Proposal Details

Assessment Id	Proposal Name	BAM data last updated *
00038232/BAAS17060/23/00038233	CWOREZ Pilliga subregion - Valley of Winds	14/04/2023
Assessor Name	**Report Created**	**BAM Data version ***
Lukas Leslie Clews	13/06/2023	58
Assessor Number	**Assessment Type**	**BAM Case Status**
BAAS17060	Major Projects	Open
Assessment Revision		**Date Finalised**
2		To be finalised

* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.

Threatened species reliably predicted to utilise the site. No surveys are required for these species. Ecosystem credits apply to these species.

Common Name	Scientific Name	Vegetation Types(s)
Barking Owl	Ninox connivens	440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
		477-Inland Scribbly Gum - Red Stringybark - Black Cypress Pine - Red Ironbark open forest on sandstone hills in the southern Brigalow Belt South Bioregion and northern NSW South Western Slopes Bioregion
		481-Rough-barked Apple - Blakely's Red Gum - Narrow-leaved Stringybark +/- Grey Gum sandstone riparian grass fern open forest on in the southern Brigalow Belt South Bioregion and Upper Hunter region
		483-Grey Box x White Box grassy open woodland on basalt hills in the Merriwa region, upper Hunter Valley
		599-Blakely's Red Gum - Yellow Box grassy tall woodland on flats and hills in the Brigalow Belt South Bioregion and Nandewar Bioregion
Black Falcon	Falco subniger	599-Blakely's Red Gum - Yellow Box grassy tall woodland on flats and hills in the Brigalow Belt South Bioregion and Nandewar Bioregion

Black-chinned Honeyeater (eastern subspecies)	Melithreptus gularis gularis	599-Blakely's Red Gum - Yellow Box grassy tall woodland on flats and hills in the Brigalow Belt South Bioregion and Nandewar Bioregion
Black-striped Wallaby	Macropus dorsalis	440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
		599-Blakely's Red Gum - Yellow Box grassy tall woodland on flats and hills in the Brigalow Belt South Bioregion and Nandewar Bioregion
Brown Treecreeper (eastern subspecies)	Climacteris picumnus victoriae	440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
		477-Inland Scribbly Gum - Red Stringybark - Black Cypress Pine - Red Ironbark open forest on sandstone hills in the southern Brigalow Belt South Bioregion and northern NSW South Western Slopes Bioregion
		599-Blakely's Red Gum - Yellow Box grassy tall woodland on flats and hills in the Brigalow Belt South Bioregion and Nandewar Bioregion
Corben's Long-eared Bat	Nyctophilus corbeni	440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
		477-Inland Scribbly Gum - Red Stringybark - Black Cypress Pine - Red Ironbark open forest on sandstone hills in the southern Brigalow Belt South Bioregion and northern NSW South Western Slopes Bioregion
		599-Blakely's Red Gum - Yellow Box grassy tall woodland on flats and hills in the Brigalow Belt South Bioregion and Nandewar Bioregion
Diamond Firetail	Stagonopleura guttata	440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
		477-Inland Scribbly Gum - Red Stringybark - Black Cypress Pine - Red Ironbark open forest on sandstone hills in the southern Brigalow Belt South Bioregion and northern NSW South Western Slopes Bioregion
		599-Blakely's Red Gum - Yellow Box grassy tall woodland on flats and hills in the Brigalow Belt South Bioregion and Nandewar Bioregion
Dusky Woodswallow	Artamus cyanopterus cyanopterus	440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion

Dusky Woodswallow	Artamus cyanopterus cyanopterus	477-Inland Scribbly Gum - Red Stringybark - Black Cypress Pine - Red Ironbark open forest on sandstone hills in the southern Brigalow Belt South Bioregion and northern NSW South Western Slopes Bioregion
		599-Blakely's Red Gum - Yellow Box grassy tall woodland on flats and hills in the Brigalow Belt South Bioregion and Nandewar Bioregion
Flame Robin	Petroica phoenicea	440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
		477-Inland Scribbly Gum - Red Stringybark - Black Cypress Pine - Red Ironbark open forest on sandstone hills in the southern Brigalow Belt South Bioregion and northern NSW South Western Slopes Bioregion
		599-Blakely's Red Gum - Yellow Box grassy tall woodland on flats and hills in the Brigalow Belt South Bioregion and Nandewar Bioregion
Gilbert's Whistler	Pachycephala inornata	440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
		477-Inland Scribbly Gum - Red Stringybark - Black Cypress Pine - Red Ironbark open forest on sandstone hills in the southern Brigalow Belt South Bioregion and northern NSW South Western Slopes Bioregion
Glossy Black-Cockatoo	Calyptorhynchus lathami	440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
		477-Inland Scribbly Gum - Red Stringybark - Black Cypress Pine - Red Ironbark open forest on sandstone hills in the southern Brigalow Belt South Bioregion and northern NSW South Western Slopes Bioregion
		599-Blakely's Red Gum - Yellow Box grassy tall woodland on flats and hills in the Brigalow Belt South Bioregion and Nandewar Bioregion
Grey-crowned Babbler (eastern subspecies)	Pomatostomus temporalis temporalis	599-Blakely's Red Gum - Yellow Box grassy tall woodland on flats and hills in the Brigalow Belt South Bioregion and Nandewar Bioregion
Grey-headed Flying-fox	Pteropus poliocephalus	440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion

Grey-headed Flying-fox	Pteropus poliocephalus	477-Inland Scribbly Gum - Red Stringybark - Black Cypress Pine - Red Ironbark open forest on sandstone hills in the southern Brigalow Belt South Bioregion and northern NSW South Western Slopes Bioregion
		599-Blakely's Red Gum - Yellow Box grassy tall woodland on flats and hills in the Brigalow Belt South Bioregion and Nandewar Bioregion
Hooded Robin (south-eastern form)	Melanodryas cucullata cucullata	440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
		477-Inland Scribbly Gum - Red Stringybark - Black Cypress Pine - Red Ironbark open forest on sandstone hills in the southern Brigalow Belt South Bioregion and northern NSW South Western Slopes Bioregion
		599-Blakely's Red Gum - Yellow Box grassy tall woodland on flats and hills in the Brigalow Belt South Bioregion and Nandewar Bioregion
Large Bent-winged Bat	Miniopterus orianae oceanensis	440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
		477-Inland Scribbly Gum - Red Stringybark - Black Cypress Pine - Red Ironbark open forest on sandstone hills in the southern Brigalow Belt South Bioregion and northern NSW South Western Slopes Bioregion
		599-Blakely's Red Gum - Yellow Box grassy tall woodland on flats and hills in the Brigalow Belt South Bioregion and Nandewar Bioregion
Little Eagle	Hieraaetus morphnoides	440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
		477-Inland Scribbly Gum - Red Stringybark - Black Cypress Pine - Red Ironbark open forest on sandstone hills in the southern Brigalow Belt South Bioregion and northern NSW South Western Slopes Bioregion
		599-Blakely's Red Gum - Yellow Box grassy tall woodland on flats and hills in the Brigalow Belt South Bioregion and Nandewar Bioregion
Little Lorikeet	Glossopsitta pusilla	440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion

Little Lorikeet	Glossopsitta pusilla	477-Inland Scribbly Gum - Red Stringybark - Black Cypress Pine - Red Ironbark open forest on sandstone hills in the southern Brigalow Belt South Bioregion and northern NSW South Western Slopes Bioregion
		481-Rough-barked Apple - Blakely's Red Gum - Narrow-leaved Stringybark +/- Grey Gum sandstone riparian grass fern open forest on in the southern Brigalow Belt South Bioregion and Upper Hunter region
		483-Grey Box x White Box grassy open woodland on basalt hills in the Merriwa region, upper Hunter Valley
		599-Blakely's Red Gum - Yellow Box grassy tall woodland on flats and hills in the Brigalow Belt South Bioregion and Nandewar Bioregion
Little Pied Bat	Chalinolobus picatus	440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
		477-Inland Scribbly Gum - Red Stringybark - Black Cypress Pine - Red Ironbark open forest on sandstone hills in the southern Brigalow Belt South Bioregion and northern NSW South Western Slopes Bioregion
		599-Blakely's Red Gum - Yellow Box grassy tall woodland on flats and hills in the Brigalow Belt South Bioregion and Nandewar Bioregion
Major Mitchell's Cockatoo	Lophochroa leadbeateri	477-Inland Scribbly Gum - Red Stringybark - Black Cypress Pine - Red Ironbark open forest on sandstone hills in the southern Brigalow Belt South Bioregion and northern NSW South Western Slopes Bioregion
Malleefowl	Leipoa ocellata	477-Inland Scribbly Gum - Red Stringybark - Black Cypress Pine - Red Ironbark open forest on sandstone hills in the southern Brigalow Belt South Bioregion and northern NSW South Western Slopes Bioregion
Masked Owl	Tyto novaehollandiae	440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
		477-Inland Scribbly Gum - Red Stringybark - Black Cypress Pine - Red Ironbark open forest on sandstone hills in the southern Brigalow Belt South Bioregion and northern NSW South Western Slopes Bioregion
		599-Blakely's Red Gum - Yellow Box grassy tall woodland on flats and hills in the Brigalow Belt South Bioregion and Nandewar Bioregion

Painted Honeyeater	Grantiella picta	440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
		477-Inland Scribbly Gum - Red Stringybark - Black Cypress Pine - Red Ironbark open forest on sandstone hills in the southern Brigalow Belt South Bioregion and northern NSW South Western Slopes Bioregion
		481-Rough-barked Apple - Blakely's Red Gum - Narrow-leaved Stringybark +/- Grey Gum sandstone riparian grass fern open forest on in the southern Brigalow Belt South Bioregion and Upper Hunter region
		483-Grey Box x White Box grassy open woodland on basalt hills in the Merriwa region, upper Hunter Valley
		599-Blakely's Red Gum - Yellow Box grassy tall woodland on flats and hills in the Brigalow Belt South Bioregion and Nandewar Bioregion
Regent Honeyeater	Anthochaera phrygia	481-Rough-barked Apple - Blakely's Red Gum - Narrow-leaved Stringybark +/- Grey Gum sandstone riparian grass fern open forest on in the southern Brigalow Belt South Bioregion and Upper Hunter region
		483-Grey Box x White Box grassy open woodland on basalt hills in the Merriwa region, upper Hunter Valley
		599-Blakely's Red Gum - Yellow Box grassy tall woodland on flats and hills in the Brigalow Belt South Bioregion and Nandewar Bioregion
Scarlet Robin	Petroica boodang	440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
		477-Inland Scribbly Gum - Red Stringybark - Black Cypress Pine - Red Ironbark open forest on sandstone hills in the southern Brigalow Belt South Bioregion and northern NSW South Western Slopes Bioregion
		599-Blakely's Red Gum - Yellow Box grassy tall woodland on flats and hills in the Brigalow Belt South Bioregion and Nandewar Bioregion
Speckled Warbler	Chthonicola sagittata	440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
		477-Inland Scribbly Gum - Red Stringybark - Black Cypress Pine - Red Ironbark open forest on sandstone hills in the southern Brigalow Belt South Bioregion and northern NSW South Western Slopes Bioregion

Speckled Warbler	Chthonicola sagittata	599-Blakely's Red Gum - Yellow Box grassy tall woodland on flats and hills in the Brigalow Belt South Bioregion and Nandewar Bioregion
Spotted Harrier	Circus assimilis	440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
		477-Inland Scribbly Gum - Red Stringybark - Black Cypress Pine - Red Ironbark open forest on sandstone hills in the southern Brigalow Belt South Bioregion and northern NSW South Western Slopes Bioregion
		599-Blakely's Red Gum - Yellow Box grassy tall woodland on flats and hills in the Brigalow Belt South Bioregion and Nandewar Bioregion
Spotted-tailed Quoll	Dasyurus maculatus	440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
		477-Inland Scribbly Gum - Red Stringybark - Black Cypress Pine - Red Ironbark open forest on sandstone hills in the southern Brigalow Belt South Bioregion and northern NSW South Western Slopes Bioregion
		599-Blakely's Red Gum - Yellow Box grassy tall woodland on flats and hills in the Brigalow Belt South Bioregion and Nandewar Bioregion
Square-tailed Kite	Lophoictinia isura	440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
		477-Inland Scribbly Gum - Red Stringybark - Black Cypress Pine - Red Ironbark open forest on sandstone hills in the southern Brigalow Belt South Bioregion and northern NSW South Western Slopes Bioregion
		599-Blakely's Red Gum - Yellow Box grassy tall woodland on flats and hills in the Brigalow Belt South Bioregion and Nandewar Bioregion
Superb Parrot	Polytelis swainsonii	440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
		477-Inland Scribbly Gum - Red Stringybark - Black Cypress Pine - Red Ironbark open forest on sandstone hills in the southern Brigalow Belt South Bioregion and northern NSW South Western Slopes Bioregion

Swift Parrot	Lathamus discolor	440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
		477-Inland Scribbly Gum - Red Stringybark - Black Cypress Pine - Red Ironbark open forest on sandstone hills in the southern Brigalow Belt South Bioregion and northern NSW South Western Slopes Bioregion
		481-Rough-barked Apple - Blakely's Red Gum - Narrow-leaved Stringybark +/- Grey Gum sandstone riparian grass fern open forest on in the southern Brigalow Belt South Bioregion and Upper Hunter region
		483-Grey Box x White Box grassy open woodland on basalt hills in the Merriwa region, upper Hunter Valley
		599-Blakely's Red Gum - Yellow Box grassy tall woodland on flats and hills in the Brigalow Belt South Bioregion and Nandewar Bioregion
Turquoise Parrot	Neophema pulchella	440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
		477-Inland Scribbly Gum - Red Stringybark - Black Cypress Pine - Red Ironbark open forest on sandstone hills in the southern Brigalow Belt South Bioregion and northern NSW South Western Slopes Bioregion
		481-Rough-barked Apple - Blakely's Red Gum - Narrow-leaved Stringybark +/- Grey Gum sandstone riparian grass fern open forest on in the southern Brigalow Belt South Bioregion and Upper Hunter region
		483-Grey Box x White Box grassy open woodland on basalt hills in the Merriwa region, upper Hunter Valley
		599-Blakely's Red Gum - Yellow Box grassy tall woodland on flats and hills in the Brigalow Belt South Bioregion and Nandewar Bioregion
Varied Sittella	Daphoenositta chrysoptera	440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
		477-Inland Scribbly Gum - Red Stringybark - Black Cypress Pine - Red Ironbark open forest on sandstone hills in the southern Brigalow Belt South Bioregion and northern NSW South Western Slopes Bioregion
		599-Blakely's Red Gum - Yellow Box grassy tall woodland on flats and hills in the Brigalow Belt South Bioregion and Nandewar Bioregion

White-bellied Sea-Eagle	Haliaeetus leucogaster	599-Blakely's Red Gum - Yellow Box grassy tall woodland on flats and hills in the Brigalow Belt South Bioregion and Nandewar Bioregion
White-throated Needletail	Hirundapus caudacutus	440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
		477-Inland Scribbly Gum - Red Stringybark - Black Cypress Pine - Red Ironbark open forest on sandstone hills in the southern Brigalow Belt South Bioregion and northern NSW South Western Slopes Bioregion
		481-Rough-barked Apple - Blakely's Red Gum - Narrow-leaved Stringybark +/- Grey Gum sandstone riparian grass fern open forest on in the southern Brigalow Belt South Bioregion and Upper Hunter region
		483-Grey Box x White Box grassy open woodland on basalt hills in the Merriwa region, upper Hunter Valley
		599-Blakely's Red Gum - Yellow Box grassy tall woodland on flats and hills in the Brigalow Belt South Bioregion and Nandewar Bioregion
Yellow-bellied Sheathtail-bat	Saccolaimus flaviventris	440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
		477-Inland Scribbly Gum - Red Stringybark - Black Cypress Pine - Red Ironbark open forest on sandstone hills in the southern Brigalow Belt South Bioregion and northern NSW South Western Slopes Bioregion
		599-Blakely's Red Gum - Yellow Box grassy tall woodland on flats and hills in the Brigalow Belt South Bioregion and Nandewar Bioregion

Threatened species Manually Added

None added

Threatened species assessed as not within the vegetation zone(s) for the PCT(s)

Common Name	Scientific Name	Plant Community Type(s)
Major Mitchell's Cockatoo	Lophochroa leadbeateri	440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion

Threatened species assessed as not within the vegetation zone(s) for the PCT(s)

Refer to BAR for detailed justification

Common Name	Scientific Name	Justification in the BAM-C

BAM Vegetation Zones Report

Proposal Details

Assessment Id
00038232/BAAS17060/23/00038233

Assessment name
CWOREZ Pilliga subregion - Valley of Winds

BAM data last updated *
14/04/2023

Assessor Name
Lukas Leslie Clews

Report Created
13/06/2023

BAM Data version *
58

Assessor Number
BAAS17060

Assessment Type
Major Projects

BAM Case Status
Open

Assessment Revision
2

Date Finalised
To be finalised

* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.

Vegetation Zones

#	Name	PCT	Condition	Area	Minimum number of plots	Management zones
1	440_DNG	440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion	DNG	0.2	1	A (0.2 ha)

2	440_Mod_Good	440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion	Mod_Good	7.98	3	A (2.89 ha) B (5.09 ha)
3	440_Thinned	440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion	Thinned	1.42	1	A (0.8 ha) B (0.62 ha)
4	477_Mod_Good	477-Inland Scribbly Gum - Red Stringybark - Black Cypress Pine - Red Ironbark open forest on sandstone hills in the southern Brigalow Belt South Bioregion and northern NSW South Western Slopes Bioregion	Mod_Good	0.18	1	A (0.07 ha) B (0.11 ha)
5	481_Mod_Good	481-Rough-barked Apple - Blakely's Red Gum - Narrow-leaved Stringybark +/- Grey Gum sandstone riparian grass fern open forest on in the southern Brigalow Belt South Bioregion and Upper Hunter region	Mod_Good	5.94	3	A (1.94 ha) B (4 ha)
6	481_Thinned	481-Rough-barked Apple - Blakely's Red Gum - Narrow-leaved Stringybark +/- Grey Gum sandstone riparian grass fern open forest on in the southern Brigalow Belt South Bioregion and Upper Hunter region	Thinned	0.88	1	A (0.36 ha) B (0.52 ha)

7	483_Mod_Good	483-Grey Box x White Box grassy open woodland on basalt hills in the Merriwa region, upper Hunter Valley	Mod_Good	0.94	1	A (0.15 ha) B (0.79 ha)
8	599_DNG	599-Blakely's Red Gum - Yellow Box grassy tall woodland on flats and hills in the Brigalow Belt South Bioregion and Nandewar Bioregion	DNG	1.62	1	A (1.62 ha)
9	599_Mod_Good	599-Blakely's Red Gum - Yellow Box grassy tall woodland on flats and hills in the Brigalow Belt South Bioregion and Nandewar Bioregion	Mod_Good	1.02	1	A (0.31 ha) B (0.71 ha)
10	599_Thinned	599-Blakely's Red Gum - Yellow Box grassy tall woodland on flats and hills in the Brigalow Belt South Bioregion and Nandewar Bioregion	Thinned	0.61	1	A (0.23 ha) B (0.38 ha)

BAM Biodiversity Credit Report (Like for like)

Proposal Details

Assessment Id
00038228/BAAS17060/23/00038229

Proposal Name
CWOREZ Talbragar Valley subregion - CFG connection to Spicers Creek wind farm

BAM data last updated *
14/04/2023

Assessor Name
Lukas Leslie Clews

Assessor Number
BAAS17060

BAM Data version *
58

Proponent Names

Report Created
13/06/2023

BAM Case Status
Open

Assessment Revision
2

Assessment Type
Major Projects

Date Finalised
To be finalised

* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.

Potential Serious and Irreversible Impacts

Name of threatened ecological community	Listing status	Name of Plant Community Type/ID
Fuzzy Box Woodland on alluvial Soils of the South Western Slopes, Darling Riverine Plains and Brigalow Belt South Bioregions	Endangered Ecological Community	202-Fuzzy Box woodland on colluvium and alluvial flats in the Brigalow Belt South Bioregion (including Pilliga) and Nandewar Bioregion

White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri	Critically Endangered Ecological Community	277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri	Critically Endangered Ecological Community	599-Blakely's Red Gum - Yellow Box grassy tall woodland on flats and hills in the Brigalow Belt South Bioregion and Nandewar Bioregion

Species
Nil

Additional Information for Approval

PCT Outside Ibra Added

PCT
81-Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion
202-Fuzzy Box woodland on colluvium and alluvial flats in the Brigalow Belt South Bioregion (including Pilliga) and Nandewar Bioregion
277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
599-Blakely's Red Gum - Yellow Box grassy tall woodland on flats and hills in the Brigalow Belt South Bioregion and Nandewar Bioregion

PCTs With Customized Benchmarks

PCT
No Changes

Predicted Threatened Species Not On Site

Name
Lophochroa leadbeateri / Major Mitchell's Cockatoo

Ecosystem Credit Summary (Number and class of biodiversity credits to be retired)

BAM Biodiversity Credit Report (Like for like)

Name of Plant Community Type/ID	Name of threatened ecological community	Area of impact	HBT Cr	No HBT Cr	Total credits to be retired
81-Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion	Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions	0.0	0	0	0
202-Fuzzy Box woodland on colluvium and alluvial flats in the Brigalow Belt South Bioregion (including Pilliga) and Nandewar Bioregion	Fuzzy Box Woodland on alluvial Soils of the South Western Slopes, Darling Riverine Plains and Brigalow Belt South Bioregions	0.2	4	0	4
277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri	0.0	1	0	1
599-Blakely's Red Gum - Yellow Box grassy tall woodland on flats and hills in the Brigalow Belt South Bioregion and Nandewar Bioregion	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri	4.1	89	10	99

81-Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion

Like-for-like credit retirement options

Name of offset trading group	Trading group	Zone	HBT	Credits	IBRA region
Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions This includes PCT's: 76, 80, 81, 82, 101, 110, 237, 248, 3405	-	81_DNG	No	0	Talbragar Valley, Inland Slopes and Pilliga. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

202-Fuzzy Box woodland on colluvium and alluvial flats in the Brigalow Belt South Bioregion (including Pilliga) and Nandewar Bioregion

Like-for-like credit retirement options

Name of offset trading group	Trading group	Zone	HBT	Credits	IBRA region

	Fuzzy Box Woodland on alluvial Soils of the South Western Slopes, Darling Riverine Plains and Brigalow Belt South Bioregions This includes PCT's: 201, 202, 1384, 3404	-	202_Thinned	Yes	4	Talbragar Valley, Inland Slopes and Pilliga. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion	**Like-for-like credit retirement options**					
	Name of offset trading group	Trading group	Zone	HBT	Credits	IBRA region
	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South	-	277_Mod_Good	Yes	1	Talbragar Valley, Inland Slopes and Pilliga. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	East Corner and Ri This includes PCT's: 74, 75, 83, 250, 266, 267, 268, 270, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 298, 302, 312, 341, 342, 347, 350, 352, 356, 367, 381, 382, 395, 401, 403, 421, 433, 434, 435, 436, 437, 451, 483, 484, 488, 492, 496, 508, 509, 510, 511, 528, 538, 544, 563, 567, 571, 589, 590, 597, 599, 618, 619, 622, 633, 654, 702, 703, 704, 705, 710, 711, 796, 797, 799, 847, 851, 921, 1099, 1303, 1304, 1307, 1324, 1329, 1330, 1332, 1383, 1606, 1608, 1611, 1691, 1693, 1695, 1698, 3314, 3359, 3363, 3373, 3376, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3406, 3415, 3533, 4147, 4149, 4150					

599-Blakely's Red Gum - Yellow Box grassy tall woodland on flats and hills in the Brigalow Belt South Bioregion and Nandewar Bioregion

Like-for-like credit retirement options

Name of offset trading group	Trading group	Zone	HBT	Credits	IBRA region
White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri This includes PCT's: 74, 75, 83, 250, 266, 267, 268, 270, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 298, 302, 312, 341, 342, 347,	-	599_DNG	No	10	Talbragar Valley, Inland Slopes and Pilliga. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	350, 352, 356, 367, 381, 382, 395, 401, 403, 421, 433, 434, 435, 436, 437, 451, 483, 484, 488, 492, 496, 508, 509, 510, 511, 528, 538, 544, 563, 567, 571, 589, 590, 597, 599, 618, 619, 622, 633, 654, 702, 703, 704, 705, 710, 711, 796, 797, 799, 847, 851, 921, 1099, 1303, 1304, 1307, 1324, 1329, 1330, 1332, 1383, 1606, 1608, 1611, 1691, 1693, 1695, 1698, 3314, 3359, 3363, 3373, 3376, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3406, 3415, 3533, 4147, 4149, 4150					
	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland,	-	599_Mod_Good	Yes	35	Talbragar Valley, Inland Slopes and Pilliga. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri This includes PCT's: 74, 75, 83, 250, 266, 267, 268, 270, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 298, 302, 312, 341, 342, 347, 350, 352, 356, 367, 381, 382, 395, 401, 403, 421, 433, 434, 435, 436, 437, 451, 483, 484, 488, 492, 496, 508, 509, 510, 511, 528, 538, 544, 563, 567, 571, 589, 590, 597, 599, 618, 619, 622, 633, 654, 702, 703, 704, 705, 710, 711, 796, 797, 799, 847, 851, 921, 1099, 1303, 1304, 1307, 1324, 1329, 1330, 1332, 1383, 1606, 1608, 1611, 1691, 1693, 1695, 1698, 3314, 3359,					

	3363, 3373, 3376, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3406, 3415, 3533, 4147, 4149, 4150					
	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri This includes PCT's: 74, 75, 83, 250, 266, 267, 268, 270, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 298, 302, 312, 341, 342, 347, 350, 352, 356, 367, 381, 382, 395, 401, 403, 421, 433, 434, 435, 436, 437,	-	599_Thinned	Yes	54	Talbragar Valley, Inland Slopes and Pilliga. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	451, 483, 484, 488, 492, 496, 508, 509, 510, 511, 528, 538, 544, 563, 567, 571, 589, 590, 597, 599, 618, 619, 622, 633, 654, 702, 703, 704, 705, 710, 711, 796, 797, 799, 847, 851, 921, 1099, 1303, 1304, 1307, 1324, 1329, 1330, 1332, 1383, 1606, 1608, 1611, 1691, 1693, 1695, 1698, 3314, 3359, 3363, 3373, 3376, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3406, 3415, 3533, 4147, 4149, 4150					

Species Credit Summary

Species	Vegetation Zone/s	Area / Count	Credits
Cercartetus nanus / Eastern Pygmy-possum	**202_Thinned**	0.2	4.00
Dichanthium setosum / Bluegrass	**81_DNG**	0.0	1.00
Petaurus norfolcensis / Squirrel Glider	**202_Thinned**	0.2	4.00
Phascolarctos cinereus / Koala	**202_Thinned**	0.2	4.00
Polytelis swainsonii / Superb Parrot	**202_Thinned, 599_Thinned**	0.1	3.00

Swainsona sericea / Silky Swainson-pea	**277_Mod_Good**	0.0	1.00
Tylophora linearis / Tylophora linearis	**202_Thinned**	0.1	2.00

Credit Retirement Options

Like-for-like credit retirement options

Cercartetus nanus / Eastern Pygmy-possum	Spp	IBRA subregion
	Cercartetus nanus / Eastern Pygmy-possum	Any in NSW
Dichanthium setosum / Bluegrass	Spp	IBRA subregion
	Dichanthium setosum / Bluegrass	Any in NSW
Petaurus norfolcensis / Squirrel Glider	Spp	IBRA subregion
	Petaurus norfolcensis / Squirrel Glider	Any in NSW
Phascolarctos cinereus / Koala	Spp	IBRA subregion
	Phascolarctos cinereus / Koala	Any in NSW
Polytelis swainsonii / Superb Parrot	Spp	IBRA subregion
	Polytelis swainsonii / Superb Parrot	Any in NSW

Swainsona sericea / Silky Swainson-pea	Spp	IBRA subregion
	Swainsona sericea / Silky Swainson-pea	Any in NSW
Tylophora linearis / Tylophora linearis	Spp	IBRA subregion
	Tylophora linearis / Tylophora linearis	Any in NSW

BAM Biodiversity Credit Report (Variations)

Proposal Details

Assessment Id

00038228/BAAS17060/23/00038229

Proposal Name

CWOREZ Talbragar Valley subregion - CFG connection to Spicers Creek wind farm

BAM data last updated *

14/04/2023

Assessor Name

Lukas Leslie Clews

Assessor Number

BAAS17060

BAM Data version *

58

Proponent Name(s)

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BAM Case Status

Open

Assessment Revision

2

Assessment Type

Major Projects

Date Finalised

To be finalised

* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.

Potential Serious and Irreversible Impacts

Name of threatened ecological community	Listing status	Name of Plant Community Type/ID
Fuzzy Box Woodland on alluvial Soils of the South Western Slopes, Darling Riverine Plains and Brigalow Belt South Bioregions	Endangered Ecological Community	202-Fuzzy Box woodland on colluvium and alluvial flats in the Brigalow Belt South Bioregion (including Pilliga) and Nandewar Bioregion
White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri	Critically Endangered Ecological Community	277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion

White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri	Critically Endangered Ecological Community	599-Blakely's Red Gum - Yellow Box grassy tall woodland on flats and hills in the Brigalow Belt South Bioregion and Nandewar Bioregion

Species
Nil

Additional Information for Approval

PCT Outside Ibra Added

PCT
81-Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion
202-Fuzzy Box woodland on colluvium and alluvial flats in the Brigalow Belt South Bioregion (including Pilliga) and Nandewar Bioregion
277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
599-Blakely's Red Gum - Yellow Box grassy tall woodland on flats and hills in the Brigalow Belt South Bioregion and Nandewar Bioregion

PCTs With Customized Benchmarks

PCT
No Changes

Predicted Threatened Species Not On Site

Name
Lophochroa leadbeateri / Major Mitchell's Cockatoo

Ecosystem Credit Summary (Number and class of biodiversity credits to be retired)

BAM Biodiversity Credit Report (Variations)

Name of Plant Community Type/ID	Name of threatened ecological community	Area of impact	HBT Cr	No HBT Cr	Total credits to be retired
81-Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion	Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions	0.0	0	0	0.00
202-Fuzzy Box woodland on colluvium and alluvial flats in the Brigalow Belt South Bioregion (including Pilliga) and Nandewar Bioregion	Fuzzy Box Woodland on alluvial Soils of the South Western Slopes, Darling Riverine Plains and Brigalow Belt South Bioregions	0.2	4	0	4.00
277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri	0.0	1	0	1.00
599-Blakely's Red Gum - Yellow Box grassy tall woodland on flats and hills in the Brigalow Belt South Bioregion and Nandewar Bioregion	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri	4.1	89	10	99.00

81-Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion

Like-for-like credit retirement options

Class	Trading group	Zone	HBT	Credits	IBRA region

	Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions This includes PCT's: 76, 80, 81, 82, 101, 110, 237, 248, 3405	-	81_DNG	No	0	Talbragar Valley,Inland Slopes and Pilliga. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
	Variation options					
	Formation	Trading group	Zone	HBT	Credits	IBRA region
	Grassy Woodlands	Tier 3 or higher threat status	81_DNG	No	0	IBRA Region: Brigalow Belt South, or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
202-Fuzzy Box woodland on colluvium and alluvial flats in the Brigalow Belt South Bioregion (including Pilliga) and Nandewar Bioregion	**Like-for-like credit retirement options**					
	Class	Trading group	Zone	HBT	Credits	IBRA region
	Fuzzy Box Woodland on alluvial Soils of the South Western Slopes, Darling Riverine Plains and Brigalow Belt South Bioregions This includes PCT's: 201, 202, 1384, 3404	-	202_Thinned	Yes	4	Talbragar Valley,Inland Slopes and Pilliga. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
	Variation options					
	Formation	Trading group	Zone	HBT	Credits	IBRA region

	Grassy Woodlands	Tier 3 or higher threat status	202_Thinned	Yes (including artificial)	4	IBRA Region: Brigalow Belt South, or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion	**Like-for-like credit retirement options**					
	Class	Trading group	Zone	HBT	Credits	IBRA region
	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri This includes PCT's: 74, 75, 83, 250, 266, 267, 268, 270, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 298, 302, 312, 341, 342, 347, 350, 352, 356, 367, 381, 382, 395, 401, 403, 421, 433, 434, 435, 436, 437, 451, 483, 484, 488, 492, 496, 508, 509, 510, 511,	-	277_Mod_Good	Yes	1	Talbragar Valley,Inland Slopes and Pilliga. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	528, 538, 544, 563, 567, 571, 589, 590, 597, 599, 618, 619, 622, 633, 654, 702, 703, 704, 705, 710, 711, 796, 797, 799, 847, 851, 921, 1099, 1303, 1304, 1307, 1324, 1329, 1330, 1332, 1383, 1606, 1608, 1611, 1691, 1693, 1695, 1698, 3314, 3359, 3363, 3373, 3376, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3406, 3415, 3533, 4147, 4149, 4150					
599-Blakely's Red Gum - Yellow Box grassy tall woodland on flats and hills in the Brigalow Belt South Bioregion and Nandewar Bioregion	**Like-for-like credit retirement options**					
	Class	Trading group	Zone	HBT	Credits	IBRA region
	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri This includes PCT's:	-	599_DNG	No	10	Talbragar Valley,Inland Slopes and Pilliga. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	74, 75, 83, 250, 266, 267, 268, 270, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 298, 302, 312, 341, 342, 347, 350, 352, 356, 367, 381, 382, 395, 401, 403, 421, 433, 434, 435, 436, 437, 451, 483, 484, 488, 492, 496, 508, 509, 510, 511, 528, 538, 544, 563, 567, 571, 589, 590, 597, 599, 618, 619, 622, 633, 654, 702, 703, 704, 705, 710, 711, 796, 797, 799, 847, 851, 921, 1099, 1303, 1304, 1307, 1324, 1329, 1330, 1332, 1383, 1606, 1608, 1611, 1691, 1693, 1695, 1698, 3314, 3359, 3363, 3373, 3376, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3406, 3415, 3533, 4147, 4149, 4150					
	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland,	-	599_Mod_Good	Yes	35	Talbragar Valley,Inland Slopes and Pilliga. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri This includes PCT's: 74, 75, 83, 250, 266, 267, 268, 270, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 298, 302, 312, 341, 342, 347, 350, 352, 356, 367, 381, 382, 395, 401, 403, 421, 433, 434, 435, 436, 437, 451, 483, 484, 488, 492, 496, 508, 509, 510, 511, 528, 538, 544, 563, 567, 571, 589, 590, 597, 599, 618, 619, 622, 633, 654, 702, 703, 704, 705, 710, 711, 796, 797, 799, 847, 851, 921, 1099, 1303, 1304, 1307, 1324, 1329, 1330, 1332, 1383, 1606, 1608, 1611, 1691, 1693, 1695, 1698, 3314, 3359, 3363, 3373, 3376, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3406, 3415, 3533, 4147, 4149,					

	4150					
	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri This includes PCT's: 74, 75, 83, 250, 266, 267, 268, 270, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 298, 302, 312, 341, 342, 347, 350, 352, 356, 367, 381, 382, 395, 401, 403, 421, 433, 434, 435, 436, 437, 451, 483, 484, 488, 492, 496, 508, 509, 510, 511, 528, 538, 544, 563, 567, 571, 589, 590, 597, 599, 618, 619, 622, 633, 654, 702, 703, 704, 705, 710, 711, 796, 797, 799, 847, 851, 921, 1099, 1303, 1304, 1307, 1324, 1329,	-	599_Thinned	Yes	54	Talbragar Valley,Inland Slopes and Pilliga. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	1330, 1332, 1383, 1606, 1608, 1611, 1691, 1693, 1695, 1698, 3314, 3359, 3363, 3373, 3376, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3406, 3415, 3533, 4147, 4149, 4150					

Species Credit Summary

Species	Vegetation Zone/s	Area / Count	Credits
Cercartetus nanus / Eastern Pygmy-possum	**202_Thinned**	0.2	4.00
Dichanthium setosum / Bluegrass	**81_DNG**	0.0	1.00
Petaurus norfolcensis / Squirrel Glider	**202_Thinned**	0.2	4.00
Phascolarctos cinereus / Koala	**202_Thinned**	0.2	4.00
Polytelis swainsonii / Superb Parrot	**202_Thinned, 599_Thinned**	0.1	3.00
Swainsona sericea / Silky Swainson-pea	**277_Mod_Good**	0.0	1.00
Tylophora linearis / Tylophora linearis	**202_Thinned**	0.1	2.00

Credit Retirement Options

Like-for-like options

Cercartetus nanus/ Eastern Pygmy-possum	Spp		IBRA region
	Cercartetus nanus/Eastern Pygmy-possum		Any in NSW
	Variation options		
	Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act	IBRA region

		shown below	
	Fauna	Vulnerable	Talbragar Valley, Inland Slopes and Pilliga. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Dichanthium setosum/ Bluegrass	Spp	IBRA region	
	Dichanthium setosum/Bluegrass	Any in NSW	
	Variation options		
	Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act shown below	IBRA region
	Flora	Vulnerable	Talbragar Valley, Inland Slopes and Pilliga. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Petaurus norfolcensis/ Squirrel Glider	Spp	IBRA region	
	Petaurus norfolcensis/Squirrel Glider	Any in NSW	
	Variation options		
	Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act	IBRA region

		shown below	
	Fauna	Vulnerable	Talbragar Valley, Inland Slopes and Pilliga. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Phascolarctos cinereus/ Koala	Spp	IBRA region	
	Phascolarctos cinereus/Koala	Any in NSW	
	Variation options		
	Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act shown below	IBRA region
	Fauna	Endangered	Talbragar Valley, Inland Slopes and Pilliga. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Polytelis swainsonii/ Superb Parrot	Spp	IBRA region	
	Polytelis swainsonii/Superb Parrot	Any in NSW	
	Variation options		
	Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act	IBRA region

		shown below	
	Fauna	Vulnerable	Talbragar Valley, Inland Slopes and Pilliga. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Swainsona sericea/ Silky Swainson-pea	Spp	IBRA region	
	Swainsona sericea/Silky Swainson-pea	Any in NSW	
	Variation options		
	Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act shown below	IBRA region
	Flora	Vulnerable	Talbragar Valley, Inland Slopes and Pilliga. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Tylophora linearis/ Tylophora linearis	Spp	IBRA region	
	Tylophora linearis/Tylophora linearis	Any in NSW	
	Variation options		
	Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act	IBRA region

		shown below	
	Flora	Vulnerable	Talbragar Valley, Inland Slopes and Pilliga. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

BAM Candidate Species Report

Proposal Details

Assessment Id	Proposal Name	BAM data last updated *
00038228/BAAS17060/23/00038229	CWOREZ Talbragar Valley subregion - CFG connection to Spicers Creek wind farm	14/04/2023
Assessor Name	**Report Created**	**BAM Data version ***
Lukas Leslie Clews	13/06/2023	58
Assessor Number	**Assessment Type**	**BAM Case Status**
BAAS17060	Major Projects	Open
Assessment Revision	**Date Finalised**	
2	To be finalised	

* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.

List of Species Requiring Survey

Name	Presence	Survey Months
Acacia ausfeldii Ausfeld's Wattle	No (surveyed) *Survey months are outside of the months specified in Bionet.	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☑ Sep ☑ Oct ☐ Nov ☑ Dec ☑ Survey month outside the specified months?
Burhinus grallarius Bush Stone-curlew	No (surveyed)	☑ Jan ☑ Feb ☑ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☑ Aug ☑ Sep ☑ Oct ☑ Nov ☑ Dec ☐ Survey month outside the specified months?
Calyptorhynchus lathami Glossy Black-Cockatoo	No (surveyed) *Survey months are outside of the months specified in Bionet.	☐ Jan ☑ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☑ Aug ☐ Sep ☐ Oct ☐ Nov ☑ Dec ☑ Survey month outside the specified months?

Cercartetus nanus Eastern Pygmy-possum	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Dichanthium setosum Bluegrass	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Diuris tricolor Pine Donkey Orchid	No (surveyed)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☑ Sep ☑ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Hoplocephalus bitorquatus Pale-headed Snake	No (surveyed)	☐ Jan ☑ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Ninox connivens Barking Owl	No (surveyed) *Survey months are outside of the months specified in Bionet.	☐ Jan ☑ Feb ☑ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☑ Aug ☐ Sep ☐ Oct ☐ Nov ☑ Dec ☑ Survey month outside the specified months?
Ninox strenua Powerful Owl	No (surveyed) *Survey months are outside of the months specified in Bionet.	☐ Jan ☑ Feb ☑ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☑ Aug ☐ Sep ☐ Oct ☐ Nov ☑ Dec ☑ Survey month outside the specified months?

Petaurus norfolcensis Squirrel Glider	Yes (surveyed)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☑ Aug ☐ Sep ☐ Oct ☑ Nov ☐ Dec ☐ Survey month outside the specified months?
Phascolarctos cinereus Koala	Yes (surveyed)	☑ Jan ☑ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☑ Nov ☑ Dec ☐ Survey month outside the specified months?
Polytelis swainsonii Superb Parrot	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Pomaderris queenslandica Scant Pomaderris	No (surveyed)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☑ Sep ☑ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Swainsona sericea Silky Swainson-pea	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Tylophora linearis Tylophora linearis	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?

Tyto novaehollandiae Masked Owl	No (surveyed)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☑ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?

Threatened species Manually Added

None added

Threatened species assessed as not on site

Refer to BAR for detailed justification

Common name	Scientific name	Justification in the BAM-C
Commersonia procumbens	Commersonia procumbens	Habitat constraints
Grey-headed Flying-fox	Pteropus poliocephalus	Habitat constraints
Large Bent-winged Bat	Miniopterus orianae oceanensis	Habitat constraints
Large-eared Pied Bat	Chalinolobus dwyeri	Habitat constraints
Little Eagle	Hieraaetus morphnoides	Habitat constraints
Major Mitchell's Cockatoo	Lophochroa leadbeateri	Species is vagrant
Pink-tailed Legless Lizard	Aprasia parapulchella	Habitat constraints
Regent Honeyeater	Anthochaera phrygia	Habitat constraints
Sloane's Froglet	Crinia sloanei	Species is vagrant
Square-tailed Kite	Lophoictinia isura	Habitat constraints
Swift Parrot	Lathamus discolor	Habitat constraints
White-bellied Sea-Eagle	Haliaeetus leucogaster	Habitat constraints

BAM Credit Summary Report

Proposal Details

Assessment Id	Proposal Name	BAM data last updated *
00038228/BAAS17060/23/00038229	CWOREZ Talbragar Valley subregion - CFG connection to Spicers Creek wind farm	14/04/2023
Assessor Name	**Report Created**	**BAM Data version ***
Lukas Leslie Clews	13/06/2023	58
Assessor Number	**BAM Case Status**	**Date Finalised**
BAAS17060	Open	To be finalised
Assessment Revision	**Assessment Type**	
2	Major Projects	

* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.

Ecosystem credits for plant communities types (PCT), ecological communities & threatened species habitat

Zone	Vegetation zone name	TEC name	Current Vegetation integrity score	Change in Vegetation integrity (loss / gain)	Area (ha)	Sensitivity to loss (Justification)	Species sensitivity to gain class	BC Act Listing status	EPBC Act listing status	Biodiversity risk weighting	Potential SAII	Ecosystem credits

Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion												
3	277_Mod_Good	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri	91.5	91.5	0.01	Population size	High Sensitivity to Gain	Critically Endangered Ecological Community	Not Listed	2.50	True	1
											Subtotal	**1**

Blakely's Red Gum - Yellow Box grassy tall woodland on flats and hills in the Brigalow Belt South Bioregion and Nandewar Bioregion												
4	599_DNG	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri	16.3	16.3	0.98	Population size	High Sensitivity to Gain	Critically Endangered Ecological Community	Not Listed	2.50	True	10

5	599_Mod_Good	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri	84.3	55.6	1	Population size	High Sensitivity to Gain	Critically Endangered Ecological Community	Not Listed	2.50	True	35

6	599_Thinned	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri	57.2	40.6	2.1	Population size	High Sensitivity to Gain	Critically Endangered Ecological Community	Not Listed	2.50	True	54
											Subtotal	**99**

Fuzzy Box woodland on colluvium and alluvial flats in the Brigalow Belt South Bioregion (including Pilliga) and Nandewar Bioregion												
2	202_Thinned	Fuzzy Box Woodland on alluvial Soils of the South Western Slopes, Darling Riverine Plains and Brigalow Belt South Bioregions	36.1	35.1	0.21	Geographic Distribution	High Sensitivity to Gain	Endangered Ecological Community	Not Listed	2.00	True	4
											Subtotal	**4**
Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion												
1	81_DNG	Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions	14.7	14.7	0.04	Biodiversity Conservation Act listing status	High Sensitivity to Gain	Endangered Ecological Community	Not Listed	2.00		0
											Subtotal	**0**
											Total	**104**

Species credits for threatened species

Vegetation zone name	Habitat condition (Vegetation Integrity)	Change in habitat condition	Area (ha)/Count (no. individuals)	Sensitivity to loss (Justification)	Sensitivity to gain (Justification)	BC Act Listing status	EPBC Act listing status	Potential SAII	Species credits
Cercartetus nanus / Eastern Pygmy-possum (Fauna)									
202_Thinned	35.1	35.1	0.21	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Not Listed	False	4
								Subtotal	**4**
Dichanthium setosum / Bluegrass (Flora)									
81_DNG	14.7	14.7	0.04	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Vulnerable	False	1
								Subtotal	**1**
Petaurus norfolcensis / Squirrel Glider (Fauna)									
202_Thinned	35.1	35.1	0.2	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	4
								Subtotal	**4**

Phascolarctos cinereus / Koala (Fauna)									
202_Thinned	35.1	35.1	0.2	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Endangered	False	4
								Subtotal	**4**
Polytelis swainsonii / Superb Parrot (Fauna)									
202_Thinned	35.1	35.1	0.11	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Vulnerable	False	2
599_Thinned	40.6	40.6	0.02	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Vulnerable	False	1
								Subtotal	**3**
Swainsona sericea / Silky Swainson-pea (Flora)									
277_Mod_Good	91.5	91.5	0.01	Biodiversity Conservation Act listing status	Ability to colonise improved habitat	Vulnerable	Not Listed	False	1
								Subtotal	**1**

Tylophora linearis / Tylophora linearis (Flora)									
202_Thinned	35.1	35.1	0.14	Biodiversity Conservation Act listing status	Quantity class of viable seeds produced	Vulnerable	Endangered	False	2
								Subtotal	**2**

BAM Predicted Species Report

Proposal Details

Assessment Id	Proposal Name	BAM data last updated *
00038228/BAAS17060/23/00038229	CWOREZ Talbragar Valley subregion - CFG connection to Spicers Creek wind farm	14/04/2023
Assessor Name	**Report Created**	**BAM Data version ***
Lukas Leslie Clews	13/06/2023	58
Assessor Number	**Assessment Type**	**BAM Case Status**
BAAS17060	Major Projects	Open
Assessment Revision		**Date Finalised**
2		To be finalised

* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.

Threatened species reliably predicted to utilise the site. No surveys are required for these species. Ecosystem credits apply to these species.

Common Name	Scientific Name	Vegetation Types(s)
Barking Owl	Ninox connivens	81-Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion
		202-Fuzzy Box woodland on colluvium and alluvial flats in the Brigalow Belt South Bioregion (including Pilliga) and Nandewar Bioregion
		277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
		599-Blakely's Red Gum - Yellow Box grassy tall woodland on flats and hills in the Brigalow Belt South Bioregion and Nandewar Bioregion
Black Falcon	Falco subniger	277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
		599-Blakely's Red Gum - Yellow Box grassy tall woodland on flats and hills in the Brigalow Belt South Bioregion and Nandewar Bioregion
Black-chinned Honeyeater (eastern subspecies)	Melithreptus gularis gularis	202-Fuzzy Box woodland on colluvium and alluvial flats in the Brigalow Belt South Bioregion (including Pilliga) and Nandewar Bioregion
		277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion

Black-chinned Honeyeater (eastern subspecies)	Melithreptus gularis gularis	599-Blakely's Red Gum - Yellow Box grassy tall woodland on flats and hills in the Brigalow Belt South Bioregion and Nandewar Bioregion
Brown Treecreeper (eastern subspecies)	Climacteris picumnus victoriae	202-Fuzzy Box woodland on colluvium and alluvial flats in the Brigalow Belt South Bioregion (including Pilliga) and Nandewar Bioregion
		277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
		599-Blakely's Red Gum - Yellow Box grassy tall woodland on flats and hills in the Brigalow Belt South Bioregion and Nandewar Bioregion
Corben's Long-eared Bat	Nyctophilus corbeni	81-Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion
		202-Fuzzy Box woodland on colluvium and alluvial flats in the Brigalow Belt South Bioregion (including Pilliga) and Nandewar Bioregion
		599-Blakely's Red Gum - Yellow Box grassy tall woodland on flats and hills in the Brigalow Belt South Bioregion and Nandewar Bioregion
Diamond Firetail	Stagonopleura guttata	81-Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion
		202-Fuzzy Box woodland on colluvium and alluvial flats in the Brigalow Belt South Bioregion (including Pilliga) and Nandewar Bioregion
		277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
		599-Blakely's Red Gum - Yellow Box grassy tall woodland on flats and hills in the Brigalow Belt South Bioregion and Nandewar Bioregion
Dusky Woodswallow	Artamus cyanopterus cyanopterus	81-Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion
		202-Fuzzy Box woodland on colluvium and alluvial flats in the Brigalow Belt South Bioregion (including Pilliga) and Nandewar Bioregion
		277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
		599-Blakely's Red Gum - Yellow Box grassy tall woodland on flats and hills in the Brigalow Belt South Bioregion and Nandewar Bioregion
Flame Robin	Petroica phoenicea	277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion

Flame Robin	Petroica phoenicea	599-Blakely's Red Gum - Yellow Box grassy tall woodland on flats and hills in the Brigalow Belt South Bioregion and Nandewar Bioregion
Glossy Black-Cockatoo	Calyptorhynchus lathami	202-Fuzzy Box woodland on colluvium and alluvial flats in the Brigalow Belt South Bioregion (including Pilliga) and Nandewar Bioregion
		599-Blakely's Red Gum - Yellow Box grassy tall woodland on flats and hills in the Brigalow Belt South Bioregion and Nandewar Bioregion
Grey-crowned Babbler (eastern subspecies)	Pomatostomus temporalis temporalis	81-Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion
		202-Fuzzy Box woodland on colluvium and alluvial flats in the Brigalow Belt South Bioregion (including Pilliga) and Nandewar Bioregion
		277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
		599-Blakely's Red Gum - Yellow Box grassy tall woodland on flats and hills in the Brigalow Belt South Bioregion and Nandewar Bioregion
Grey-headed Flying-fox	Pteropus poliocephalus	202-Fuzzy Box woodland on colluvium and alluvial flats in the Brigalow Belt South Bioregion (including Pilliga) and Nandewar Bioregion
		277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
		599-Blakely's Red Gum - Yellow Box grassy tall woodland on flats and hills in the Brigalow Belt South Bioregion and Nandewar Bioregion
Hooded Robin (south-eastern form)	Melanodryas cucullata cucullata	81-Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion
		202-Fuzzy Box woodland on colluvium and alluvial flats in the Brigalow Belt South Bioregion (including Pilliga) and Nandewar Bioregion
		277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
		599-Blakely's Red Gum - Yellow Box grassy tall woodland on flats and hills in the Brigalow Belt South Bioregion and Nandewar Bioregion
Large Bent-winged Bat	Miniopterus orianae oceanensis	81-Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion

Large Bent-winged Bat	Miniopterus orianae oceanensis	202-Fuzzy Box woodland on colluvium and alluvial flats in the Brigalow Belt South Bioregion (including Pilliga) and Nandewar Bioregion
		277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
		599-Blakely's Red Gum - Yellow Box grassy tall woodland on flats and hills in the Brigalow Belt South Bioregion and Nandewar Bioregion
Little Eagle	Hieraaetus morphnoides	81-Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion
		202-Fuzzy Box woodland on colluvium and alluvial flats in the Brigalow Belt South Bioregion (including Pilliga) and Nandewar Bioregion
		277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
		599-Blakely's Red Gum - Yellow Box grassy tall woodland on flats and hills in the Brigalow Belt South Bioregion and Nandewar Bioregion
Little Lorikeet	Glossopsitta pusilla	202-Fuzzy Box woodland on colluvium and alluvial flats in the Brigalow Belt South Bioregion (including Pilliga) and Nandewar Bioregion
		277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
		599-Blakely's Red Gum - Yellow Box grassy tall woodland on flats and hills in the Brigalow Belt South Bioregion and Nandewar Bioregion
Little Pied Bat	Chalinolobus picatus	81-Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion
		202-Fuzzy Box woodland on colluvium and alluvial flats in the Brigalow Belt South Bioregion (including Pilliga) and Nandewar Bioregion
		599-Blakely's Red Gum - Yellow Box grassy tall woodland on flats and hills in the Brigalow Belt South Bioregion and Nandewar Bioregion
Masked Owl	Tyto novaehollandiae	81-Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion
		202-Fuzzy Box woodland on colluvium and alluvial flats in the Brigalow Belt South Bioregion (including Pilliga) and Nandewar Bioregion
		277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion

Masked Owl	Tyto novaehollandiae	599-Blakely's Red Gum - Yellow Box grassy tall woodland on flats and hills in the Brigalow Belt South Bioregion and Nandewar Bioregion
Painted Honeyeater	Grantiella picta	202-Fuzzy Box woodland on colluvium and alluvial flats in the Brigalow Belt South Bioregion (including Pilliga) and Nandewar Bioregion
		277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
		599-Blakely's Red Gum - Yellow Box grassy tall woodland on flats and hills in the Brigalow Belt South Bioregion and Nandewar Bioregion
Powerful Owl	Ninox strenua	202-Fuzzy Box woodland on colluvium and alluvial flats in the Brigalow Belt South Bioregion (including Pilliga) and Nandewar Bioregion
Regent Honeyeater	Anthochaera phrygia	202-Fuzzy Box woodland on colluvium and alluvial flats in the Brigalow Belt South Bioregion (including Pilliga) and Nandewar Bioregion
		277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
		599-Blakely's Red Gum - Yellow Box grassy tall woodland on flats and hills in the Brigalow Belt South Bioregion and Nandewar Bioregion
Scarlet Robin	Petroica boodang	81-Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion
		202-Fuzzy Box woodland on colluvium and alluvial flats in the Brigalow Belt South Bioregion (including Pilliga) and Nandewar Bioregion
		277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
		599-Blakely's Red Gum - Yellow Box grassy tall woodland on flats and hills in the Brigalow Belt South Bioregion and Nandewar Bioregion
Speckled Warbler	Chthonicola sagittata	202-Fuzzy Box woodland on colluvium and alluvial flats in the Brigalow Belt South Bioregion (including Pilliga) and Nandewar Bioregion
		277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
		599-Blakely's Red Gum - Yellow Box grassy tall woodland on flats and hills in the Brigalow Belt South Bioregion and Nandewar Bioregion

Spotted Harrier	Circus assimilis	277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
		599-Blakely's Red Gum - Yellow Box grassy tall woodland on flats and hills in the Brigalow Belt South Bioregion and Nandewar Bioregion
Spotted-tailed Quoll	Dasyurus maculatus	81-Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion
		202-Fuzzy Box woodland on colluvium and alluvial flats in the Brigalow Belt South Bioregion (including Pilliga) and Nandewar Bioregion
		277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
		599-Blakely's Red Gum - Yellow Box grassy tall woodland on flats and hills in the Brigalow Belt South Bioregion and Nandewar Bioregion
Square-tailed Kite	Lophoictinia isura	81-Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion
		202-Fuzzy Box woodland on colluvium and alluvial flats in the Brigalow Belt South Bioregion (including Pilliga) and Nandewar Bioregion
		277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
		599-Blakely's Red Gum - Yellow Box grassy tall woodland on flats and hills in the Brigalow Belt South Bioregion and Nandewar Bioregion
Superb Parrot	Polytelis swainsonii	81-Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion
		202-Fuzzy Box woodland on colluvium and alluvial flats in the Brigalow Belt South Bioregion (including Pilliga) and Nandewar Bioregion
		277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
Swift Parrot	Lathamus discolor	202-Fuzzy Box woodland on colluvium and alluvial flats in the Brigalow Belt South Bioregion (including Pilliga) and Nandewar Bioregion
		277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
		599-Blakely's Red Gum - Yellow Box grassy tall woodland on flats and hills in the Brigalow Belt South Bioregion and Nandewar Bioregion

Turquoise Parrot	Neophema pulchella	81-Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion
		202-Fuzzy Box woodland on colluvium and alluvial flats in the Brigalow Belt South Bioregion (including Pilliga) and Nandewar Bioregion
		277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
		599-Blakely's Red Gum - Yellow Box grassy tall woodland on flats and hills in the Brigalow Belt South Bioregion and Nandewar Bioregion
Varied Sittella	Daphoenositta chrysoptera	202-Fuzzy Box woodland on colluvium and alluvial flats in the Brigalow Belt South Bioregion (including Pilliga) and Nandewar Bioregion
		277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
		599-Blakely's Red Gum - Yellow Box grassy tall woodland on flats and hills in the Brigalow Belt South Bioregion and Nandewar Bioregion
White-bellied Sea-Eagle	Haliaeetus leucogaster	81-Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion
		202-Fuzzy Box woodland on colluvium and alluvial flats in the Brigalow Belt South Bioregion (including Pilliga) and Nandewar Bioregion
		277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
		599-Blakely's Red Gum - Yellow Box grassy tall woodland on flats and hills in the Brigalow Belt South Bioregion and Nandewar Bioregion
White-throated Needletail	Hirundapus caudacutus	81-Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion
		202-Fuzzy Box woodland on colluvium and alluvial flats in the Brigalow Belt South Bioregion (including Pilliga) and Nandewar Bioregion
		277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
		599-Blakely's Red Gum - Yellow Box grassy tall woodland on flats and hills in the Brigalow Belt South Bioregion and Nandewar Bioregion
Yellow-bellied Sheathtail-bat	Saccolaimus flaviventris	81-Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion

Yellow-bellied Sheathtail-bat	Saccolaimus flaviventris	202-Fuzzy Box woodland on colluvium and alluvial flats in the Brigalow Belt South Bioregion (including Pilliga) and Nandewar Bioregion
		277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
		599-Blakely's Red Gum - Yellow Box grassy tall woodland on flats and hills in the Brigalow Belt South Bioregion and Nandewar Bioregion

Threatened species Manually Added

None added

Threatened species assessed as not within the vegetation zone(s) for the PCT(s)

Common Name	Scientific Name	Plant Community Type(s)
Black-chinned Honeyeater (eastern subspecies)	Melithreptus gularis gularis	81-Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion
Brown Treecreeper (eastern subspecies)	Climacteris picumnus victoriae	81-Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion
Glossy Black-Cockatoo	Calyptorhynchus lathami	81-Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion
Grey-headed Flying-fox	Pteropus poliocephalus	81-Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion
Little Lorikeet	Glossopsitta pusilla	81-Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion
Major Mitchell's Cockatoo	Lophochroa leadbeateri	81-Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion
Painted Honeyeater	Grantiella picta	81-Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion
Regent Honeyeater	Anthochaera phrygia	81-Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion
Speckled Warbler	Chthonicola sagittata	81-Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion
Swift Parrot	Lathamus discolor	81-Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion
Varied Sittella	Daphoenositta chrysoptera	81-Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion

Threatened species assessed as not within the vegetation zone(s) for the PCT(s)

Refer to BAR for detailed justification

Common Name	Scientific Name	Justification in the BAM-C
Major Mitchell's Cockatoo	Lophochroa leadbeateri	Species is vagrant

BAM Vegetation Zones Report

Proposal Details

Assessment Id
00038228/BAAS17060/23/00038229

Assessment name
CWOREZ Talbragar Valley subregion - CFG connection to Spicers Creek wind farm

BAM data last updated *
14/04/2023

Assessor Name
Lukas Leslie Clews

Report Created
13/06/2023

BAM Data version *
58

Assessor Number
BAAS17060

Assessment Type
Major Projects

BAM Case Status
Open

Assessment Revision
2

Date Finalised
To be finalised

* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.

Vegetation Zones

#	Name	PCT	Condition	Area	Minimum number of plots	Management zones
1	81_DNG	81-Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion	DNG	0.04	1	A (0.04 ha)

2	202_Thinned	202-Fuzzy Box woodland on colluvium and alluvial flats in the Brigalow Belt South Bioregion (including Pilliga) and Nandewar Bioregion	Thinned	0.21	1	A (0.19 ha) B (0.02 ha)
3	277_Mod_Good	277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion	Mod_Good	0.01	1	A (0.01 ha)
4	599_DNG	599-Blakely's Red Gum - Yellow Box grassy tall woodland on flats and hills in the Brigalow Belt South Bioregion and Nandewar Bioregion	DNG	0.98	1	A (0.98 ha)
5	599_Mod_Good	599-Blakely's Red Gum - Yellow Box grassy tall woodland on flats and hills in the Brigalow Belt South Bioregion and Nandewar Bioregion	Mod_Good	1.01	1	A (0.46 ha) B (0.55 ha)
6	599_Thinned	599-Blakely's Red Gum - Yellow Box grassy tall woodland on flats and hills in the Brigalow Belt South Bioregion and Nandewar Bioregion	Thinned	2.11	2	A (0.97 ha) B (1.14 ha)

BAM Biodiversity Credit Report (Like for like)

Proposal Details

Assessment Id
00038230/BAAS17060/23/00038231

Proposal Name
CWOREZ Talbragar Valley subregion - RNI1

BAM data last updated *
22/06/2023

Assessor Name
Lukas Leslie Clews

Assessor Number
BAAS17060

BAM Data version *
61

Proponent Names

Report Created
16/08/2023

BAM Case Status
Open

Assessment Revision
2

Assessment Type
Major Projects

Date Finalised
To be finalised

* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.

Potential Serious and Irreversible Impacts

Name of threatened ecological community	Listing status	Name of Plant Community Type/ID
Fuzzy Box Woodland on alluvial Soils of the South Western Slopes, Darling Riverine Plains and Brigalow Belt South Bioregions	Endangered Ecological Community	202-Fuzzy Box woodland on colluvium and alluvial flats in the Brigalow Belt South Bioregion (including Pilliga) and Nandewar Bioregion

Species
Nil

Additional Information for Approval

PCT Outside Ibra Added

PCT
81-Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion
202-Fuzzy Box woodland on colluvium and alluvial flats in the Brigalow Belt South Bioregion (including Pilliga) and Nandewar Bioregion
440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
461-Tumbledown Gum woodland on hills in the northern NSW South Western Slopes Bioregion and southern Brigalow Belt South Bioregion
468-Narrow-leaved Ironbark - Black Cypress Pine +/- Blakely's Red Gum shrubby open forest on sandstone low hills in the southern Brigalow Belt South Bioregion (including Goonoo)

PCTs With Customized Benchmarks

PCT
No Changes

Predicted Threatened Species Not On Site

Name
Lophochroa leadbeateri / Major Mitchell's Cockatoo

Ecosystem Credit Summary (Number and class of biodiversity credits to be retired)

BAM Biodiversity Credit Report (Like for like)

Name of Plant Community Type/ID	Name of threatened ecological community	Area of impact	HBT Cr	No HBT Cr	Total credits to be retired
81-Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion	Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions	12.8	95	0	95
202-Fuzzy Box woodland on colluvium and alluvial flats in the Brigalow Belt South Bioregion (including Pilliga) and Nandewar Bioregion	Fuzzy Box Woodland on alluvial Soils of the South Western Slopes, Darling Riverine Plains and Brigalow Belt South Bioregions	2.6	52	0	52
440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion	Not a TEC	13.1	215	0	215
461-Tumbledown Gum woodland on hills in the northern NSW South Western Slopes Bioregion and southern Brigalow Belt South Bioregion	Not a TEC	3.2	68	20	88
468-Narrow-leaved Ironbark - Black Cypress Pine +/- Blakely's Red Gum shrubby open forest on sandstone low hills in the southern Brigalow Belt South Bioregion (including Goonoo)	Not a TEC	0.1	3	0	3

81-Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion

Like-for-like credit retirement options

Name of offset trading group	Trading group	Zone	HBT	Credits	IBRA region

	Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions This includes PCT's: 76, 80, 81, 82, 101, 110, 237, 248, 3405	-	81_DNG	No	0	Talbragar Valley, Inland Slopes and Pilliga. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
	Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions This includes PCT's: 76, 80, 81, 82, 101, 110, 237, 248, 3405	-	81_Mod_Good	Yes	29	Talbragar Valley, Inland Slopes and Pilliga. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions This includes PCT's: 76, 80, 81, 82, 101, 110, 237, 248, 3405	-	81_Thinned	Yes	66	Talbragar Valley, Inland Slopes and Pilliga. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

202-Fuzzy Box woodland on colluvium and alluvial flats in the Brigalow Belt South Bioregion (including Pilliga) and Nandewar Bioregion	**Like-for-like credit retirement options**					
	Name of offset trading group	Trading group	Zone	HBT	Credits	IBRA region
	Fuzzy Box Woodland on alluvial Soils of the South Western Slopes, Darling Riverine Plains and Brigalow Belt South Bioregions This includes PCT's: 201, 202, 1384, 3404	-	202_Mod_Good	Yes	44	Talbragar Valley, Inland Slopes and Pilliga. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	Fuzzy Box Woodland on alluvial Soils of the South Western Slopes, Darling Riverine Plains and Brigalow Belt South Bioregions This includes PCT's: 201, 202, 1384, 3404	-	202_Thinned	Yes	8	Talbragar Valley, Inland Slopes and Pilliga. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion	**Like-for-like credit retirement options**					
	Class	Trading group	Zone	HBT	Credits	IBRA region
	Western Slopes Dry Sclerophyll Forests This includes PCT's: 54, 110, 179, 217, 243, 255, 270, 273, 287, 291, 309, 321, 322, 323, 324, 325, 327, 330, 331, 333, 341, 343, 346, 348, 354, 358, 379, 387, 396, 398, 399, 401, 402, 403, 404, 405, 406, 407, 408, 409, 414, 415, 417, 419, 420, 423, 425, 430, 431, 440,	Western Slopes Dry Sclerophyll Forests <50%	440_DNG	No	0	Talbragar Valley, Inland Slopes and Pilliga. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	443, 449, 455, 456, 457, 459, 462, 463, 467, 468, 469, 470, 471, 472, 473, 476, 477, 478, 479, 480, 482, 515, 531, 532, 576, 577, 581, 592, 610, 617, 671, 673, 676, 712, 713, 714, 746, 863, 889, 940, 956, 1133, 1176, 1277, 1278, 1279, 1307, 1313, 1314, 1316, 1381, 1610, 1654, 1655, 1656, 1660, 1661, 1663, 1668, 1669, 1671, 1672, 1674, 1676, 1679, 1709, 1711, 1770, 1771, 3753, 3754, 3756, 3757, 3758, 3759, 3760, 3761, 3762, 3763, 3766, 3767, 3768, 3769, 3770, 3771, 3772, 3773, 3774, 3775, 3776, 3777, 3778, 3780, 3781, 3782, 3783, 3784, 3785, 3786, 4153					
	Western Slopes Dry Sclerophyll Forests This includes PCT's: 54, 110, 179, 217, 243,	Western Slopes Dry Sclerophyll Forests <50%	440_Mod_Good	Yes	164	Talbragar Valley, Inland Slopes and Pilliga. or Any IBRA subregion that is within 100

	255, 270, 273, 287, 291, 309, 321, 322, 323, 324, 325, 327, 330, 331, 333, 341, 343, 346, 348, 354, 358, 379, 387, 396, 398, 399, 401, 402, 403, 404, 405, 406, 407, 408, 409, 414, 415, 417, 419, 420, 423, 425, 430, 431, 440, 443, 449, 455, 456, 457, 459, 462, 463, 467, 468, 469, 470, 471, 472, 473, 476, 477, 478, 479, 480, 482, 515, 531, 532, 576, 577, 581, 592, 610, 617, 671, 673, 676, 712, 713, 714, 746, 863, 889, 940, 956, 1133, 1176, 1277, 1278, 1279, 1307, 1313, 1314, 1316, 1381, 1610, 1654, 1655, 1656, 1660, 1661, 1663, 1668, 1669, 1671, 1672, 1674, 1676, 1679, 1709, 1711, 1770, 1771, 3753, 3754, 3756, 3757, 3758, 3759, 3760, 3761, 3762, 3763, 3766,					kilometers of the outer edge of the impacted site.

	3767, 3768, 3769, 3770, 3771, 3772, 3773, 3774, 3775, 3776, 3777, 3778, 3780, 3781, 3782, 3783, 3784, 3785, 3786, 4153					
	Western Slopes Dry Sclerophyll Forests This includes PCT's: 54, 110, 179, 217, 243, 255, 270, 273, 287, 291, 309, 321, 322, 323, 324, 325, 327, 330, 331, 333, 341, 343, 346, 348, 354, 358, 379, 387, 396, 398, 399, 401, 402, 403, 404, 405, 406, 407, 408, 409, 414, 415, 417, 419, 420, 423, 425, 430, 431, 440, 443, 449, 455, 456, 457, 459, 462, 463, 467, 468, 469, 470, 471, 472, 473, 476, 477, 478, 479, 480, 482, 515, 531, 532, 576, 577, 581, 592, 610, 617, 671, 673, 676, 712, 713, 714, 746, 863, 889, 940, 956, 1133, 1176, 1277,	Western Slopes Dry Sclerophyll Forests <50%	440_Thinned	Yes	51	Talbragar Valley, Inland Slopes and Pilliga. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	1278, 1279, 1307, 1313, 1314, 1316, 1381, 1610, 1654, 1655, 1656, 1660, 1661, 1663, 1668, 1669, 1671, 1672, 1674, 1676, 1679, 1709, 1711, 1770, 1771, 3753, 3754, 3756, 3757, 3758, 3759, 3760, 3761, 3762, 3763, 3766, 3767, 3768, 3769, 3770, 3771, 3772, 3773, 3774, 3775, 3776, 3777, 3778, 3780, 3781, 3782, 3783, 3784, 3785, 3786, 4153					
461-Tumbledown Gum woodland on hills in the northern NSW South Western Slopes Bioregion and southern Brigalow Belt South Bioregion	**Like-for-like credit retirement options**					
	Class	Trading group	Zone	HBT	Credits	IBRA region

	Western Slopes Grassy Woodlands This includes PCT's: 201, 202, 266, 267, 268, 272, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 301, 316, 326, 337, 347, 383, 421, 426, 433, 434, 437, 441, 444, 461, 483, 509, 516, 544, 589, 590, 593, 599, 847, 955, 1303, 1304, 1315, 1329, 1383, 1609, 1693, 1695, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3401, 3403, 3404, 3405, 3406, 3485, 4147	Western Slopes Grassy Woodlands >=50% and <70%	461_Mod_Good	Yes	68	Talbragar Valley, Inland Slopes and Pilliga. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	Western Slopes Grassy Woodlands This includes PCT's: 201, 202, 266, 267, 268, 272, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 301, 316, 326, 337, 347, 383, 421, 426, 433, 434, 437, 441, 444, 461, 483, 509, 516, 544, 589, 590, 593, 599, 847, 955, 1303, 1304, 1315, 1329, 1383, 1609, 1693, 1695, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3401, 3403, 3404, 3405, 3406, 3485, 4147	Western Slopes Grassy Woodlands >=50% and <70%	461_Thinned	No	20	Talbragar Valley, Inland Slopes and Pilliga. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

468-Narrow-leaved Ironbark - Black Cypress Pine +/- Blakely's Red Gum shrubby open forest on sandstone low hills in the southern Brigalow Belt South Bioregion (including Goonoo)	Like-for-like credit retirement options					
	Class	Trading group	Zone	HBT	Credits	IBRA region
	Western Slopes Dry Sclerophyll Forests This includes PCT's: 54, 110, 179, 217, 243, 255, 270, 273, 287, 291, 309, 321, 322, 323, 324, 325, 327, 330, 331, 333, 341, 343, 346, 348, 354, 358, 379, 387, 396, 398, 399, 401, 402, 403, 404, 405, 406, 407, 408, 409, 414, 415, 417, 419, 420, 423, 425, 430, 431, 440, 443, 449, 455, 456, 457, 459, 462, 463, 467, 468, 469, 470, 471, 472, 473, 476, 477, 478, 479, 480, 482, 515, 531, 532, 576, 577, 581, 592, 610, 617, 671, 673, 676, 712, 713, 714, 746, 863, 889, 940, 956, 1133, 1176, 1277, 1278, 1279, 1307, 1313, 1314, 1316, 1381, 1610,	Western Slopes Dry Sclerophyll Forests <50%	468_Thinned	Yes	3	Talbragar Valley, Inland Slopes and Pilliga. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	1654, 1655, 1656, 1660, 1661, 1663, 1668, 1669, 1671, 1672, 1674, 1676, 1679, 1709, 1711, 1770, 1771, 3753, 3754, 3756, 3757, 3758, 3759, 3760, 3761, 3762, 3763, 3766, 3767, 3768, 3769, 3770, 3771, 3772, 3773, 3774, 3775, 3776, 3777, 3778, 3780, 3781, 3782, 3783, 3784, 3785, 3786, 4153					

Species Credit Summary

Species	Vegetation Zone/s	Area / Count	Credits
Cercartetus nanus / Eastern Pygmy-possum	**81_Mod_Good, 81_Thinned, 202_Mod_Good, 202_Thinned, 440_Mod_Good, 440_Thinned, 461_Mod_Good, 461_Thinned**	16.7	530.00

Dichanthium setosum / Bluegrass	**81_DNG, 461_Thinned, 81_Mod_Good, 81_Thinned**	3.8	87.00
Homoranthus darwinioides / Fairy Bells	**468_Thinned**	0.1	5.00
Hoplocephalus bitorquatus / Pale-headed Snake	**440_Mod_Good, 440_Thinned, 468_Thinned**	8.2	288.00
Petaurus norfolcensis / Squirrel Glider	**202_Mod_Good, 202_Thinned, 440_Mod_Good, 461_Mod_Good, 461_Thinned, 81_Mod_Good, 81_Thinned**	13.5	460.00
Phascolarctos cinereus / Koala	**81_Mod_Good, 81_Thinned, 202_Mod_Good, 202_Thinned, 440_Mod_Good, 440_Thinned, 461_Mod_Good, 461_Thinned**	16.6	527.00
Polytelis swainsonii / Superb Parrot	**81_DNG, 81_Mod_Good, 202_Mod_Good**	2.5	49.00
Swainsona sericea / Silky Swainson-pea	**202_Mod_Good, 440_Thinned**	0.8	18.00
Tylophora linearis / Tylophora linearis	**440_Mod_Good, 440_Thinned, 468_Thinned**	5.7	234.00

Credit Retirement Options

Like-for-like credit retirement options

Cercartetus nanus / Eastern Pygmy-possum	Spp	IBRA subregion
	Cercartetus nanus / Eastern Pygmy-possum	Any in NSW
Dichanthium setosum / Bluegrass	Spp	IBRA subregion
	Dichanthium setosum / Bluegrass	Any in NSW
Homoranthus darwinioides / Fairy Bells	Spp	IBRA subregion
	Homoranthus darwinioides / Fairy Bells	Any in NSW
Hoplocephalus bitorquatus / Pale-headed Snake	Spp	IBRA subregion
	Hoplocephalus bitorquatus / Pale-headed Snake	Any in NSW
Petaurus norfolcensis / Squirrel Glider	Spp	IBRA subregion
	Petaurus norfolcensis / Squirrel Glider	Any in NSW
Phascolarctos cinereus / Koala	Spp	IBRA subregion
	Phascolarctos cinereus / Koala	Any in NSW
Polytelis swainsonii / Superb Parrot	Spp	IBRA subregion

	Polytelis swainsonii / Superb Parrot	Any in NSW
Swainsona sericea / Silky Swainson-pea	Spp	IBRA subregion
	Swainsona sericea / Silky Swainson-pea	Any in NSW
Tylophora linearis / Tylophora linearis	Spp	IBRA subregion
	Tylophora linearis / Tylophora linearis	Any in NSW

BAM Biodiversity Credit Report (Variations)

Proposal Details

Assessment Id
00038230/BAAS17060/23/00038231

Proposal Name
CWOREZ Talbragar Valley subregion - RNI1

BAM data last updated *
22/06/2023

Assessor Name
Lukas Leslie Clews

Assessor Number
BAAS17060

BAM Data version *
61

Proponent Name(s)

Report Created
16/08/2023

BAM Case Status
Open

Assessment Revision
2

Assessment Type
Major Projects

Date Finalised
To be finalised

* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.

Potential Serious and Irreversible Impacts

Name of threatened ecological community	Listing status	Name of Plant Community Type/ID
Fuzzy Box Woodland on alluvial Soils of the South Western Slopes, Darling Riverine Plains and Brigalow Belt South Bioregions	Endangered Ecological Community	202-Fuzzy Box woodland on colluvium and alluvial flats in the Brigalow Belt South Bioregion (including Pilliga) and Nandewar Bioregion

Species
Nil

Additional Information for Approval

PCT Outside Ibra Added

PCT
81-Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion

202-Fuzzy Box woodland on colluvium and alluvial flats in the Brigalow Belt South Bioregion (including Pilliga) and Nandewar Bioregion
440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
461-Tumbledown Gum woodland on hills in the northern NSW South Western Slopes Bioregion and southern Brigalow Belt South Bioregion
468-Narrow-leaved Ironbark - Black Cypress Pine +/- Blakely's Red Gum shrubby open forest on sandstone low hills in the southern Brigalow Belt South Bioregion (including Goonoo)

PCTs With Customized Benchmarks

PCT
No Changes

Predicted Threatened Species Not On Site

Name
Lophochroa leadbeateri / Major Mitchell's Cockatoo

Ecosystem Credit Summary (Number and class of biodiversity credits to be retired)

Name of Plant Community Type/ID	Name of threatened ecological community	Area of impact	HBT Cr	No HBT Cr	Total credits to be retired
81-Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion	Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions	12.8	95	0	95.00
202-Fuzzy Box woodland on colluvium and alluvial flats in the Brigalow Belt South Bioregion (including Pilliga) and Nandewar Bioregion	Fuzzy Box Woodland on alluvial Soils of the South Western Slopes, Darling Riverine Plains and Brigalow Belt South Bioregions	2.6	52	0	52.00
440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion	Not a TEC	13.1	215	0	215.00

461-Tumbledown Gum woodland on hills in the northern NSW South Western Slopes Bioregion and southern Brigalow Belt South Bioregion	Not a TEC	3.2	68	20	88.00
468-Narrow-leaved Ironbark - Black Cypress Pine +/- Blakely's Red Gum shrubby open forest on sandstone low hills in the southern Brigalow Belt South Bioregion (including Goonoo)	Not a TEC	0.1	3	0	3.00

81-Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion

Like-for-like credit retirement options

Class	Trading group	Zone	HBT	Credits	IBRA region
Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions This includes PCT's: 76, 80, 81, 82, 101, 110, 237, 248, 3405	-	81_DNG	No	0	Talbragar Valley,Inland Slopes and Pilliga. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions This includes PCT's: 76, 80, 81, 82, 101, 110, 237, 248, 3405	-	81_Mod_Good	Yes	29	Talbragar Valley,Inland Slopes and Pilliga. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions This includes PCT's: 76, 80, 81, 82, 101, 110, 237, 248, 3405	-	81_Thinned	Yes	66	Talbragar Valley,Inland Slopes and Pilliga. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

Variation options

Formation	Trading group	Zone	HBT	Credits	IBRA region
Grassy Woodlands	Tier 3 or higher threat status	81_DNG	No	0	IBRA Region: Brigalow Belt South, or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Grassy Woodlands	Tier 3 or higher threat status	81_Mod_Good	Yes (including artificial)	29	IBRA Region: Brigalow Belt South, or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Grassy Woodlands	Tier 3 or higher threat status	81_Thinned	Yes (including artificial)	66	IBRA Region: Brigalow Belt South, or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

202-Fuzzy Box woodland on colluvium and alluvial flats in the Brigalow Belt South Bioregion (including Pilliga) and Nandewar Bioregion

Like-for-like credit retirement options

Class	Trading group	Zone	HBT	Credits	IBRA region
Fuzzy Box Woodland on alluvial Soils of the South Western Slopes, Darling Riverine Plains and Brigalow Belt South Bioregions This includes PCT's: 201, 202, 1384, 3404	-	202_Mod_Good	Yes	44	Talbragar Valley,Inland Slopes and Pilliga. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Fuzzy Box Woodland on alluvial Soils of the South Western Slopes, Darling Riverine Plains and Brigalow Belt South Bioregions This includes PCT's: 201, 202, 1384, 3404	-	202_Thinned	Yes	8	Talbragar Valley,Inland Slopes and Pilliga. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

Variation options

Formation	Trading group	Zone	HBT	Credits	IBRA region
Grassy Woodlands	Tier 3 or higher threat status	202_Mod_Good	Yes (including artificial)	44	IBRA Region: Brigalow Belt South, or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	Grassy Woodlands	Tier 3 or higher threat status	202_Thinned	Yes (including artificial)	8	IBRA Region: Brigalow Belt South, or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion	**Like-for-like credit retirement options**					
	Class	Trading group	Zone	HBT	Credits	IBRA region
	Western Slopes Dry Sclerophyll Forests This includes PCT's: 54, 110, 179, 217, 243, 255, 270, 273, 287, 291, 309, 321, 322, 323, 324, 325, 327, 330, 331, 333, 341, 343, 346, 348, 354, 358, 379, 387, 396, 398, 399, 401, 402, 403, 404, 405, 406, 407, 408, 409, 414, 415, 417, 419, 420, 423, 425, 430, 431, 440, 443, 449, 455, 456, 457, 459, 462, 463, 467, 468, 469, 470, 471, 472, 473, 476, 477, 478, 479, 480, 482, 515, 531, 532, 576, 577, 581, 592, 610, 617, 671, 673, 676, 712, 713, 714, 746, 863, 889, 940, 956, 1133, 1176, 1277, 1278, 1279, 1307, 1313,	Western Slopes Dry Sclerophyll Forests <50%	440_DNG	No	0	Talbragar Valley,Inland Slopes and Pilliga. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	1314, 1316, 1381, 1610, 1654, 1655, 1656, 1660, 1661, 1663, 1668, 1669, 1671, 1672, 1674, 1676, 1679, 1709, 1711, 1770, 1771, 3753, 3754, 3756, 3757, 3758, 3759, 3760, 3761, 3762, 3763, 3766, 3767, 3768, 3769, 3770, 3771, 3772, 3773, 3774, 3775, 3776, 3777, 3778, 3780, 3781, 3782, 3783, 3784, 3785, 3786, 4153					
	Western Slopes Dry Sclerophyll Forests This includes PCT's: 54, 110, 179, 217, 243, 255, 270, 273, 287, 291, 309, 321, 322, 323, 324, 325, 327, 330, 331, 333, 341, 343, 346, 348, 354, 358, 379, 387, 396, 398, 399, 401, 402, 403, 404, 405, 406, 407, 408, 409, 414, 415, 417, 419, 420, 423, 425, 430, 431, 440, 443, 449, 455, 456, 457, 459, 462, 463, 467, 468, 469, 470, 471, 472, 473, 476, 477, 478, 479, 480, 482, 515, 531, 532, 576,	Western Slopes Dry Sclerophyll Forests <50%	440_Mod_ Good	Yes	164	Talbragar Valley,Inland Slopes and Pilliga. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	577, 581, 592, 610, 617, 671, 673, 676, 712, 713, 714, 746, 863, 889, 940, 956, 1133, 1176, 1277, 1278, 1279, 1307, 1313, 1314, 1316, 1381, 1610, 1654, 1655, 1656, 1660, 1661, 1663, 1668, 1669, 1671, 1672, 1674, 1676, 1679, 1709, 1711, 1770, 1771, 3753, 3754, 3756, 3757, 3758, 3759, 3760, 3761, 3762, 3763, 3766, 3767, 3768, 3769, 3770, 3771, 3772, 3773, 3774, 3775, 3776, 3777, 3778, 3780, 3781, 3782, 3783, 3784, 3785, 3786, 4153					
	Western Slopes Dry Sclerophyll Forests This includes PCT's: 54, 110, 179, 217, 243, 255, 270, 273, 287, 291, 309, 321, 322, 323, 324, 325, 327, 330, 331, 333, 341, 343, 346, 348, 354, 358, 379, 387, 396, 398, 399, 401, 402, 403, 404, 405, 406, 407, 408, 409, 414, 415, 417, 419, 420, 423, 425, 430, 431, 440,	Western Slopes Dry Sclerophyll Forests <50%	440_Thinned	Yes	51	Talbragar Valley,Inland Slopes and Pilliga. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	443, 449, 455, 456, 457, 459, 462, 463, 467, 468, 469, 470, 471, 472, 473, 476, 477, 478, 479, 480, 482, 515, 531, 532, 576, 577, 581, 592, 610, 617, 671, 673, 676, 712, 713, 714, 746, 863, 889, 940, 956, 1133, 1176, 1277, 1278, 1279, 1307, 1313, 1314, 1316, 1381, 1610, 1654, 1655, 1656, 1660, 1661, 1663, 1668, 1669, 1671, 1672, 1674, 1676, 1679, 1709, 1711, 1770, 1771, 3753, 3754, 3756, 3757, 3758, 3759, 3760, 3761, 3762, 3763, 3766, 3767, 3768, 3769, 3770, 3771, 3772, 3773, 3774, 3775, 3776, 3777, 3778, 3780, 3781, 3782, 3783, 3784, 3785, 3786, 4153					
	Variation options					
	Formation	Trading group	Zone	HBT	Credits	IBRA region
	Dry Sclerophyll Forests (Shrubby sub-formation)	Tier 4 or higher threat status	440_DNG	No	0	IBRA Region: Brigalow Belt South, or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	Dry Sclerophyll Forests (Shrubby sub-formation)	Tier 4 or higher threat status	440_Mod_Good	Yes (including artificial)	164	IBRA Region: Brigalow Belt South, or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
	Dry Sclerophyll Forests (Shrubby sub-formation)	Tier 4 or higher threat status	440_Thinned	Yes (including artificial)	51	IBRA Region: Brigalow Belt South, or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
461-Tumbledown Gum woodland on hills in the northern NSW South Western Slopes Bioregion and southern Brigalow Belt South Bioregion	**Like-for-like credit retirement options**					
	Class	Trading group	Zone	HBT	Credits	IBRA region

Western Slopes Grassy Woodlands This includes PCT's: 201, 202, 266, 267, 268, 272, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 301, 316, 326, 337, 347, 383, 421, 426, 433, 434, 437, 441, 444, 461, 483, 509, 516, 544, 589, 590, 593, 599, 847, 955, 1303, 1304, 1315, 1329, 1383, 1609, 1693, 1695, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3401, 3403, 3404, 3405, 3406, 3485, 4147	Western Slopes Grassy Woodlands >=50% and <70%	461_Mod_Good	Yes	68	Talbragar Valley,Inland Slopes and Pilliga. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

Western Slopes Grassy Woodlands This includes PCT's: 201, 202, 266, 267, 268, 272, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 301, 316, 326, 337, 347, 383, 421, 426, 433, 434, 437, 441, 444, 461, 483, 509, 516, 544, 589, 590, 593, 599, 847, 955, 1303, 1304, 1315, 1329, 1383, 1609, 1693, 1695, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3401, 3403, 3404, 3405, 3406, 3485, 4147	Western Slopes Grassy Woodlands >=50% and <70%	461_Thinned	No	20	Talbragar Valley,Inland Slopes and Pilliga. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

Variation options

Formation	Trading group	Zone	HBT	Credits	IBRA region
Grassy Woodlands	Tier 3 or higher threat status	461_Mod_Good	Yes (including artificial)	68	IBRA Region: Brigalow Belt South, or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Grassy Woodlands	Tier 3 or higher threat status	461_Thinned	No	20	IBRA Region: Brigalow Belt South, or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

468-Narrow-leaved Ironbark - Black Cypress Pine +/- Blakely's Red Gum shrubby open forest on sandstone low hills in the southern Brigalow Belt South Bioregion (including Goonoo)

Like-for-like credit retirement options

Class	Trading group	Zone	HBT	Credits	IBRA region
Western Slopes Dry Sclerophyll Forests This includes PCT's: 54, 110, 179, 217, 243, 255, 270, 273, 287, 291, 309, 321, 322, 323, 324, 325, 327, 330, 331, 333, 341, 343, 346, 348, 354, 358, 379, 387, 396, 398, 399, 401, 402, 403, 404, 405, 406, 407, 408, 409, 414, 415, 417, 419, 420, 423, 425, 430, 431, 440, 443, 449, 455, 456, 457, 459, 462, 463, 467, 468, 469, 470, 471, 472, 473, 476, 477, 478, 479, 480, 482, 515, 531, 532, 576, 577, 581, 592, 610, 617, 671, 673, 676, 712, 713, 714, 746, 863, 889, 940, 956, 1133, 1176, 1277,	Western Slopes Dry Sclerophyll Forests <50%	468_Thinned	Yes	3	Talbragar Valley,Inland Slopes and Pilliga. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	1278, 1279, 1307, 1313, 1314, 1316, 1381, 1610, 1654, 1655, 1656, 1660, 1661, 1663, 1668, 1669, 1671, 1672, 1674, 1676, 1679, 1709, 1711, 1770, 1771, 3753, 3754, 3756, 3757, 3758, 3759, 3760, 3761, 3762, 3763, 3766, 3767, 3768, 3769, 3770, 3771, 3772, 3773, 3774, 3775, 3776, 3777, 3778, 3780, 3781, 3782, 3783, 3784, 3785, 3786, 4153					
	Variation options					
	Formation	Trading group	Zone	HBT	Credits	IBRA region
	Dry Sclerophyll Forests (Shrubby sub-formation)	Tier 4 or higher threat status	468_Thinned	Yes (including artificial)	3	IBRA Region: Brigalow Belt South, or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

Species Credit Summary

Species	Vegetation Zone/s	Area / Count	Credits
Cercartetus nanus / Eastern Pygmy-possum	**81_Mod_Good, 81_Thinned, 202_Mod_Good, 202_Thinned, 440_Mod_Good, 440_Thinned, 461_Mod_Good, 461_Thinned**	16.7	530.00
Dichanthium setosum / Bluegrass	**81_DNG, 461_Thinned, 81_Mod_Good, 81_Thinned**	3.8	87.00

Homoranthus darwinioides / Fairy Bells	**468_Thinned**	0.1	5.00
Hoplocephalus bitorquatus / Pale-headed Snake	**440_Mod_Good, 440_Thinned, 468_Thinned**	8.2	288.00
Petaurus norfolcensis / Squirrel Glider	**202_Mod_Good, 202_Thinned, 440_Mod_Good, 461_Mod_Good, 461_Thinned, 81_Mod_Good, 81_Thinned**	13.5	460.00
Phascolarctos cinereus / Koala	**81_Mod_Good, 81_Thinned, 202_Mod_Good, 202_Thinned, 440_Mod_Good, 440_Thinned, 461_Mod_Good, 461_Thinned**	16.6	527.00
Polytelis swainsonii / Superb Parrot	**81_DNG, 81_Mod_Good, 202_Mod_Good**	2.5	49.00
Swainsona sericea / Silky Swainson-pea	**202_Mod_Good, 440_Thinned**	0.8	18.00
Tylophora linearis / Tylophora linearis	**440_Mod_Good, 440_Thinned, 468_Thinned**	5.7	234.00

Credit Retirement Options

Like-for-like options

Cercartetus nanus/ Eastern Pygmy-possum

Spp	IBRA region
Cercartetus nanus/Eastern Pygmy-possum	Any in NSW

Variation options

Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act shown below	IBRA region

	Fauna	Vulnerable	Talbragar Valley, Inland Slopes and Pilliga. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Dichanthium setosum/ Bluegrass	Spp	IBRA region	
	Dichanthium setosum/Bluegrass	Any in NSW	
	Variation options		
	Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act shown below	IBRA region
	Flora	Vulnerable	Talbragar Valley, Inland Slopes and Pilliga. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Homoranthus darwinioides/ Fairy Bells	Spp	IBRA region	
	Homoranthus darwinioides/Fairy Bells	Any in NSW	
	Variation options		
	Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act shown below	IBRA region

	Flora	Vulnerable	Talbragar Valley, Inland Slopes and Pilliga. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Hoplocephalus bitorquatus/ Pale-headed Snake	Spp	IBRA region	
	Hoplocephalus bitorquatus/Pale-headed Snake	Any in NSW	
	Variation options		
	Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act shown below	IBRA region
	Fauna	Vulnerable	Talbragar Valley, Inland Slopes and Pilliga. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Petaurus norfolcensis/ Squirrel Glider	Spp	IBRA region	
	Petaurus norfolcensis/Squirrel Glider	Any in NSW	
	Variation options		
	Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act shown below	IBRA region

	Fauna	Vulnerable	Talbragar Valley, Inland Slopes and Pilliga. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Phascolarctos cinereus/ Koala	Spp	IBRA region	
	Phascolarctos cinereus/Koala	Any in NSW	
	Variation options		
	Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act shown below	IBRA region
	Fauna	Endangered	Talbragar Valley, Inland Slopes and Pilliga. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Polytelis swainsonii/ Superb Parrot	Spp	IBRA region	
	Polytelis swainsonii/Superb Parrot	Any in NSW	
	Variation options		
	Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act shown below	IBRA region

	Fauna	Vulnerable	Talbragar Valley, Inland Slopes and Pilliga. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Swainsona sericea/ Silky Swainson-pea	Spp	IBRA region	
	Swainsona sericea/Silky Swainson-pea	Any in NSW	
	Variation options		
	Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act shown below	IBRA region
	Flora	Vulnerable	Talbragar Valley, Inland Slopes and Pilliga. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Tylophora linearis/ Tylophora linearis	Spp	IBRA region	
	Tylophora linearis/Tylophora linearis	Any in NSW	
	Variation options		
	Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act shown below	IBRA region

	Flora	Vulnerable	Talbragar Valley, Inland Slopes and Pilliga. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

BAM Candidate Species Report

Proposal Details

Assessment Id 00038230/BAAS17060/23/00038231	Proposal Name CWOREZ Talbragar Valley subregion - RNI1	BAM data last updated * 22/06/2023
Assessor Name Lukas Leslie Clews	Report Created 16/08/2023	BAM Data version * 61
Assessor Number BAAS17060	Assessment Type Major Projects	BAM Case Status Open
Assessment Revision 2	Date Finalised To be finalised	

* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.

List of Species Requiring Survey

Name	Presence	Survey Months
Acacia ausfeldii Ausfeld's Wattle	No (surveyed) *Survey months are outside of the months specified in Bionet.	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☑ Aug ☑ Sep ☑ Oct ☑ Nov ☑ Dec ☑ Survey month outside the specified months?
Aprasia parapulchella Pink-tailed Legless Lizard	No (surveyed)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☑ Sep ☑ Oct ☑ Nov ☐ Dec ☐ Survey month outside the specified months?
Burhinus grallarius Bush Stone-curlew	No (surveyed)	☑ Jan ☑ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☑ Aug ☑ Sep ☑ Oct ☑ Nov ☑ Dec ☐ Survey month outside the specified months?

Calyptorhynchus lathami Glossy Black-Cockatoo	No (surveyed)	☑ Jan ☑ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☑ Aug ☑ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Cercartetus nanus Eastern Pygmy-possum	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Dichanthium setosum Bluegrass	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Diuris tricolor Pine Donkey Orchid	No (surveyed)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☑ Sep ☑ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Homoranthus darwinioides Fairy Bells	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Hoplocephalus bitorquatus Pale-headed Snake	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?

Indigofera efoliata Leafless Indigo	No (surveyed)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☑ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Ninox connivens Barking Owl	No (surveyed)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☑ Aug ☑ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Ninox strenua Powerful Owl	No (surveyed)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☑ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Petaurus norfolcensis Squirrel Glider	Yes (surveyed)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☑ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Phascolarctos cinereus Koala	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Polytelis swainsonii Superb Parrot	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☑ Nov ☐ Dec ☐ Survey month outside the specified months?

Pomaderris queenslandica Scant Pomaderris	No (surveyed)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☑ Sep ☑ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Swainsona sericea Silky Swainson-pea	Yes (surveyed)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☑ Sep ☑ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Tylophora linearis Tylophora linearis	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Tyto novaehollandiae Masked Owl	No (surveyed)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☑ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Zieria ingramii Keith's Zieria	No (surveyed)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☑ Sep ☑ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?

Threatened species Manually Added

None added

Threatened species assessed as not on site

Refer to BAR for detailed justification

BAM Candidate Species Report

Common name	Scientific name	Justification in the BAM-C
Commersonia procumbens	Commersonia procumbens	Habitat constraints
Grey-headed Flying-fox	Pteropus poliocephalus	Habitat constraints
Large Bent-winged Bat	Miniopterus orianae oceanensis	Species is vagrant Habitat constraints
Large-eared Pied Bat	Chalinolobus dwyeri	Habitat constraints
Little Eagle	Hieraaetus morphnoides	Habitat constraints
Major Mitchell's Cockatoo	Lophochroa leadbeateri	Species is vagrant
Regent Honeyeater	Anthochaera phrygia	Habitat constraints
Sloane's Froglet	Crinia sloanei	Species is vagrant
Square-tailed Kite	Lophoictinia isura	Habitat constraints
Swift Parrot	Lathamus discolor	Habitat constraints
White-bellied Sea-Eagle	Haliaeetus leucogaster	Habitat constraints

BAM Credit Summary Report

Proposal Details

Assessment Id
00038230/BAAS17060/23/00038231

Proposal Name
CWOREZ Talbragar Valley subregion - RNI1

BAM data last updated *
22/06/2023

Assessor Name
Lukas Leslie Clews

Report Created
16/08/2023

BAM Data version *
61

Assessor Number
BAAS17060

BAM Case Status
Open

Date Finalised
To be finalised

Assessment Revision
2

Assessment Type
Major Projects

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Ecosystem credits for plant communities types (PCT), ecological communities & threatened species habitat

Zone	Vegetation zone name	TEC name	Current Vegetation integrity score	Change in Vegetation integrity (loss / gain)	Area (ha)	Sensitivity to loss (Justification)	Species sensitivity to gain class	BC Act Listing status	EPBC Act listing status	Biodiversity risk weighting	Potential SAII	Ecosystem credits

Fuzzy Box woodland on colluvium and alluvial flats in the Brigalow Belt South Bioregion (including Pilliga) and Nandewar Bioregion												
4	202_Mod_Good	Fuzzy Box Woodland on alluvial Soils of the South Western Slopes, Darling Riverine Plains and Brigalow Belt South Bioregions	88.2	44.7	2	Geographic Distribution	High Sensitivity to Gain	Endangered Ecological Community	Not Listed	2.00	True	44
5	202_Thinned	Fuzzy Box Woodland on alluvial Soils of the South Western Slopes, Darling Riverine Plains and Brigalow Belt South Bioregions	36.1	25.8	0.62	Geographic Distribution	High Sensitivity to Gain	Endangered Ecological Community	Not Listed	2.00	True	8
											Subtotal	**52**
Narrow-leaved Ironbark - Black Cypress Pine +/- Blakely's Red Gum shrubby open forest on sandstone low hills in the southern Brigalow Belt South Bioregion (including Goonoo)												
11	468_Thinned	Not a TEC	77.5	77.5	0.12	PCT Cleared - 33%	High Sensitivity to Gain			1.50		3
											Subtotal	**3**

Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion												
6	440_DNG	Not a TEC	7.5	7.5	5	PCT Cleared - 34%	High Sensitivity to Gain			1.50		0
7	440_Mod_Good	Not a TEC	88.2	87.8	5	PCT Cleared - 34%	High Sensitivity to Gain			1.50		164
8	440_Thinned	Not a TEC	69.1	43.4	3.1	PCT Cleared - 34%	High Sensitivity to Gain			1.50		51
											Subtotal	**215**
Tumbledown Gum woodland on hills in the northern NSW South Western Slopes Bioregion and southern Brigalow Belt South Bioregion												
9	461_Mod_Good	Not a TEC	86.2	60.3	2.6	PCT Cleared - 50%	High Sensitivity to Gain			1.75		68
10	461_Thinned	Not a TEC	76.6	76.6	0.6	PCT Cleared - 50%	High Sensitivity to Gain			1.75		20
											Subtotal	**88**

Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion												
1	81_DNG	Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions	14.7	14.7	9.9	Biodiversity Conservation Act listing status	High Sensitivity to Gain	Endangered Ecological Community	Not Listed	2.00		0
2	81_Mod_Good	Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions	81.2	71.1	0.82	Biodiversity Conservation Act listing status	High Sensitivity to Gain	Endangered Ecological Community	Not Listed	2.00		29
3	81_Thinned	Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions	72.6	63.2	2.1	Biodiversity Conservation Act listing status	High Sensitivity to Gain	Endangered Ecological Community	Not Listed	2.00		66

		Subtotal	**95**
		Total	**453**

Species credits for threatened species

Vegetation zone name	Habitat condition (Vegetation Integrity)	Change in habitat condition	Area (ha)/Count (no. individuals)	Sensitivity to loss (Justification)	Sensitivity to gain (Justification)	BC Act Listing status	EPBC Act listing status	Potential SAII	Species credits
Cercartetus nanus / Eastern Pygmy-possum (Fauna)									
81_Mod_Good	71.1	71.1	0.82	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Not Listed	False	29
81_Thinned	63.2	63.2	2.1	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Not Listed	False	66
202_Mod_Good	44.7	44.7	2	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Not Listed	False	44

202_Thinned	25.8	25.8	0.61	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Not Listed	False	8
440_Mod_Good	87.8	87.8	4.9	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Not Listed	False	216
440_Thinned	43.4	43.4	3.1	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Not Listed	False	67
461_Mod_Good	60.3	60.3	2.6	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Not Listed	False	77
461_Thinned	76.6	76.6	0.6	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Not Listed	False	23
								Subtotal	**530**

Dichanthium setosum / Bluegrass (Flora)									
81_DNG	14.7	14.7	1.5	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Vulnerable	False	11
461_Thinned	76.6	76.6	0.6	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Vulnerable	False	23
81_Mod_Good	71.1	71.1	0.18	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Vulnerable	False	6
81_Thinned	63.2	63.2	1.5	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Vulnerable	False	47
								Subtotal	**87**
Homoranthus darwinioides / Fairy Bells (Flora)									
468_Thinned	77.5	77.5	0.12	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Vulnerable	False	5
								Subtotal	**5**

Hoplocephalus bitorquatus / Pale-headed Snake (Fauna)									
440_Mod_Good	87.8	87.8	4.9	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	216
440_Thinned	43.4	43.4	3.1	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	67
468_Thinned	77.5	77.5	0.12	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	5
								Subtotal	**288**
Petaurus norfolcensis / Squirrel Glider (Fauna)									
202_Mod_Good	44.7	44.7	2	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	44
202_Thinned	25.8	25.8	0.61	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	8
440_Mod_Good	87.8	87.8	4.9	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	216

461_Mod_Good	60.3	60.3	2.6	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	77
461_Thinned	76.6	76.6	0.6	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	23
81_Mod_Good	71.1	71.1	0.82	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	29
81_Thinned	63.2	63.2	2	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	63
								Subtotal	**460**
Phascolarctos cinereus / Koala (Fauna)									
81_Mod_Good	71.1	71.1	0.82	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Endangered	False	29
81_Thinned	63.2	63.2	2	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Endangered	False	63

202_Mod_Good	44.7	44.7	2	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Endangered	False	44
202_Thinned	25.8	25.8	0.61	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Endangered	False	8
440_Mod_Good	87.8	87.8	4.9	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Endangered	False	216
440_Thinned	43.4	43.4	3.1	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Endangered	False	67
461_Mod_Good	60.3	60.3	2.6	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Endangered	False	77
461_Thinned	76.6	76.6	0.6	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Endangered	False	23

								Subtotal	**527**
Polytelis swainsonii / Superb Parrot (Fauna)									
81_DNG	14.7	14.7	0.55	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Vulnerable	False	4
81_Mod_Good	71.1	71.1	0.05	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Vulnerable	False	2
202_Mod_Good	44.7	44.7	1.9	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Vulnerable	False	43
								Subtotal	**49**
Swainsona sericea / Silky Swainson-pea (Flora)									
202_Mod_Good	44.7	44.7	0.14	Biodiversity Conservation Act listing status	Ability to colonise improved habitat	Vulnerable	Not Listed	False	3
440_Thinned	43.4	43.4	0.7	Biodiversity Conservation Act listing status	Ability to colonise improved habitat	Vulnerable	Not Listed	False	15
								Subtotal	**18**

Tylophora linearis / Tylophora linearis (Flora)									
440_Mod_Good	87.8	87.8	4.9	Biodiversity Conservation Act listing status	Quantity class of viable seeds produced	Vulnerable	Endangered	False	216
440_Thinned	43.4	43.4	0.6	Biodiversity Conservation Act listing status	Quantity class of viable seeds produced	Vulnerable	Endangered	False	13
468_Thinned	77.5	77.5	0.12	Biodiversity Conservation Act listing status	Quantity class of viable seeds produced	Vulnerable	Endangered	False	5
								Subtotal	**234**

BAM Predicted Species Report

Proposal Details

Assessment Id	Proposal Name	BAM data last updated *
00038230/BAAS17060/23/00038231	CWOREZ Talbragar Valley subregion - RNI1	22/06/2023
Assessor Name	**Report Created**	**BAM Data version ***
Lukas Leslie Clews	16/08/2023	61
Assessor Number	**Assessment Type**	**BAM Case Status**
BAAS17060	Major Projects	Open
Assessment Revision		**Date Finalised**
2		To be finalised

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Threatened species reliably predicted to utilise the site. No surveys are required for these species. Ecosystem credits apply to these species.

Common Name	Scientific Name	Vegetation Types(s)
Barking Owl	Ninox connivens	81-Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion
		202-Fuzzy Box woodland on colluvium and alluvial flats in the Brigalow Belt South Bioregion (including Pilliga) and Nandewar Bioregion
		440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
		461-Tumbledown Gum woodland on hills in the northern NSW South Western Slopes Bioregion and southern Brigalow Belt South Bioregion
		468-Narrow-leaved Ironbark - Black Cypress Pine +/- Blakely's Red Gum shrubby open forest on sandstone low hills in the southern Brigalow Belt South Bioregion (including Goonoo)
Black-chinned Honeyeater (eastern subspecies)	Melithreptus gularis gularis	81-Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion
		202-Fuzzy Box woodland on colluvium and alluvial flats in the Brigalow Belt South Bioregion (including Pilliga) and Nandewar Bioregion

Black-chinned Honeyeater (eastern subspecies)	Melithreptus gularis gularis	461-Tumbledown Gum woodland on hills in the northern NSW South Western Slopes Bioregion and southern Brigalow Belt South Bioregion
		468-Narrow-leaved Ironbark - Black Cypress Pine +/- Blakely's Red Gum shrubby open forest on sandstone low hills in the southern Brigalow Belt South Bioregion (including Goonoo)
Brown Treecreeper (eastern subspecies)	Climacteris picumnus victoriae	81-Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion
		202-Fuzzy Box woodland on colluvium and alluvial flats in the Brigalow Belt South Bioregion (including Pilliga) and Nandewar Bioregion
		440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
		461-Tumbledown Gum woodland on hills in the northern NSW South Western Slopes Bioregion and southern Brigalow Belt South Bioregion
		468-Narrow-leaved Ironbark - Black Cypress Pine +/- Blakely's Red Gum shrubby open forest on sandstone low hills in the southern Brigalow Belt South Bioregion (including Goonoo)
Corben's Long-eared Bat	Nyctophilus corbeni	81-Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion
		202-Fuzzy Box woodland on colluvium and alluvial flats in the Brigalow Belt South Bioregion (including Pilliga) and Nandewar Bioregion
		440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
		461-Tumbledown Gum woodland on hills in the northern NSW South Western Slopes Bioregion and southern Brigalow Belt South Bioregion
		468-Narrow-leaved Ironbark - Black Cypress Pine +/- Blakely's Red Gum shrubby open forest on sandstone low hills in the southern Brigalow Belt South Bioregion (including Goonoo)
Diamond Firetail	Stagonopleura guttata	81-Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion
		202-Fuzzy Box woodland on colluvium and alluvial flats in the Brigalow Belt South Bioregion (including Pilliga) and Nandewar Bioregion

Diamond Firetail	Stagonopleura guttata	440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
		461-Tumbledown Gum woodland on hills in the northern NSW South Western Slopes Bioregion and southern Brigalow Belt South Bioregion
		468-Narrow-leaved Ironbark - Black Cypress Pine +/- Blakely's Red Gum shrubby open forest on sandstone low hills in the southern Brigalow Belt South Bioregion (including Goonoo)
Dusky Woodswallow	Artamus cyanopterus cyanopterus	81-Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion
		202-Fuzzy Box woodland on colluvium and alluvial flats in the Brigalow Belt South Bioregion (including Pilliga) and Nandewar Bioregion
		440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
		461-Tumbledown Gum woodland on hills in the northern NSW South Western Slopes Bioregion and southern Brigalow Belt South Bioregion
		468-Narrow-leaved Ironbark - Black Cypress Pine +/- Blakely's Red Gum shrubby open forest on sandstone low hills in the southern Brigalow Belt South Bioregion (including Goonoo)
Flame Robin	Petroica phoenicea	440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
		461-Tumbledown Gum woodland on hills in the northern NSW South Western Slopes Bioregion and southern Brigalow Belt South Bioregion
Gilbert's Whistler	Pachycephala inornata	440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
		468-Narrow-leaved Ironbark - Black Cypress Pine +/- Blakely's Red Gum shrubby open forest on sandstone low hills in the southern Brigalow Belt South Bioregion (including Goonoo)
Glossy Black-Cockatoo	Calyptorhynchus lathami	81-Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion
		202-Fuzzy Box woodland on colluvium and alluvial flats in the Brigalow Belt South Bioregion (including Pilliga) and Nandewar Bioregion

Glossy Black-Cockatoo	Calyptorhynchus lathami	440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
		461-Tumbledown Gum woodland on hills in the northern NSW South Western Slopes Bioregion and southern Brigalow Belt South Bioregion
		468-Narrow-leaved Ironbark - Black Cypress Pine +/- Blakely's Red Gum shrubby open forest on sandstone low hills in the southern Brigalow Belt South Bioregion (including Goonoo)
Grey-crowned Babbler (eastern subspecies)	Pomatostomus temporalis temporalis	81-Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion
		202-Fuzzy Box woodland on colluvium and alluvial flats in the Brigalow Belt South Bioregion (including Pilliga) and Nandewar Bioregion
		461-Tumbledown Gum woodland on hills in the northern NSW South Western Slopes Bioregion and southern Brigalow Belt South Bioregion
Grey-headed Flying-fox	Pteropus poliocephalus	81-Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion
		202-Fuzzy Box woodland on colluvium and alluvial flats in the Brigalow Belt South Bioregion (including Pilliga) and Nandewar Bioregion
		440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
		461-Tumbledown Gum woodland on hills in the northern NSW South Western Slopes Bioregion and southern Brigalow Belt South Bioregion
		468-Narrow-leaved Ironbark - Black Cypress Pine +/- Blakely's Red Gum shrubby open forest on sandstone low hills in the southern Brigalow Belt South Bioregion (including Goonoo)
Hooded Robin (south-eastern form)	Melanodryas cucullata cucullata	81-Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion
		202-Fuzzy Box woodland on colluvium and alluvial flats in the Brigalow Belt South Bioregion (including Pilliga) and Nandewar Bioregion
		440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion

Hooded Robin (south-eastern form)	Melanodryas cucullata cucullata	461-Tumbledown Gum woodland on hills in the northern NSW South Western Slopes Bioregion and southern Brigalow Belt South Bioregion
		468-Narrow-leaved Ironbark - Black Cypress Pine +/- Blakely's Red Gum shrubby open forest on sandstone low hills in the southern Brigalow Belt South Bioregion (including Goonoo)
Large Bent-winged Bat	Miniopterus orianae oceanensis	81-Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion
		202-Fuzzy Box woodland on colluvium and alluvial flats in the Brigalow Belt South Bioregion (including Pilliga) and Nandewar Bioregion
		440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
		461-Tumbledown Gum woodland on hills in the northern NSW South Western Slopes Bioregion and southern Brigalow Belt South Bioregion
		468-Narrow-leaved Ironbark - Black Cypress Pine +/- Blakely's Red Gum shrubby open forest on sandstone low hills in the southern Brigalow Belt South Bioregion (including Goonoo)
Little Eagle	Hieraaetus morphnoides	81-Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion
		202-Fuzzy Box woodland on colluvium and alluvial flats in the Brigalow Belt South Bioregion (including Pilliga) and Nandewar Bioregion
		440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
		461-Tumbledown Gum woodland on hills in the northern NSW South Western Slopes Bioregion and southern Brigalow Belt South Bioregion
		468-Narrow-leaved Ironbark - Black Cypress Pine +/- Blakely's Red Gum shrubby open forest on sandstone low hills in the southern Brigalow Belt South Bioregion (including Goonoo)
Little Lorikeet	Glossopsitta pusilla	81-Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion
		202-Fuzzy Box woodland on colluvium and alluvial flats in the Brigalow Belt South Bioregion (including Pilliga) and Nandewar Bioregion

Little Lorikeet	Glossopsitta pusilla	440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
		461-Tumbledown Gum woodland on hills in the northern NSW South Western Slopes Bioregion and southern Brigalow Belt South Bioregion
		468-Narrow-leaved Ironbark - Black Cypress Pine +/- Blakely's Red Gum shrubby open forest on sandstone low hills in the southern Brigalow Belt South Bioregion (including Goonoo)
Little Pied Bat	Chalinolobus picatus	81-Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion
		202-Fuzzy Box woodland on colluvium and alluvial flats in the Brigalow Belt South Bioregion (including Pilliga) and Nandewar Bioregion
		440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
		461-Tumbledown Gum woodland on hills in the northern NSW South Western Slopes Bioregion and southern Brigalow Belt South Bioregion
		468-Narrow-leaved Ironbark - Black Cypress Pine +/- Blakely's Red Gum shrubby open forest on sandstone low hills in the southern Brigalow Belt South Bioregion (including Goonoo)
Malleefowl	Leipoa ocellata	468-Narrow-leaved Ironbark - Black Cypress Pine +/- Blakely's Red Gum shrubby open forest on sandstone low hills in the southern Brigalow Belt South Bioregion (including Goonoo)
Masked Owl	Tyto novaehollandiae	81-Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion
		202-Fuzzy Box woodland on colluvium and alluvial flats in the Brigalow Belt South Bioregion (including Pilliga) and Nandewar Bioregion
		440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
		461-Tumbledown Gum woodland on hills in the northern NSW South Western Slopes Bioregion and southern Brigalow Belt South Bioregion
		468-Narrow-leaved Ironbark - Black Cypress Pine +/- Blakely's Red Gum shrubby open forest on sandstone low hills in the southern Brigalow Belt South Bioregion (including Goonoo)

Painted Honeyeater	Grantiella picta	81-Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion
		202-Fuzzy Box woodland on colluvium and alluvial flats in the Brigalow Belt South Bioregion (including Pilliga) and Nandewar Bioregion
		440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
		461-Tumbledown Gum woodland on hills in the northern NSW South Western Slopes Bioregion and southern Brigalow Belt South Bioregion
		468-Narrow-leaved Ironbark - Black Cypress Pine +/- Blakely's Red Gum shrubby open forest on sandstone low hills in the southern Brigalow Belt South Bioregion (including Goonoo)
Powerful Owl	Ninox strenua	202-Fuzzy Box woodland on colluvium and alluvial flats in the Brigalow Belt South Bioregion (including Pilliga) and Nandewar Bioregion
Regent Honeyeater	Anthochaera phrygia	81-Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion
		202-Fuzzy Box woodland on colluvium and alluvial flats in the Brigalow Belt South Bioregion (including Pilliga) and Nandewar Bioregion
		461-Tumbledown Gum woodland on hills in the northern NSW South Western Slopes Bioregion and southern Brigalow Belt South Bioregion
		468-Narrow-leaved Ironbark - Black Cypress Pine +/- Blakely's Red Gum shrubby open forest on sandstone low hills in the southern Brigalow Belt South Bioregion (including Goonoo)
Scarlet Robin	Petroica boodang	81-Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion
		202-Fuzzy Box woodland on colluvium and alluvial flats in the Brigalow Belt South Bioregion (including Pilliga) and Nandewar Bioregion
		440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
		461-Tumbledown Gum woodland on hills in the northern NSW South Western Slopes Bioregion and southern Brigalow Belt South Bioregion

Scarlet Robin	Petroica boodang	468-Narrow-leaved Ironbark - Black Cypress Pine +/- Blakely's Red Gum shrubby open forest on sandstone low hills in the southern Brigalow Belt South Bioregion (including Goonoo)
Speckled Warbler	Chthonicola sagittata	81-Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion
		202-Fuzzy Box woodland on colluvium and alluvial flats in the Brigalow Belt South Bioregion (including Pilliga) and Nandewar Bioregion
		440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
		461-Tumbledown Gum woodland on hills in the northern NSW South Western Slopes Bioregion and southern Brigalow Belt South Bioregion
		468-Narrow-leaved Ironbark - Black Cypress Pine +/- Blakely's Red Gum shrubby open forest on sandstone low hills in the southern Brigalow Belt South Bioregion (including Goonoo)
Spotted Harrier	Circus assimilis	440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
		461-Tumbledown Gum woodland on hills in the northern NSW South Western Slopes Bioregion and southern Brigalow Belt South Bioregion
		468-Narrow-leaved Ironbark - Black Cypress Pine +/- Blakely's Red Gum shrubby open forest on sandstone low hills in the southern Brigalow Belt South Bioregion (including Goonoo)
Spotted-tailed Quoll	Dasyurus maculatus	81-Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion
		202-Fuzzy Box woodland on colluvium and alluvial flats in the Brigalow Belt South Bioregion (including Pilliga) and Nandewar Bioregion
		440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
		461-Tumbledown Gum woodland on hills in the northern NSW South Western Slopes Bioregion and southern Brigalow Belt South Bioregion
		468-Narrow-leaved Ironbark - Black Cypress Pine +/- Blakely's Red Gum shrubby open forest on sandstone low hills in the southern Brigalow Belt South Bioregion (including Goonoo)

Square-tailed Kite	Lophoictinia isura	81-Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion
		202-Fuzzy Box woodland on colluvium and alluvial flats in the Brigalow Belt South Bioregion (including Pilliga) and Nandewar Bioregion
		440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
		461-Tumbledown Gum woodland on hills in the northern NSW South Western Slopes Bioregion and southern Brigalow Belt South Bioregion
		468-Narrow-leaved Ironbark - Black Cypress Pine +/- Blakely's Red Gum shrubby open forest on sandstone low hills in the southern Brigalow Belt South Bioregion (including Goonoo)
Superb Parrot	Polytelis swainsonii	81-Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion
		202-Fuzzy Box woodland on colluvium and alluvial flats in the Brigalow Belt South Bioregion (including Pilliga) and Nandewar Bioregion
		440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
		461-Tumbledown Gum woodland on hills in the northern NSW South Western Slopes Bioregion and southern Brigalow Belt South Bioregion
Swift Parrot	Lathamus discolor	81-Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion
		202-Fuzzy Box woodland on colluvium and alluvial flats in the Brigalow Belt South Bioregion (including Pilliga) and Nandewar Bioregion
		440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
		461-Tumbledown Gum woodland on hills in the northern NSW South Western Slopes Bioregion and southern Brigalow Belt South Bioregion
		468-Narrow-leaved Ironbark - Black Cypress Pine +/- Blakely's Red Gum shrubby open forest on sandstone low hills in the southern Brigalow Belt South Bioregion (including Goonoo)
Turquoise Parrot	Neophema pulchella	81-Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion

Turquoise Parrot	Neophema pulchella	202-Fuzzy Box woodland on colluvium and alluvial flats in the Brigalow Belt South Bioregion (including Pilliga) and Nandewar Bioregion
		440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
		461-Tumbledown Gum woodland on hills in the northern NSW South Western Slopes Bioregion and southern Brigalow Belt South Bioregion
		468-Narrow-leaved Ironbark - Black Cypress Pine +/- Blakely's Red Gum shrubby open forest on sandstone low hills in the southern Brigalow Belt South Bioregion (including Goonoo)
Varied Sittella	Daphoenositta chrysoptera	81-Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion
		202-Fuzzy Box woodland on colluvium and alluvial flats in the Brigalow Belt South Bioregion (including Pilliga) and Nandewar Bioregion
		440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
		461-Tumbledown Gum woodland on hills in the northern NSW South Western Slopes Bioregion and southern Brigalow Belt South Bioregion
		468-Narrow-leaved Ironbark - Black Cypress Pine +/- Blakely's Red Gum shrubby open forest on sandstone low hills in the southern Brigalow Belt South Bioregion (including Goonoo)
White-bellied Sea-Eagle	Haliaeetus leucogaster	81-Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion
		202-Fuzzy Box woodland on colluvium and alluvial flats in the Brigalow Belt South Bioregion (including Pilliga) and Nandewar Bioregion
White-throated Needletail	Hirundapus caudacutus	81-Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion
		202-Fuzzy Box woodland on colluvium and alluvial flats in the Brigalow Belt South Bioregion (including Pilliga) and Nandewar Bioregion
		440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion

White-throated Needletail	Hirundapus caudacutus	461-Tumbledown Gum woodland on hills in the northern NSW South Western Slopes Bioregion and southern Brigalow Belt South Bioregion
		468-Narrow-leaved Ironbark - Black Cypress Pine +/- Blakely's Red Gum shrubby open forest on sandstone low hills in the southern Brigalow Belt South Bioregion (including Goonoo)
Yellow-bellied Sheathtail-bat	Saccolaimus flaviventris	81-Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion
		202-Fuzzy Box woodland on colluvium and alluvial flats in the Brigalow Belt South Bioregion (including Pilliga) and Nandewar Bioregion
		440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
		461-Tumbledown Gum woodland on hills in the northern NSW South Western Slopes Bioregion and southern Brigalow Belt South Bioregion
		468-Narrow-leaved Ironbark - Black Cypress Pine +/- Blakely's Red Gum shrubby open forest on sandstone low hills in the southern Brigalow Belt South Bioregion (including Goonoo)

Threatened species Manually Added

None added

Threatened species assessed as not within the vegetation zone(s) for the PCT(s)

Common Name	Scientific Name	Plant Community Type(s)
Major Mitchell's Cockatoo	Lophochroa leadbeateri	81-Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion
		440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
		461-Tumbledown Gum woodland on hills in the northern NSW South Western Slopes Bioregion and southern Brigalow Belt South Bioregion
		468-Narrow-leaved Ironbark - Black Cypress Pine +/- Blakely's Red Gum shrubby open forest on sandstone low hills in the southern Brigalow Belt South Bioregion (including Goonoo)

Threatened species assessed as not within the vegetation zone(s) for the PCT(s)

Refer to BAR for detailed justification

Common Name	Scientific Name	Justification in the BAM-C
Major Mitchell's Cockatoo	Lophochroa leadbeateri	Species is vagrant

BAM Vegetation Zones Report

Proposal Details

Assessment Id
00038230/BAAS17060/23/00038231

Assessment name
CWOREZ Talbragar Valley subregion - RNI1

BAM data last updated *
22/06/2023

Assessor Name
Lukas Leslie Clews

Report Created
16/08/2023

BAM Data version *
61

Assessor Number
BAAS17060

Assessment Type
Major Projects

BAM Case Status
Open

Assessment Revision
2

Date Finalised
To be finalised

* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.

Vegetation Zones

#	Name	PCT	Condition	Area	Minimum number of plots	Management zones
1	81_DNG	81-Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion	DNG	9.89	3	A (9.89 ha)

2	81_Mod_Good	81-Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion	Mod_Good	0.82	1	A (0.63 ha) B (0.18 ha) HZ (0.01 ha)
3	81_Thinned	81-Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion	Thinned	2.09	2	A (1.62 ha) B (0.46 ha) HZ (0.01 ha)
4	202_Mod_Good	202-Fuzzy Box woodland on colluvium and alluvial flats in the Brigalow Belt South Bioregion (including Pilliga) and Nandewar Bioregion	Mod_Good	1.98	1	A (0.25 ha) B (1.69 ha) HZ (0.04 ha)
5	202_Thinned	202-Fuzzy Box woodland on colluvium and alluvial flats in the Brigalow Belt South Bioregion (including Pilliga) and Nandewar Bioregion	Thinned	0.62	1	A (0.02 ha) B (0.59 ha) HZ (0.01 ha)
6	440_DNG	440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion	DNG	5.02	3	A (5.02 ha)
7	440_Mod_Good	440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion	Mod_Good	4.97	2	A (4.93 ha) B (0.04 ha)
8	440_Thinned	440-Red Stringybark - Narrow-leaved Ironbark - Black Cypress Pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion	Thinned	3.12	2	A (0.7 ha) B (2.37 ha) HZ (0.05 ha)

9	461_Mod_Good	461-Tumbledown Gum woodland on hills in the northern NSW South Western Slopes Bioregion and southern Brigalow Belt South Bioregion	Mod_Good	2.57	2	A (1.44 ha) B (1.1 ha) HZ (0.03 ha)
10	461_Thinned	461-Tumbledown Gum woodland on hills in the northern NSW South Western Slopes Bioregion and southern Brigalow Belt South Bioregion	Thinned	0.6	1	A (0.6 ha)
11	468_Thinned	468-Narrow-leaved Ironbark - Black Cypress Pine +/- Blakely's Red Gum shrubby open forest on sandstone low hills in the southern Brigalow Belt South Bioregion (including Goonoo)	Thinned	0.12	1	A (0.12 ha)

BAM Biodiversity Credit Report (Like for like)

Proposal Details

Assessment Id
00040152/BAAS17060/23/00040153

Proposal Name
CWOREZ Inland Slopes - CFG Connection to Tallawang Stage Scattered Trees

BAM data last updated *
22/06/2023

Assessor Name
Lukas Leslie Clews

Assessor Number
BAAS17060

BAM Data version *
61

Proponent Names

Report Created
08/08/2023

Date Finalised
To be finalised

Assessment Revision
0

Assessment Type
Scattered Trees

BAM Case Status
Open

BOS entry trigger
Major Project

* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.

Potential Serious and Irreversible Impacts

Nil

Additional Information for Approval

PCTs With Customized Benchmarks

No Changes

BAM Biodiversity Credit Report (Like for like)

Ecosystem Credit Summary

PCT	TEC	HBT Cr	No HBT Cr	Credits
281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla	7	0	7

Credit classes for 281

Like-for-like options

TEC	Trading group	HBT	Credits	IBRA region
White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla	-	Yes	7	Inland Slopes, Bogan-Macquarie, Bondo, Capertee Uplands, Capertee Valley, Crookwell, Hill End, Kerrabee, Lower Slopes, Murray Fans, Murrumbateman, Orange, Pilliga, Talbragar Valley and Wollemi. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

BAM Biodiversity Credit Report (Variations)

Proposal Details

Assessment Id
00040152/BAAS17060/23/00040153

Proposal Name
CWOREZ Inland Slopes - CFG Connection to Tallawang Stage Scattered Trees

BAM data last updated *
22/06/2023

Assessor Name
Lukas Leslie Clews

Assessor Number
BAAS17060

BAM Data version *
61

Proponent Name(s)

Report Created
08/08/2023

Assessment Type
Scattered Trees

Date Finalised
To be finalised

Assessment Revision
0

BAM Case Status
Open

BOS entry trigger
Major Project

* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.

Potential Serious and Irreversible Impacts

Nil

Additional Information for Approval

PCTs With Customized Benchmarks
No Changes

Ecosystem Credit Summary

BAM Biodiversity Credit Report (Variations)

PCT	TEC	HBT Cr	No HBT Cr	Credits
281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla	7	0	7

Credit classes for 281

Like-for-like options

TEC	Trading group	HBT	Credits	IBRA region
White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla	-	Yes	7	Inland Slopes, Bogan-Macquarie, Bondo, Capertee Uplands, Capertee Valley, Crookwell, Hill End, Kerrabee, Lower Slopes, Murray Fans, Murrumbateman, Orange, Pilliga, Talbragar Valley and Wollemi. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

BAM Credit Summary Report

Proposal Details

Assessment Id	Proposal Name	BAM data last updated *
00040152/BAAS17060/23/00040153	CWOREZ Inland Slopes - CFG Connection to Tallawang Stage Scattered Trees	22/06/2023
Assessor Name	**Report Created**	**BAM Data version ***
Lukas Leslie Clews	08/08/2023	61
Assessor Number	**BAM Case Status**	**Date Finalised**
BAAS17060	Open	To be finalised
Assessment Revision	**Assessment Type**	**BOS entry trigger**
0	Scattered Trees	Major Project

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Scattered Trees Credit Requirement

Class	Contains hollows	Number of trees	Ecosystem credits
281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion			
3	True	7.0	7
			7
			7

Species credits for threatened species

The scattered tree module is not applicable. This species much be assessed using chapter 5 of the BAM and BAM-C development module

Lathamus discolor Swift Parrot
Anthochaera phrygia Regent Honeyeater
Prasophyllum sp. Wybong Prasophyllum sp. Wybong

BAM Predicted Species Report

Proposal Details

Assessment Id	Proposal Name	BAM data last updated *
00040152/BAAS17060/23/00040153	CWOREZ Inland Slopes - CFG Connection to Tallawang Stage Scattered Trees	22/06/2023
Assessor Name	**Report Created**	**BAM Data version ***
Lukas Leslie Clews	08/08/2023	61
Assessor Number	**BAM Case Status**	**Date Finalised**
BAAS17060	Open	To be finalised
Assessment Revision	**Assessment Type**	**BOS entry trigger**
0	Scattered Trees	Major Project

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Threatened species reliably predicted to utilise the site. No surveys are required for these species. Ecosystem credits apply to these species.

Common Name	Scientific Name
Barking Owl	Ninox connivens
Black Falcon	Falco subniger
Black-chinned Honeyeater (eastern subspecies)	Melithreptus gularis gularis
Brown Treecreeper (eastern subspecies)	Climacteris picumnus victoriae
Dusky Woodswallow	Artamus cyanopterus cyanopterus
Flame Robin	Petroica phoenicea
Grey-crowned Babbler (eastern subspecies)	Pomatostomus temporalis temporalis
Hooded Robin (south-eastern form)	Melanodryas cucullata cucullata
Little Eagle	Hieraaetus morphnoides
Little Lorikeet	Glossopsitta pusilla
Little Pied Bat	Chalinolobus picatus
Masked Owl	Tyto novaehollandiae
Painted Honeyeater	Grantiella picta
Regent Honeyeater	Anthochaera phrygia
Scarlet Robin	Petroica boodang
Speckled Warbler	Chthonicola sagittata

Spotted Harrier	Circus assimilis
Superb Parrot	Polytelis swainsonii
Swift Parrot	Lathamus discolor
Varied Sittella	Daphoenositta chrysoptera
White-bellied Sea-Eagle	Haliaeetus leucogaster
White-throated Needletail	Hirundapus caudacutus
Yellow-bellied Sheathtail-bat	Saccolaimus flaviventris

Threatened species assessed as not within the vegetation zone(s) for the PCT(s)

Refer to BAR for detailed justification

Common Name	Scientific Name	Justification in the BAM-C

Scattered Tree Report

Proposal Details

Assessment Id
00040152/BAAS17060/23/00040153

Assessment name
CWOREZ Inland Slopes - CFG Connection to Tallawang Stage Scattered Trees

BAM data last updated *
22/06/2023

Assessor Name
Lukas Leslie Clews

Report Created
08/08/2023

BAM Data version *
61

Assessor Number
BAAS17060

BAM Case Status
Open

Date Finalised
To be finalised

Assessment Revision
0

Assessment Type
Scattered Trees

BOS entry trigger
Major Project

* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.

Scattered Trees

Scattered Tree Report

PCT code	PCT name	No. of trees	Species	DBHOB Category	Contain hollows	Class	Assessment required
281	Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion	7	Eucalyptus spp.	>= 50cm	True	3	Visual assessment for hollows, presence of important habitat features and habitat suitability for threatened species

BAM Biodiversity Credit Report (Like for like)

Proposal Details

Assessment Id
00038622/BAAS17060/23/00038623

Proposal Name
CWOREZ Inland Slopes subregion - RNI1 - Scattered Trees

BAM data last updated *
22/06/2023

Assessor Name
Lukas Leslie Clews

Assessor Number
BAAS17060

BAM Data version *
61

Proponent Names

Report Created
08/08/2023

Date Finalised
To be finalised

Assessment Revision
0

Assessment Type
Scattered Trees

BAM Case Status
Open

BOS entry trigger
Major Project

* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.

Potential Serious and Irreversible Impacts

Nil

Additional Information for Approval

PCTs With Customized Benchmarks

No Changes

Ecosystem Credit Summary

BAM Biodiversity Credit Report (Like for like)

PCT	TEC	HBT Cr	No HBT Cr	Credits
266-White Box grassy woodland in the upper slopes sub-region of the NSW South Western Slopes Bioregion	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla	86	3	89
281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla	5	0	5

Credit classes for 266

Like-for-like options

TEC	Trading group	HBT	Credits	IBRA region
White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla	-	Yes	86	Inland Slopes, Bogan-Macquarie, Bondo, Capertee Uplands, Capertee Valley, Crookwell, Hill End, Kerrabee, Lower Slopes, Murray Fans, Murrumbateman, Orange, Pilliga, Talbragar Valley and Wollemi. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla	-	No	3	Inland Slopes, Bogan-Macquarie, Bondo, Capertee Uplands, Capertee Valley, Crookwell, Hill End, Kerrabee, Lower Slopes, Murray Fans, Murrumbateman, Orange, Pilliga, Talbragar Valley and Wollemi. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Credit classes for 281	**Like-for-like options**				
	TEC	Trading group	HBT	Credits	IBRA region
	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla	-	Yes	5	Inland Slopes, Bogan-Macquarie, Bondo, Capertee Uplands, Capertee Valley, Crookwell, Hill End, Kerrabee, Lower Slopes, Murray Fans, Murrumbateman, Orange, Pilliga, Talbragar Valley and Wollemi. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

BAM Biodiversity Credit Report (Variations)

Proposal Details

Assessment Id
00038622/BAAS17060/23/00038623

Proposal Name
CWOREZ Inland Slopes subregion - RNI1 - Scattered Trees

BAM data last updated *
22/06/2023

Assessor Name
Lukas Leslie Clews

Assessor Number
BAAS17060

BAM Data version *
61

Proponent Name(s)

Report Created
08/08/2023

Assessment Type
Scattered Trees

Date Finalised
To be finalised

Assessment Revision
0

BAM Case Status
Open

BOS entry trigger
Major Project

* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.

Potential Serious and Irreversible Impacts

Nil

Additional Information for Approval

PCTs With Customized Benchmarks
No Changes

Ecosystem Credit Summary

BAM Biodiversity Credit Report (Variations)

PCT	TEC	HBT Cr	No HBT Cr	Credits
266-White Box grassy woodland in the upper slopes sub-region of the NSW South Western Slopes Bioregion	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla	86	3	89
281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla	5	0	5

Credit classes for 266

Like-for-like options

TEC	Trading group	HBT	Credits	IBRA region
White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla	-	Yes	86	Inland Slopes, Bogan-Macquarie, Bondo, Capertee Uplands, Capertee Valley, Crookwell, Hill End, Kerrabee, Lower Slopes, Murray Fans, Murrumbateman, Orange, Pilliga, Talbragar Valley and Wollemi. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla	-	No	3	Inland Slopes, Bogan-Macquarie, Bondo, Capertee Uplands, Capertee Valley, Crookwell, Hill End, Kerrabee, Lower Slopes, Murray Fans, Murrumbateman, Orange, Pilliga, Talbragar Valley and Wollemi. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Credit classes for 281	**Like-for-like options**				
	TEC	Trading group	HBT	Credits	IBRA region
	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla	-	Yes	5	Inland Slopes, Bogan-Macquarie, Bondo, Capertee Uplands, Capertee Valley, Crookwell, Hill End, Kerrabee, Lower Slopes, Murray Fans, Murrumbateman, Orange, Pilliga, Talbragar Valley and Wollemi. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

BAM Credit Summary Report

Proposal Details

Assessment Id	Proposal Name	BAM data last updated *
00038622/BAAS17060/23/00038623	CWOREZ Inland Slopes subregion - RNI1 - Scattered Trees	22/06/2023
Assessor Name	**Report Created**	**BAM Data version ***
Lukas Leslie Clews	08/08/2023	61
Assessor Number	**BAM Case Status**	**Date Finalised**
BAAS17060	Open	To be finalised
Assessment Revision	**Assessment Type**	**BOS entry trigger**
0	Scattered Trees	Major Project

* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.

Scattered Trees Credit Requirement

Class	Contains hollows	Number of trees	Ecosystem credits
281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion			
3	True	1.0	1
2	True	1.0	1
3	True	1.0	1
3	True	1.0	1
3	True	1.0	1
			5
266-White Box grassy woodland in the upper slopes sub-region of the NSW South Western Slopes Bioregion			
3	True	14.0	14
2	False	6.0	3
3	True	6.0	6
3	True	66.0	66
			89
			94

Species credits for threatened species

The scattered tree module is not applicable. This species much be assessed using chapter 5 of the BAM and BAM-C development module

Lathamus discolor Swift Parrot
Prasophyllum sp. Wybong Prasophyllum sp. Wybong
Anthochaera phrygia Regent Honeyeater

BAM Predicted Species Report

Proposal Details

Assessment Id	Proposal Name	BAM data last updated *
00038622/BAAS17060/23/00038623	CWOREZ Inland Slopes subregion - RNI1 - Scattered Trees	22/06/2023
Assessor Name	Report Created	BAM Data version *
Lukas Leslie Clews	08/08/2023	61
Assessor Number	BAM Case Status	Date Finalised
BAAS17060	Open	To be finalised
Assessment Revision	Assessment Type	BOS entry trigger
0	Scattered Trees	Major Project

* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.

Threatened species reliably predicted to utilise the site. No surveys are required for these species. Ecosystem credits apply to these species.

Common Name	Scientific Name
Barking Owl	Ninox connivens
	Ninox connivens
Black Falcon	Falco subniger
	Falco subniger
Black-chinned Honeyeater (eastern subspecies)	Melithreptus gularis gularis
	Melithreptus gularis gularis
Brown Treecreeper (eastern subspecies)	Climacteris picumnus victoriae
	Climacteris picumnus victoriae
Dusky Woodswallow	Artamus cyanopterus cyanopterus
	Artamus cyanopterus cyanopterus
Eastern False Pipistrelle	Falsistrellus tasmaniensis
Flame Robin	Petroica phoenicea
	Petroica phoenicea
Glossy Black-Cockatoo	Calyptorhynchus lathami
Grey-crowned Babbler (eastern subspecies)	Pomatostomus temporalis temporalis
	Pomatostomus temporalis temporalis
Hooded Robin (south-eastern form)	Melanodryas cucullata cucullata
	Melanodryas cucullata cucullata

Little Eagle	Hieraaetus morphnoides
	Hieraaetus morphnoides
Little Lorikeet	Glossopsitta pusilla
	Glossopsitta pusilla
Little Pied Bat	Chalinolobus picatus
Masked Owl	Tyto novaehollandiae
	Tyto novaehollandiae
Painted Honeyeater	Grantiella picta
	Grantiella picta
Purple-crowned Lorikeet	Glossopsitta porphyrocephala
Regent Honeyeater	Anthochaera phrygia
	Anthochaera phrygia
Scarlet Robin	Petroica boodang
	Petroica boodang
Speckled Warbler	Chthonicola sagittata
	Chthonicola sagittata
Spotted Harrier	Circus assimilis
	Circus assimilis
Superb Parrot	Polytelis swainsonii
	Polytelis swainsonii
Swift Parrot	Lathamus discolor
	Lathamus discolor
Varied Sittella	Daphoenositta chrysoptera
	Daphoenositta chrysoptera
White-bellied Sea-Eagle	Haliaeetus leucogaster
	Haliaeetus leucogaster
White-throated Needletail	Hirundapus caudacutus
	Hirundapus caudacutus
Yellow-bellied Sheathtail-bat	Saccolaimus flaviventris
	Saccolaimus flaviventris

Threatened species assessed as not within the vegetation zone(s) for the PCT(s)

Refer to BAR for detailed justification

Common Name	Scientific Name	Justification in the BAM-C

Scattered Tree Report

Proposal Details

Assessment Id
00038622/BAAS17060/23/00038623

Assessment name
CWOREZ Inland Slopes subregion - RNI1 - Scattered Trees

BAM data last updated *
22/06/2023

Assessor Name
Lukas Leslie Clews

Report Created
08/08/2023

BAM Data version *
61

Assessor Number
BAAS17060

BAM Case Status
Open

Date Finalised
To be finalised

Assessment Revision
0

Assessment Type
Scattered Trees

BOS entry trigger
Major Project

* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.

Scattered Trees

PCT code	PCT name	No. of trees	Species	DBHOB Category	Contain hollows	Class	Assessment required
266	White Box grassy woodland in the upper slopes sub-region of the NSW South Western Slopes Bioregion	14	Eucalyptus spp.	>= 50cm	True	3	Visual assessment for hollows, presence of important habitat features and habitat suitability for threatened species

Scattered Tree Report

266	White Box grassy woodland in the upper slopes sub-region of the NSW South Western Slopes Bioregion	6	Eucalyptus spp.	>= 20cm and <50cm	False	2	Visual assessment for hollows, presence of important habitat features and habitat suitability for threatened species
266	White Box grassy woodland in the upper slopes sub-region of the NSW South Western Slopes Bioregion	6	Eucalyptus spp.	>= 50cm	True	3	Visual assessment for hollows, presence of important habitat features and habitat suitability for threatened species
266	White Box grassy woodland in the upper slopes sub-region of the NSW South Western Slopes Bioregion	66	Eucalyptus spp.	>= 50cm	True	3	Visual assessment for hollows, presence of important habitat features and habitat suitability for threatened species
281	Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion	1	Allocasuarina luehmannii	>= 50cm	True	3	Visual assessment for hollows, presence of important habitat features and habitat suitability for threatened species
281	Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion	1	Casuarina cunninghamiana subsp. cunninghamiana	>= 20cm and <50cm	True	2	Visual assessment for hollows, presence of important habitat features and habitat suitability for threatened species

Scattered Tree Report

281	Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion	1	Eucalyptus albens	>= 50cm	True	3	Visual assessment for hollows, presence of important habitat features and habitat suitability for threatened species
281	Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion	1	Eucalyptus goniocalyx	>= 50cm	True	3	Visual assessment for hollows, presence of important habitat features and habitat suitability for threatened species
281	Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion	1	Eucalyptus microcarpa	>= 50cm	True	3	Visual assessment for hollows, presence of important habitat features and habitat suitability for threatened species

BAM Biodiversity Credit Report (Like for like)

Proposal Details

Assessment Id
00040156/BAAS17060/23/00040157

Proposal Name
CWOREZ Inland Slopes - Stubbo Stage Scattered Trees

BAM data last updated *
14/04/2023

Assessor Name
Lukas Leslie Clews

Assessor Number
BAAS17060

BAM Data version *
58

Proponent Names

Report Created
13/06/2023

Date Finalised
To be finalised

Assessment Revision
0

Assessment Type
Scattered Trees

BAM Case Status
Open

BOS entry trigger
Major Project

* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.

Potential Serious and Irreversible Impacts

Nil

Additional Information for Approval

PCTs With Customized Benchmarks

No Changes

Ecosystem Credit Summary

BAM Biodiversity Credit Report (Like for like)

PCT	TEC	HBT Cr	No HBT Cr	Credits
281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri	3	0	3

Credit classes for 281

Like-for-like options

TEC	Trading group	HBT	Credits	IBRA region
White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri	-	Yes	3	Inland Slopes, Bogan-Macquarie, Bondo, Capertee Uplands, Capertee Valley, Crookwell, Hill End, Kerrabee, Lower Slopes, Murray Fans, Murrumbateman, Orange, Pilliga, Talbragar Valley and Wollemi. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

BAM Biodiversity Credit Report (Variations)

Proposal Details

Assessment Id
00040156/BAAS17060/23/00040157

Proposal Name
CWOREZ Inland Slopes - Stubbo Stage Scattered Trees

BAM data last updated *
14/04/2023

Assessor Name
Lukas Leslie Clews

Assessor Number
BAAS17060

BAM Data version *
58

Proponent Name(s)

Report Created
13/06/2023

Assessment Type
Scattered Trees

Date Finalised
To be finalised

Assessment Revision
0

BAM Case Status
Open

BOS entry trigger
Major Project

* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.

Potential Serious and Irreversible Impacts

Nil

Additional Information for Approval

PCTs With Customized Benchmarks
No Changes

Ecosystem Credit Summary

BAM Biodiversity Credit Report (Variations)

PCT	TEC	HBT Cr	No HBT Cr	Credits
281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri	3	0	3

Credit classes for 281

Like-for-like options

TEC	Trading group	HBT	Credits	IBRA region
White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri	-	Yes	3	Inland Slopes, Bogan-Macquarie, Bondo, Capertee Uplands, Capertee Valley, Crookwell, Hill End, Kerrabee, Lower Slopes, Murray Fans, Murrumbateman, Orange, Pilliga, Talbragar Valley and Wollemi. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

BAM Credit Summary Report

Proposal Details

Assessment Id	Proposal Name	BAM data last updated *
00040156/BAAS17060/23/00040157	CWOREZ Inland Slopes - Stubbo Stage Scattered Trees	14/04/2023
Assessor Name	Report Created	BAM Data version *
Lukas Leslie Clews	13/06/2023	58
Assessor Number	BAM Case Status	Date Finalised
BAAS17060	Open	To be finalised
Assessment Revision	Assessment Type	BOS entry trigger
0	Scattered Trees	Major Project

* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.

Scattered Trees Credit Requirement

Class	Contains hollows	Number of trees	Ecosystem credits
281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion			
3	True	3.0	3
			3
			3

Species credits for threatened species

The scattered tree module is not applicable. This species much be assessed using chapter 5 of the BAM and BAM-C development module

Lathamus discolor Swift Parrot
Anthochaera phrygia Regent Honeyeater
Prasophyllum sp. Wybong Prasophyllum sp. Wybong

BAM Predicted Species Report

Proposal Details

Assessment Id	Proposal Name	BAM data last updated *
00040156/BAAS17060/23/00040157	CWOREZ Inland Slopes - Stubbo Stage Scattered Trees	14/04/2023
Assessor Name	Report Created	BAM Data version *
Lukas Leslie Clews	13/06/2023	58
Assessor Number	BAM Case Status	Date Finalised
BAAS17060	Open	To be finalised
Assessment Revision	Assessment Type	BOS entry trigger
0	Scattered Trees	Major Project

* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.

Threatened species reliably predicted to utilise the site. No surveys are required for these species. Ecosystem credits apply to these species.

Common Name	Scientific Name
Barking Owl	Ninox connivens
Black Falcon	Falco subniger
Black-chinned Honeyeater (eastern subspecies)	Melithreptus gularis gularis
Brown Treecreeper (eastern subspecies)	Climacteris picumnus victoriae
Dusky Woodswallow	Artamus cyanopterus cyanopterus
Flame Robin	Petroica phoenicea
Grey-crowned Babbler (eastern subspecies)	Pomatostomus temporalis temporalis
Hooded Robin (south-eastern form)	Melanodryas cucullata cucullata
Little Eagle	Hieraaetus morphnoides
Little Lorikeet	Glossopsitta pusilla
Little Pied Bat	Chalinolobus picatus
Masked Owl	Tyto novaehollandiae
Painted Honeyeater	Grantiella picta
Regent Honeyeater	Anthochaera phrygia
Scarlet Robin	Petroica boodang
Speckled Warbler	Chthonicola sagittata

Spotted Harrier	Circus assimilis
Superb Parrot	Polytelis swainsonii
Swift Parrot	Lathamus discolor
Varied Sittella	Daphoenositta chrysoptera
White-bellied Sea-Eagle	Haliaeetus leucogaster
White-throated Needletail	Hirundapus caudacutus
Yellow-bellied Sheathtail-bat	Saccolaimus flaviventris

Threatened species assessed as not within the vegetation zone(s) for the PCT(s)

Refer to BAR for detailed justification

Common Name	Scientific Name	Justification in the BAM-C

Scattered Tree Report

Proposal Details

Assessment Id
00040156/BAAS17060/23/00040157

Assessment name
CWOREZ Inland Slopes - Stubbo Stage Scattered Trees

BAM data last updated *
14/04/2023

Assessor Name
Lukas Leslie Clews

Report Created
13/06/2023

BAM Data version *
58

Assessor Number
BAAS17060

BAM Case Status
Open

Date Finalised
To be finalised

Assessment Revision
0

Assessment Type
Scattered Trees

BOS entry trigger
Major Project

* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.

Scattered Trees

Scattered Tree Report

PCT code	PCT name	No. of trees	Species	DBHOB Category	Contain hollows	Class	Assessment required
281	Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion	3	Eucalyptus spp.	>= 50cm	True	3	Visual assessment for hollows, presence of important habitat features and habitat suitability for threatened species

BAM Biodiversity Credit Report (Like for like)

Proposal Details

Assessment Id
00038618/BAAS17060/23/00038619

Proposal Name
CWOREZ Kerrabee subregion - Liverpool Range - Scattered Trees

BAM data last updated *
14/04/2023

Assessor Name
Lukas Leslie Clews

Assessor Number
BAAS17060

BAM Data version *
58

Proponent Names

Report Created
13/06/2023

Date Finalised
To be finalised

Assessment Revision
0

Assessment Type
Scattered Trees

BAM Case Status
Open

BOS entry trigger
Major Project

* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.

Potential Serious and Irreversible Impacts

Nil

Additional Information for Approval

PCTs With Customized Benchmarks

No Changes

BAM Biodiversity Credit Report (Like for like)

Ecosystem Credit Summary

PCT	TEC	HBT Cr	No HBT Cr	Credits
477-Inland Scribbly Gum - Red Stringybark - Black Cypress Pine - Red Ironbark open forest on sandstone hills in the southern Brigalow Belt South Bioregion and northern NSW South Western Slopes Bioregion	Not a TEC	2	0	2

Credit classes for 477

Like-for-like options

Class	Trading group	HBT	Credits	IBRA region
Western Slopes Dry Sclerophyll Forests	Western Slopes Dry Sclerophyll Forests <50%	Yes	2	Kerrabee, Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

BAM Biodiversity Credit Report (Variations)

Proposal Details

Assessment Id
00038618/BAAS17060/23/00038619

Proposal Name
CWOREZ Kerrabee subregion - Liverpool Range - Scattered Trees

BAM data last updated *
14/04/2023

Assessor Name
Lukas Leslie Clews

Assessor Number
BAAS17060

BAM Data version *
58

Proponent Name(s)

Report Created
13/06/2023

Assessment Type
Scattered Trees

Date Finalised
To be finalised

Assessment Revision
0

BAM Case Status
Open

BOS entry trigger
Major Project

* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.

Potential Serious and Irreversible Impacts

Nil

Additional Information for Approval

PCTs With Customized Benchmarks
No Changes

Ecosystem Credit Summary

PCT	TEC	HBT Cr	No HBT Cr	Credits
477-Inland Scribbly Gum - Red Stringybark - Black Cypress Pine - Red Ironbark open forest on sandstone hills in the southern Brigalow Belt South Bioregion and northern NSW South Western Slopes Bioregion	Not a TEC	2	0	2

BAM Biodiversity Credit Report (Variations)

Credit classes for 477

Like-for-like options

Class	Trading group	HBT	Credits	IBRA region
Western Slopes Dry Sclerophyll Forests	Western Slopes Dry Sclerophyll Forests <50%	Yes	2	Kerrabee, Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

Variation options

Formation	Trading group	HBT	IBRA region
Dry Sclerophyll Forests (Shrubby sub-formation)	Tier 4	Yes (including artificial)	IBRA Region: Sydney Basin, or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

BAM Credit Summary Report

Proposal Details

Assessment Id	Proposal Name	BAM data last updated *
00038618/BAAS17060/23/00038619	CWOREZ Kerrabee subregion - Liverpool Range - Scattered Trees	14/04/2023
Assessor Name	**Report Created**	**BAM Data version ***
Lukas Leslie Clews	13/06/2023	58
Assessor Number	**BAM Case Status**	**Date Finalised**
BAAS17060	Open	To be finalised
Assessment Revision	**Assessment Type**	**BOS entry trigger**
0	Scattered Trees	Major Project

* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.

Scattered Trees Credit Requirement

Class	Contains hollows	Number of trees	Ecosystem credits
477-Inland Scribbly Gum - Red Stringybark - Black Cypress Pine - Red Ironbark open forest on sandstone hills in the southern Brigalow Belt South Bioregion and northern NSW South Western Slopes Bioregion			
3	True	2.0	2
			2
			2

Species credits for threatened species

The scattered tree module is not applicable. This species much be assessed using chapter 5 of the BAM and BAM-C development module

Lathamus discolor Swift Parrot

BAM Predicted Species Report

Proposal Details

Assessment Id	Proposal Name	BAM data last updated *
00038618/BAAS17060/23/00038619	CWOREZ Kerrabee subregion - Liverpool Range - Scattered Trees	14/04/2023
Assessor Name	Report Created	BAM Data version *
Lukas Leslie Clews	13/06/2023	58
Assessor Number	BAM Case Status	Date Finalised
BAAS17060	Open	To be finalised
Assessment Revision	Assessment Type	BOS entry trigger
0	Scattered Trees	Major Project

* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.

Threatened species reliably predicted to utilise the site. No surveys are required for these species. Ecosystem credits apply to these species.

Common Name	Scientific Name
Barking Owl	Ninox connivens
Brown Treecreeper (eastern subspecies)	Climacteris picumnus victoriae
Dusky Woodswallow	Artamus cyanopterus cyanopterus
Flame Robin	Petroica phoenicea
Glossy Black-Cockatoo	Calyptorhynchus lathami
Hooded Robin (south-eastern form)	Melanodryas cucullata cucullata
Little Eagle	Hieraaetus morphnoides
Little Lorikeet	Glossopsitta pusilla
Masked Owl	Tyto novaehollandiae
Painted Honeyeater	Grantiella picta
Scarlet Robin	Petroica boodang
Speckled Warbler	Chthonicola sagittata
Spotted Harrier	Circus assimilis
Swift Parrot	Lathamus discolor
Varied Sittella	Daphoenositta chrysoptera
White-throated Needletail	Hirundapus caudacutus
Yellow-bellied Sheathtail-bat	Saccolaimus flaviventris

BAM Predicted Species Report

Threatened species assessed as not within the vegetation zone(s) for the PCT(s)

Refer to BAR for detailed justification

Common Name	Scientific Name	Justification in the BAM-C

Scattered Tree Report

Proposal Details

Assessment Id
00038618/BAAS17060/23/00038619

Assessment name
CWOREZ Kerrabee subregion - Liverpool Range - Scattered Trees

BAM data last updated *
14/04/2023

Assessor Name
Lukas Leslie Clews

Report Created
13/06/2023

BAM Data version *
58

Assessor Number
BAAS17060

BAM Case Status
Open

Date Finalised
To be finalised

Assessment Revision
0

Assessment Type
Scattered Trees

BOS entry trigger
Major Project

* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.

Scattered Trees

Scattered Tree Report

PCT code	PCT name	No. of trees	Species	DBHOB Category	Contain hollows	Class	Assessment required
477	Inland Scribbly Gum - Red Stringybark - Black Cypress Pine - Red Ironbark open forest on sandstone hills in the southern Brigalow Belt South Bioregion and northern NSW South Western Slopes Bioregion	2	Eucalyptus spp.	>= 50cm	True	3	Visual assessment for hollows, presence of important habitat features and habitat suitability for threatened species

BAM Biodiversity Credit Report (Like for like)

Proposal Details

Assessment Id
00040161/BAAS17060/23/00040162

Proposal Name
CWOREZ Kerrabee - RNI1 Stage Scattered Trees

BAM data last updated *
14/04/2023

Assessor Name
Lukas Leslie Clews

Assessor Number
BAAS17060

BAM Data version *
58

Proponent Names

Report Created
13/06/2023

Date Finalised
To be finalised

Assessment Revision
0

Assessment Type
Scattered Trees

BAM Case Status
Open

BOS entry trigger
Major Project

* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.

Potential Serious and Irreversible Impacts

Nil

Additional Information for Approval

PCTs With Customized Benchmarks

No Changes

Ecosystem Credit Summary

BAM Biodiversity Credit Report (Like for like)

PCT	TEC	HBT Cr	No HBT Cr	Credits
3532-Western Hunter Ironbark-Box Forest	Not a TEC	12	0	12

Credit classes for 3532

Like-for-like options

Class	Trading group	HBT	Credits	IBRA region
North-west Slopes Dry Sclerophyll Woodlands	North-west Slopes Dry Sclerophyll Woodlands >=50% and <70%	Yes	12	Kerrabee, Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

BAM Biodiversity Credit Report (Variations)

Proposal Details

Assessment Id
00040161/BAAS17060/23/00040162

Proposal Name
CWOREZ Kerrabee - RNI1 Stage Scattered Trees

BAM data last updated *
14/04/2023

Assessor Name
Lukas Leslie Clews

Assessor Number
BAAS17060

BAM Data version *
58

Proponent Name(s)

Report Created
13/06/2023

Assessment Type
Scattered Trees

Date Finalised
To be finalised

Assessment Revision
0

BAM Case Status
Open

BOS entry trigger
Major Project

* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.

Potential Serious and Irreversible Impacts

Nil

Additional Information for Approval

PCTs With Customized Benchmarks
No Changes

Ecosystem Credit Summary

PCT	TEC	HBT Cr	No HBT Cr	Credits
3532-Western Hunter Ironbark-Box Forest	Not a TEC	12	0	12

Credit classes for 3532	**Like-for-like options**			
	Class	Trading group	HBT	Credits	IBRA region

North-west Slopes Dry Sclerophyll Woodlands	North-west Slopes Dry Sclerophyll Woodlands >=50% and <70%	Yes	12	Kerrabee, Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

Variation options

Formation	Trading group	HBT	IBRA region
Dry Sclerophyll Forests (Shrub/grass sub-formation)	Tier 3	Yes (including artificial)	IBRA Region: Sydney Basin, or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

BAM Credit Summary Report

Proposal Details

Assessment Id	Proposal Name	BAM data last updated *
00040161/BAAS17060/23/00040162	CWOREZ Kerrabee - RNI1 Stage Scattered Trees	14/04/2023
Assessor Name	Report Created	BAM Data version *
Lukas Leslie Clews	13/06/2023	58
Assessor Number	BAM Case Status	Date Finalised
BAAS17060	Open	To be finalised
Assessment Revision	Assessment Type	BOS entry trigger
0	Scattered Trees	Major Project

* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.

Scattered Trees Credit Requirement

Class	Contains hollows	Number of trees	Ecosystem credits
3532-Western Hunter Ironbark-Box Forest			
3	True	9.0	9
3	True	3.0	3
			12
			12

Species credits for threatened species

The scattered tree module is not applicable. This species much be assessed using chapter 5 of the BAM and BAM-C development module

Lathamus discolor Swift Parrot
Anthochaera phrygia Regent Honeyeater

BAM Predicted Species Report

Proposal Details

Assessment Id	Proposal Name	BAM data last updated *
00040161/BAAS17060/23/00040162	CWOREZ Kerrabee - RNI1 Stage Scattered Trees	14/04/2023
Assessor Name	Report Created	BAM Data version *
Lukas Leslie Clews	13/06/2023	58
Assessor Number	BAM Case Status	Date Finalised
BAAS17060	Open	To be finalised
Assessment Revision	Assessment Type	BOS entry trigger
0	Scattered Trees	Major Project

* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.

Threatened species reliably predicted to utilise the site. No surveys are required for these species. Ecosystem credits apply to these species.

Common Name	Scientific Name
Barking Owl	Ninox connivens
Black Falcon	Falco subniger
Black-breasted Buzzard	Hamirostra melanosternon
Black-chinned Honeyeater (eastern subspecies)	Melithreptus gularis gularis
Brown Treecreeper (eastern subspecies)	Climacteris picumnus victoriae
Dusky Woodswallow	Artamus cyanopterus cyanopterus
Glossy Black-Cockatoo	Calyptorhynchus lathami
Grey-crowned Babbler (eastern subspecies)	Pomatostomus temporalis temporalis
Little Eagle	Hieraaetus morphnoides
Little Lorikeet	Glossopsitta pusilla
Regent Honeyeater	Anthochaera phrygia
Scarlet Robin	Petroica boodang
Speckled Warbler	Chthonicola sagittata
Spotted Harrier	Circus assimilis
Swift Parrot	Lathamus discolor
Varied Sittella	Daphoenositta chrysoptera

White-bellied Sea-Eagle	Haliaeetus leucogaster
White-throated Needletail	Hirundapus caudacutus

Threatened species assessed as not within the vegetation zone(s) for the PCT(s)

Refer to BAR for detailed justification

Common Name	Scientific Name	Justification in the BAM-C

Scattered Tree Report

Proposal Details

Assessment Id
00040161/BAAS17060/23/00040162

Assessment name
CWOREZ Kerrabee - RNI1 Stage Scattered Trees

BAM data last updated *
14/04/2023

Assessor Name
Lukas Leslie Clews

Report Created
13/06/2023

BAM Data version *
58

Assessor Number
BAAS17060

BAM Case Status
Open

Date Finalised
To be finalised

Assessment Revision
0

Assessment Type
Scattered Trees

BOS entry trigger
Major Project

* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.

Scattered Trees

PCT code	PCT name	No. of trees	Species	DBHOB Category	Contain hollows	Class	Assessment required
3532	Western Hunter Ironbark-Box Forest	9	Eucalyptus spp.	>= 50cm	True	3	Visual assessment for hollows, presence of important habitat features and habitat suitability for threatened species

Scattered Tree Report

3532	Western Hunter Ironbark-Box Forest	3	Eucalyptus fibrosa	>= 50cm	True	3	Visual assessment for hollows, presence of important habitat features and habitat suitability for threatened species

BAM Biodiversity Credit Report (Like for like)

Proposal Details

Assessment Id
00038614/BAAS17060/23/00038615

Proposal Name
CWOREZ Kerrabee subregion - Valley of Winds - Scattered Trees

BAM data last updated *
14/04/2023

Assessor Name
Lukas Leslie Clews

Assessor Number
BAAS17060

BAM Data version *
58

Proponent Names

Report Created
13/06/2023

Date Finalised
To be finalised

Assessment Revision
0

Assessment Type
Scattered Trees

BAM Case Status
Open

BOS entry trigger
Major Project

* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.

Potential Serious and Irreversible Impacts

Nil

Additional Information for Approval

PCTs With Customized Benchmarks

No Changes

BAM Biodiversity Credit Report (Like for like)

Ecosystem Credit Summary

PCT	TEC	HBT Cr	No HBT Cr	Credits
281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri	7	0	7
618-White Box x Grey Box - red gum - Rough-barked Apple grassy woodland on rich soils on hills in the upper Hunter Valley	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri	2	0	2

Credit classes for 281

Like-for-like options

TEC	Trading group	HBT	Credits	IBRA region
White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri	-	Yes	7	Kerrabee, Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

BAM Biodiversity Credit Report (Like for like)

Credit classes for 618	Like-for-like options				
	TEC	Trading group	HBT	Credits	IBRA region
	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri	-	Yes	2	Kerrabee, Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

BAM Biodiversity Credit Report (Variations)

Proposal Details

Assessment Id
00038614/BAAS17060/23/00038615

Proposal Name
CWOREZ Kerrabee subregion - Valley of Winds - Scattered Trees

BAM data last updated *
14/04/2023

Assessor Name
Lukas Leslie Clews

Assessor Number
BAAS17060

BAM Data version *
58

Proponent Name(s)

Report Created
13/06/2023

Assessment Type
Scattered Trees

Date Finalised
To be finalised

Assessment Revision
0

BAM Case Status
Open

BOS entry trigger
Major Project

* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.

Potential Serious and Irreversible Impacts

Nil

Additional Information for Approval

PCTs With Customized Benchmarks
No Changes

Ecosystem Credit Summary

BAM Biodiversity Credit Report (Variations)

PCT	TEC	HBT Cr	No HBT Cr	Credits
281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri	7	0	7
618-White Box x Grey Box - red gum - Rough-barked Apple grassy woodland on rich soils on hills in the upper Hunter Valley	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri	2	0	2

Credit classes for 281

Like-for-like options

TEC	Trading group	HBT	Credits	IBRA region
White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri	-	Yes	7	Kerrabee, Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

Credit classes for 618

Like-for-like options

TEC	Trading group	HBT	Credits	IBRA region

	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri	-	Yes	2	Kerrabee, Hunter, Inland Slopes, Liverpool Range, Pilliga, Wollemi and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

BAM Credit Summary Report

Proposal Details

Assessment Id	Proposal Name	BAM data last updated *
00038614/BAAS17060/23/00038615	CWOREZ Kerrabee subregion - Valley of Winds - Scattered Trees	14/04/2023
Assessor Name	**Report Created**	**BAM Data version ***
Lukas Leslie Clews	13/06/2023	58
Assessor Number	**BAM Case Status**	**Date Finalised**
BAAS17060	Open	To be finalised
Assessment Revision	**Assessment Type**	**BOS entry trigger**
0	Scattered Trees	Major Project

* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.

Scattered Trees Credit Requirement

Class	Contains hollows	Number of trees	Ecosystem credits
281-Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion			
3	True	7.0	7
			7
618-White Box x Grey Box - red gum - Rough-barked Apple grassy woodland on rich soils on hills in the upper Hunter Valley			
3	True	2.0	2
			2
			9

Species credits for threatened species

The scattered tree module is not applicable. This species much be assessed using chapter 5 of the BAM and BAM-C development module

Lathamus discolor Swift Parrot
Prasophyllum sp. Wybong Prasophyllum sp. Wybong

BAM Predicted Species Report

Proposal Details

Assessment Id	Proposal Name	BAM data last updated *
00038614/BAAS17060/23/00038615	CWOREZ Kerrabee subregion - Valley of Winds - Scattered Trees	14/04/2023
Assessor Name	Report Created	BAM Data version *
Lukas Leslie Clews	13/06/2023	58
Assessor Number	BAM Case Status	Date Finalised
BAAS17060	Open	To be finalised
Assessment Revision	Assessment Type	BOS entry trigger
0	Scattered Trees	Major Project

* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.

Threatened species reliably predicted to utilise the site. No surveys are required for these species. Ecosystem credits apply to these species.

Common Name	Scientific Name
Barking Owl	Ninox connivens
	Ninox connivens
Black Falcon	Falco subniger
Black-chinned Honeyeater (eastern subspecies)	Melithreptus gularis gularis
Brown Treecreeper (eastern subspecies)	Climacteris picumnus victoriae
Dusky Woodswallow	Artamus cyanopterus cyanopterus
Flame Robin	Petroica phoenicea
Grey-crowned Babbler (eastern subspecies)	Pomatostomus temporalis temporalis
Hooded Robin (south-eastern form)	Melanodryas cucullata cucullata
Little Eagle	Hieraaetus morphnoides
Little Lorikeet	Glossopsitta pusilla
	Glossopsitta pusilla
Masked Owl	Tyto novaehollandiae
Painted Honeyeater	Grantiella picta
	Grantiella picta
Scarlet Robin	Petroica boodang

Speckled Warbler	Chthonicola sagittata
Spotted Harrier	Circus assimilis
Swift Parrot	Lathamus discolor
Varied Sittella	Daphoenositta chrysoptera
White-bellied Sea-Eagle	Haliaeetus leucogaster
White-throated Needletail	Hirundapus caudacutus
	Hirundapus caudacutus
Yellow-bellied Sheathtail-bat	Saccolaimus flaviventris

Threatened species assessed as not within the vegetation zone(s) for the PCT(s)

Refer to BAR for detailed justification

Common Name	Scientific Name	Justification in the BAM-C

Scattered Tree Report

Proposal Details

Assessment Id
00038614/BAAS17060/23/00038615

Assessment name
CWOREZ Kerrabee subregion - Valley of Winds - Scattered Trees

BAM data last updated *
14/04/2023

Assessor Name
Lukas Leslie Clews

Report Created
13/06/2023

BAM Data version *
58

Assessor Number
BAAS17060

BAM Case Status
Open

Date Finalised
To be finalised

Assessment Revision
0

Assessment Type
Scattered Trees

BOS entry trigger
Major Project

* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.

Scattered Trees

Scattered Tree Report

PCT code	PCT name	No. of trees	Species	DBHOB Category	Contain hollows	Class	Assessment required
281	Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion	7	Angophora floribunda	>= 50cm	True	3	Visual assessment for hollows, presence of important habitat features and habitat suitability for threatened species
618	White Box x Grey Box - red gum - Rough-barked Apple grassy woodland on rich soils on hills in the upper Hunter Valley	2	Eucalyptus spp.	>= 50cm	True	3	Visual assessment for hollows, presence of important habitat features and habitat suitability for threatened species

BAM Biodiversity Credit Report (Like for like)

Proposal Details

Assessment Id
00040146/BAAS17060/23/00040147

Proposal Name
CWOREZ Liverpool Range - Valley of the Winds Scattered Trees

BAM data last updated *
14/04/2023

Assessor Name
Lukas Leslie Clews

Assessor Number
BAAS17060

BAM Data version *
58

Proponent Names

Report Created
13/06/2023

Date Finalised
To be finalised

Assessment Revision
0

Assessment Type
Scattered Trees

BAM Case Status
Open

BOS entry trigger
Major Project

* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.

Potential Serious and Irreversible Impacts

Nil

Additional Information for Approval

PCTs With Customized Benchmarks

No Changes

BAM Biodiversity Credit Report (Like for like)

Ecosystem Credit Summary

PCT	TEC	HBT Cr	No HBT Cr	Credits
618-White Box x Grey Box - red gum - Rough-barked Apple grassy woodland on rich soils on hills in the upper Hunter Valley	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri	2	0	2

Credit classes for 618	**Like-for-like options**				
	TEC	Trading group	HBT	Credits	IBRA region
	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri	-	Yes	2	Liverpool Range, Hunter, Kerrabee, Liverpool Plains, Peel and Pilliga. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

BAM Biodiversity Credit Report (Variations)

Proposal Details

Assessment Id
00040146/BAAS17060/23/00040147

Proposal Name
CWOREZ Liverpool Range - Valley of the Winds Scattered Trees

BAM data last updated *
14/04/2023

Assessor Name
Lukas Leslie Clews

Assessor Number
BAAS17060

BAM Data version *
58

Proponent Name(s)

Report Created
13/06/2023

Assessment Type
Scattered Trees

Date Finalised
To be finalised

Assessment Revision
0

BAM Case Status
Open

BOS entry trigger
Major Project

* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.

Potential Serious and Irreversible Impacts

Nil

Additional Information for Approval

PCTs With Customized Benchmarks
No Changes

Ecosystem Credit Summary

BAM Biodiversity Credit Report (Variations)

PCT	TEC	HBT Cr	No HBT Cr	Credits
618-White Box x Grey Box - red gum - Rough-barked Apple grassy woodland on rich soils on hills in the upper Hunter Valley	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri	2	0	2

Credit classes for 618

Like-for-like options

TEC	Trading group	HBT	Credits	IBRA region
White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri	-	Yes	2	Liverpool Range, Hunter, Kerrabee, Liverpool Plains, Peel and Pilliga. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

BAM Credit Summary Report

Proposal Details

Assessment Id	Proposal Name	BAM data last updated *
00040146/BAAS17060/23/00040147	CWOREZ Liverpool Range - Valley of the Winds Scattered Trees	14/04/2023
Assessor Name	**Report Created**	**BAM Data version ***
Lukas Leslie Clews	13/06/2023	58
Assessor Number	**BAM Case Status**	**Date Finalised**
BAAS17060	Open	To be finalised
Assessment Revision	**Assessment Type**	**BOS entry trigger**
0	Scattered Trees	Major Project

* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.

Scattered Trees Credit Requirement

Class	Contains hollows	Number of trees	Ecosystem credits
618-White Box x Grey Box - red gum - Rough-barked Apple grassy woodland on rich soils on hills in the upper Hunter Valley			
3	True	2.0	2
			2
			2

Species credits for threatened species

The scattered tree module is not applicable. This species much be assessed using chapter 5 of the BAM and BAM-C development module

Lathamus discolor Swift Parrot
Anthochaera phrygia Regent Honeyeater

BAM Predicted Species Report

Proposal Details

Assessment Id	Proposal Name	BAM data last updated *
00040146/BAAS17060/23/00040147	CWOREZ Liverpool Range - Valley of the Winds Scattered Trees	14/04/2023
Assessor Name	**Report Created**	**BAM Data version ***
Lukas Leslie Clews	13/06/2023	58
Assessor Number	**BAM Case Status**	**Date Finalised**
BAAS17060	Open	To be finalised
Assessment Revision	**Assessment Type**	**BOS entry trigger**
0	Scattered Trees	Major Project

* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.

Threatened species reliably predicted to utilise the site. No surveys are required for these species. Ecosystem credits apply to these species.

Common Name	Scientific Name
Barking Owl	Ninox connivens
Little Lorikeet	Glossopsitta pusilla
Painted Honeyeater	Grantiella picta
Regent Honeyeater	Anthochaera phrygia
Swift Parrot	Lathamus discolor
White-throated Needletail	Hirundapus caudacutus

Threatened species assessed as not within the vegetation zone(s) for the PCT(s)

Refer to BAR for detailed justification

Common Name	Scientific Name	Justification in the BAM-C

Scattered Tree Report

Proposal Details

Assessment Id
00040146/BAAS17060/23/00040147

Assessment name
CWOREZ Liverpool Range - Valley of the Winds Scattered Trees

BAM data last updated *
14/04/2023

Assessor Name
Lukas Leslie Clews

Report Created
13/06/2023

BAM Data version *
58

Assessor Number
BAAS17060

BAM Case Status
Open

Date Finalised
To be finalised

Assessment Revision
0

Assessment Type
Scattered Trees

BOS entry trigger
Major Project

* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.

Scattered Trees

PCT code	PCT name	No. of trees	Species	DBHOB Category	Contain hollows	Class	Assessment required
618	White Box x Grey Box - red gum - Rough-barked Apple grassy woodland on rich soils on hills in the upper Hunter Valley	2	Eucalyptus spp.	>= 50cm	True	3	Visual assessment for hollows, presence of important habitat features and habitat suitability for threatened species

BAM Biodiversity Credit Report (Like for like)

Proposal Details

Assessment Id
00038606/BAAS17060/23/00038607

Proposal Name
CWOREZ Pilliga subregion - Liverpool Range - Scattered Trees

BAM data last updated *
14/04/2023

Assessor Name
Lukas Leslie Clews

Assessor Number
BAAS17060

BAM Data version *
58

Proponent Names

Report Created
13/06/2023

Date Finalised
To be finalised

Assessment Revision
0

Assessment Type
Scattered Trees

BAM Case Status
Open

BOS entry trigger
Major Project

* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.

Potential Serious and Irreversible Impacts

Nil

Additional Information for Approval

PCTs With Customized Benchmarks

No Changes

BAM Biodiversity Credit Report (Like for like)

Ecosystem Credit Summary

PCT	TEC	HBT Cr	No HBT Cr	Credits
483-Grey Box x White Box grassy open woodland on basalt hills in the Merriwa region, upper Hunter Valley	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri	1	0	1
477-Inland Scribbly Gum - Red Stringybark - Black Cypress Pine - Red Ironbark open forest on sandstone hills in the southern Brigalow Belt South Bioregion and northern NSW South Western Slopes Bioregion	Not a TEC	1	0	1

Credit classes for 477

Like-for-like options

Class	Trading group	HBT	Credits	IBRA region
Western Slopes Dry Sclerophyll Forests	Western Slopes Dry Sclerophyll Forests <50%	Yes	1	Liverpool Range, Hunter, Kerrabee, Liverpool Plains, Peel and Pilliga. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

Credit classes for 483

Like-for-like options

TEC	Trading group	HBT	Credits	IBRA region

	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri	-	Yes	1	Liverpool Range, Hunter, Kerrabee, Liverpool Plains, Peel and Pilliga. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

BAM Biodiversity Credit Report (Variations)

Proposal Details

Assessment Id
00038606/BAAS17060/23/00038607

Proposal Name
CWOREZ Pilliga subregion - Liverpool Range - Scattered Trees

BAM data last updated *
14/04/2023

Assessor Name
Lukas Leslie Clews

Assessor Number
BAAS17060

BAM Data version *
58

Proponent Name(s)

Report Created
13/06/2023

Assessment Type
Scattered Trees

Date Finalised
To be finalised

Assessment Revision
0

BAM Case Status
Open

BOS entry trigger
Major Project

* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.

Potential Serious and Irreversible Impacts

Nil

Additional Information for Approval

PCTs With Customized Benchmarks
No Changes

Ecosystem Credit Summary

PCT	TEC	HBT Cr	No HBT Cr	Credits
477-Inland Scribbly Gum - Red Stringybark - Black Cypress Pine - Red Ironbark open forest on sandstone hills in the southern Brigalow Belt South Bioregion and northern NSW South Western Slopes Bioregion	Not a TEC	1	0	1

483-Grey Box x White Box grassy open woodland on basalt hills in the Merriwa region, upper Hunter Valley	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri	1	0	1

Credit classes for 477

Like-for-like options

Class	Trading group	HBT	Credits	IBRA region
Western Slopes Dry Sclerophyll Forests	Western Slopes Dry Sclerophyll Forests <50%	Yes	1	Liverpool Range, Hunter, Kerrabee, Liverpool Plains, Peel and Pilliga. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

Variation options

Formation	Trading group	HBT	IBRA region
Dry Sclerophyll Forests (Shrubby sub-formation)	Tier 4	Yes (including artificial)	IBRA Region: Brigalow Belt South, or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

Credit classes for 483

Like-for-like options

TEC	Trading group	HBT	Credits	IBRA region

	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri	-	Yes	1	Liverpool Range, Hunter, Kerrabee, Liverpool Plains, Peel and Pilliga. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

BAM Credit Summary Report

Proposal Details

Assessment Id	Proposal Name	BAM data last updated *
00038606/BAAS17060/23/00038607	CWOREZ Pilliga subregion - Liverpool Range - Scattered Trees	14/04/2023
Assessor Name	**Report Created**	**BAM Data version ***
Lukas Leslie Clews	13/06/2023	58
Assessor Number	**BAM Case Status**	**Date Finalised**
BAAS17060	Open	To be finalised
Assessment Revision	**Assessment Type**	**BOS entry trigger**
0	Scattered Trees	Major Project

* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.

Scattered Trees Credit Requirement

Class	Contains hollows	Number of trees	Ecosystem credits
483-Grey Box x White Box grassy open woodland on basalt hills in the Merriwa region, upper Hunter Valley			
3	True	1.0	1
			1
477-Inland Scribbly Gum - Red Stringybark - Black Cypress Pine - Red Ironbark open forest on sandstone hills in the southern Brigalow Belt South Bioregion and northern NSW South Western Slopes Bioregion			
3	True	1.0	1
			1
			2

Species credits for threatened species

The scattered tree module is not applicable. This species much be assessed using chapter 5 of the BAM and BAM-C development module

Anthochaera phrygia Regent Honeyeater

BAM Predicted Species Report

Proposal Details

Assessment Id	Proposal Name	BAM data last updated *
00038606/BAAS17060/23/00038607	CWOREZ Pilliga subregion - Liverpool Range - Scattered Trees	14/04/2023
Assessor Name	Report Created	BAM Data version *
Lukas Leslie Clews	13/06/2023	58
Assessor Number	BAM Case Status	Date Finalised
BAAS17060	Open	To be finalised
Assessment Revision	Assessment Type	BOS entry trigger
0	Scattered Trees	Major Project

* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.

Threatened species reliably predicted to utilise the site. No surveys are required for these species. Ecosystem credits apply to these species.

Common Name	Scientific Name
Barking Owl	Ninox connivens
	Ninox connivens
Brown Treecreeper (eastern subspecies)	Climacteris picumnus victoriae
Dusky Woodswallow	Artamus cyanopterus cyanopterus
Flame Robin	Petroica phoenicea
Glossy Black-Cockatoo	Calyptorhynchus lathami
Hooded Robin (south-eastern form)	Melanodryas cucullata cucullata
Little Eagle	Hieraaetus morphnoides
Little Lorikeet	Glossopsitta pusilla
	Glossopsitta pusilla
Masked Owl	Tyto novaehollandiae
Painted Honeyeater	Grantiella picta
	Grantiella picta
Regent Honeyeater	Anthochaera phrygia
Scarlet Robin	Petroica boodang
Speckled Warbler	Chthonicola sagittata
Spotted Harrier	Circus assimilis
Swift Parrot	Lathamus discolor

Swift Parrot	Lathamus discolor
Varied Sittella	Daphoenositta chrysoptera
White-throated Needletail	Hirundapus caudacutus
	Hirundapus caudacutus
Yellow-bellied Sheathtail-bat	Saccolaimus flaviventris

Threatened species assessed as not within the vegetation zone(s) for the PCT(s)

Refer to BAR for detailed justification

Common Name	Scientific Name	Justification in the BAM-C

Scattered Tree Report

Proposal Details

Assessment Id
00038606/BAAS17060/23/00038607

Assessment name
CWOREZ Pilliga subregion - Liverpool Range - Scattered Trees

BAM data last updated *
14/04/2023

Assessor Name
Lukas Leslie Clews

Report Created
13/06/2023

BAM Data version *
58

Assessor Number
BAAS17060

BAM Case Status
Open

Date Finalised
To be finalised

Assessment Revision
0

Assessment Type
Scattered Trees

BOS entry trigger
Major Project

* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.

Scattered Trees

Scattered Tree Report

PCT code	PCT name	No. of trees	Species	DBHOB Category	Contain hollows	Class	Assessment required
477	Inland Scribbly Gum - Red Stringybark - Black Cypress Pine - Red Ironbark open forest on sandstone hills in the southern Brigalow Belt South Bioregion and northern NSW South Western Slopes Bioregion	1	Eucalyptus crebra	>= 50cm	True	3	Visual assessment for hollows, presence of important habitat features and habitat suitability for threatened species
483	Grey Box x White Box grassy open woodland on basalt hills in the Merriwa region, upper Hunter Valley	1	Eucalyptus spp.	>= 50cm	True	3	Visual assessment for hollows, presence of important habitat features and habitat suitability for threatened species

BAM Biodiversity Credit Report (Like for like)

Proposal Details

Assessment Id
00038601/BAAS17060/23/00038603

Proposal Name
CWOREZ Talbragar Valley subregion - CFG connection to Spicers Creek wind farm - Scattered Trees

BAM data last updated *
14/04/2023

Assessor Name
Lukas Leslie Clews

Assessor Number
BAAS17060

BAM Data version *
58

Proponent Names

Report Created
13/06/2023

Date Finalised
To be finalised

Assessment Revision
0

Assessment Type
Scattered Trees

BAM Case Status
Open

BOS entry trigger
Major Project

* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.

Potential Serious and Irreversible Impacts

Nil

Additional Information for Approval

PCTs With Customized Benchmarks

No Changes

BAM Biodiversity Credit Report (Like for like)

Ecosystem Credit Summary

PCT	TEC	HBT Cr	No HBT Cr	Credits
599-Blakely's Red Gum - Yellow Box grassy tall woodland on flats and hills in the Brigalow Belt South Bioregion and Nandewar Bioregion	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri	30	0	30
202-Fuzzy Box woodland on colluvium and alluvial flats in the Brigalow Belt South Bioregion (including Pilliga) and Nandewar Bioregion	Fuzzy Box Woodland on alluvial Soils of the South Western Slopes, Darling Riverine Plains and Brigalow Belt South Bioregions	6	0	6

Credit classes for 202

Like-for-like options

TEC	Trading group	HBT	Credits	IBRA region
Fuzzy Box Woodland on alluvial Soils of the South Western Slopes, Darling Riverine Plains and Brigalow Belt South Bioregions	-	Yes	6	Talbragar Valley, Inland Slopes and Pilliga. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

Credit classes for 599

Like-for-like options

TEC	Trading group	HBT	Credits	IBRA region

	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri	-	Yes	30	Talbragar Valley, Inland Slopes and Pilliga. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

BAM Biodiversity Credit Report (Variations)

Proposal Details

Assessment Id
00038601/BAAS17060/23/00038603

Proposal Name
CWOREZ Talbragar Valley subregion - CFG connection to Spicers Creek wind farm - Scattered Trees

BAM data last updated *
14/04/2023

Assessor Name
Lukas Leslie Clews

Assessor Number
BAAS17060

BAM Data version *
58

Proponent Name(s)

Report Created
13/06/2023

Assessment Type
Scattered Trees

Date Finalised
To be finalised

Assessment Revision
0

BAM Case Status
Open

BOS entry trigger
Major Project

* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.

Potential Serious and Irreversible Impacts

Nil

Additional Information for Approval

PCTs With Customized Benchmarks
No Changes

Ecosystem Credit Summary

PCT	TEC	HBT Cr	No HBT Cr	Credits
202-Fuzzy Box woodland on colluvium and alluvial flats in the Brigalow Belt South Bioregion (including Pilliga) and Nandewar Bioregion	Fuzzy Box Woodland on alluvial Soils of the South Western Slopes, Darling Riverine Plains and Brigalow Belt South Bioregions	6	0	6

599-Blakely's Red Gum - Yellow Box grassy tall woodland on flats and hills in the Brigalow Belt South Bioregion and Nandewar Bioregion	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri	30	0	30

Credit classes for 202

Like-for-like options

TEC	Trading group	HBT	Credits	IBRA region
Fuzzy Box Woodland on alluvial Soils of the South Western Slopes, Darling Riverine Plains and Brigalow Belt South Bioregions	-	Yes	6	Talbragar Valley, Inland Slopes and Pilliga. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

Variation options

Formation	Trading group	HBT	IBRA region
Grassy Woodlands	Tier 3	Yes (including artificial)	IBRA Region: Brigalow Belt South, or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

Credit classes for 599

Like-for-like options

TEC	Trading group	HBT	Credits	IBRA region

	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Ri	-	Yes	30	Talbragar Valley, Inland Slopes and Pilliga. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

BAM Credit Summary Report

Proposal Details

Assessment Id	Proposal Name	BAM data last updated *
00038601/BAAS17060/23/00038603	CWOREZ Talbragar Valley subregion - CFG connection to Spicers Creek wind farm - Scattered Trees	14/04/2023
Assessor Name	**Report Created**	**BAM Data version ***
Lukas Leslie Clews	13/06/2023	58
Assessor Number	**BAM Case Status**	**Date Finalised**
BAAS17060	Open	To be finalised
Assessment Revision	**Assessment Type**	**BOS entry trigger**
0	Scattered Trees	Major Project

* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.

Scattered Trees Credit Requirement

Class	Contains hollows	Number of trees	Ecosystem credits
599-Blakely's Red Gum - Yellow Box grassy tall woodland on flats and hills in the Brigalow Belt South Bioregion and Nandewar Bioregion			
3	True	30.0	30
			30
202-Fuzzy Box woodland on colluvium and alluvial flats in the Brigalow Belt South Bioregion (including Pilliga) and Nandewar Bioregion			
3	True	6.0	6
			6
			36

Species credits for threatened species

The scattered tree module is not applicable. This species much be assessed using chapter 5 of the BAM and BAM-C development module

Anthochaera phrygia
Regent Honeyeater

BAM Predicted Species Report

Proposal Details

Assessment Id	Proposal Name	BAM data last updated *
00038601/BAAS17060/23/00038603	CWOREZ Talbragar Valley subregion - CFG connection to Spicers Creek wind farm - Scattered Trees	14/04/2023
Assessor Name	Report Created	BAM Data version *
Lukas Leslie Clews	13/06/2023	58
Assessor Number	BAM Case Status	Date Finalised
BAAS17060	Open	To be finalised
Assessment Revision	Assessment Type	BOS entry trigger
0	Scattered Trees	Major Project

* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.

Threatened species reliably predicted to utilise the site. No surveys are required for these species. Ecosystem credits apply to these species.

Common Name	Scientific Name
Barking Owl	Ninox connivens
	Ninox connivens
Black Falcon	Falco subniger
Black-chinned Honeyeater (eastern subspecies)	Melithreptus gularis gularis
	Melithreptus gularis gularis
Brown Treecreeper (eastern subspecies)	Climacteris picumnus victoriae
	Climacteris picumnus victoriae
Dusky Woodswallow	Artamus cyanopterus cyanopterus
	Artamus cyanopterus cyanopterus
Flame Robin	Petroica phoenicea
Glossy Black-Cockatoo	Calyptorhynchus lathami
	Calyptorhynchus lathami
Grey-crowned Babbler (eastern subspecies)	Pomatostomus temporalis temporalis
	Pomatostomus temporalis temporalis
Hooded Robin (south-eastern form)	Melanodryas cucullata cucullata
	Melanodryas cucullata cucullata

Little Eagle	Hieraaetus morphnoides
	Hieraaetus morphnoides
Little Lorikeet	Glossopsitta pusilla
	Glossopsitta pusilla
Little Pied Bat	Chalinolobus picatus
	Chalinolobus picatus
Masked Owl	Tyto novaehollandiae
	Tyto novaehollandiae
Painted Honeyeater	Grantiella picta
	Grantiella picta
Regent Honeyeater	Anthochaera phrygia
	Anthochaera phrygia
Scarlet Robin	Petroica boodang
	Petroica boodang
Speckled Warbler	Chthonicola sagittata
	Chthonicola sagittata
Spotted Harrier	Circus assimilis
Superb Parrot	Polytelis swainsonii
Swift Parrot	Lathamus discolor
	Lathamus discolor
Varied Sittella	Daphoenositta chrysoptera
	Daphoenositta chrysoptera
White-bellied Sea-Eagle	Haliaeetus leucogaster
	Haliaeetus leucogaster
White-throated Needletail	Hirundapus caudacutus
	Hirundapus caudacutus
Yellow-bellied Sheathtail-bat	Saccolaimus flaviventris
	Saccolaimus flaviventris

Threatened species assessed as not within the vegetation zone(s) for the PCT(s)

Refer to BAR for detailed justification

Common Name	Scientific Name	Justification in the BAM-C

Scattered Tree Report

Proposal Details

Assessment Id
00038601/BAAS17060/23/00038603

Assessment name
CWOREZ Talbragar Valley subregion - CFG connection to Spicers Creek wind farm - Scattered Trees

BAM data last updated *
14/04/2023

Assessor Name
Lukas Leslie Clews

Report Created
13/06/2023

BAM Data version *
58

Assessor Number
BAAS17060

BAM Case Status
Open

Date Finalised
To be finalised

Assessment Revision
0

Assessment Type
Scattered Trees

BOS entry trigger
Major Project

* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.

Scattered Trees

PCT code	PCT name	No. of trees	Species	DBHOB Category	Contain hollows	Class	Assessment required
202	Fuzzy Box woodland on colluvium and alluvial flats in the Brigalow Belt South Bioregion (including Pilliga) and Nandewar Bioregion	6	Eucalyptus spp.	>= 50cm	True	3	Visual assessment for hollows, presence of important habitat features and habitat suitability for threatened species

Scattered Tree Report

599	Blakely's Red Gum - Yellow Box grassy tall woodland on flats and hills in the Brigalow Belt South Bioregion and Nandewar Bioregion	30	Eucalyptus spp.	>= 50cm	True	3	Visual assessment for hollows, presence of important habitat features and habitat suitability for threatened species

BAM Biodiversity Credit Report (Like for like)

Proposal Details

Assessment Id
00038586/BAAS17060/23/00038587

Proposal Name
CWOREZ Talbragar Valley subregion - RNI1 Scattered Trees

BAM data last updated *
14/04/2023

Assessor Name
Lukas Leslie Clews

Assessor Number
BAAS17060

BAM Data version *
58

Proponent Names

Report Created
13/06/2023

Date Finalised
To be finalised

Assessment Revision
0

Assessment Type
Scattered Trees

BAM Case Status
Open

BOS entry trigger
Major Project

* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.

Potential Serious and Irreversible Impacts

Nil

Additional Information for Approval

PCTs With Customized Benchmarks

No Changes

Ecosystem Credit Summary

BAM Biodiversity Credit Report (Like for like)

PCT	TEC	HBT Cr	No HBT Cr	Credits
81-Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion	Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions	22	1	23

Credit classes for 81

Like-for-like options

TEC	Trading group	HBT	Credits	IBRA region
Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions	-	Yes	22	Talbragar Valley, Inland Slopes and Pilliga. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions	-	No	1	Talbragar Valley, Inland Slopes and Pilliga. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

BAM Biodiversity Credit Report (Variations)

Proposal Details

Assessment Id
00038586/BAAS17060/23/00038587

Proposal Name
CWOREZ Talbragar Valley subregion - RNI1 Scattered Trees

BAM data last updated *
14/04/2023

Assessor Name
Lukas Leslie Clews

Assessor Number
BAAS17060

BAM Data version *
58

Proponent Name(s)

Report Created
13/06/2023

Assessment Type
Scattered Trees

Date Finalised
To be finalised

Assessment Revision
0

BAM Case Status
Open

BOS entry trigger
Major Project

* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.

Potential Serious and Irreversible Impacts

Nil

Additional Information for Approval

PCTs With Customized Benchmarks
No Changes

Ecosystem Credit Summary

PCT	TEC	HBT Cr	No HBT Cr	Credits
81-Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion	Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions	22	1	23

BAM Biodiversity Credit Report (Variations)

Credit classes for 81

Like-for-like options

TEC	Trading group	HBT	Credits	IBRA region
Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions	-	Yes	22	Talbragar Valley, Inland Slopes and Pilliga. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions	-	No	1	Talbragar Valley, Inland Slopes and Pilliga. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

Variation options

Formation	Trading group	HBT	IBRA region
Grassy Woodlands	Tier 3	Yes (including artificial)	IBRA Region: Brigalow Belt South, or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

BAM Credit Summary Report

Proposal Details

Assessment Id	Proposal Name	BAM data last updated *
00038586/BAAS17060/23/00038587	CWOREZ Talbragar Valley subregion - RNI1 Scattered Trees	14/04/2023
Assessor Name	**Report Created**	**BAM Data version ***
Lukas Leslie Clews	13/06/2023	58
Assessor Number	**BAM Case Status**	**Date Finalised**
BAAS17060	Open	To be finalised
Assessment Revision	**Assessment Type**	**BOS entry trigger**
0	Scattered Trees	Major Project

* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.

Scattered Trees Credit Requirement

Class	Contains hollows	Number of trees	Ecosystem credits
81-Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion			
2	True	1.0	1
3	True	12.0	12
2	True	2.0	2
2	False	1.0	1
2	True	4.0	3
3	True	1.0	1
3	True	2.0	2
3	True	1.0	1
			23
			23

Species credits for threatened species

The scattered tree module is not applicable. This species much be assessed using chapter 5 of the BAM and BAM-C development module

Anthochaera phrygia
Regent Honeyeater

BAM Predicted Species Report

Proposal Details

Assessment Id	Proposal Name	BAM data last updated *
00038586/BAAS17060/23/00038587	CWOREZ Talbragar Valley subregion - RNI1 Scattered Trees	14/04/2023
Assessor Name	Report Created	BAM Data version *
Lukas Leslie Clews	13/06/2023	58
Assessor Number	BAM Case Status	Date Finalised
BAAS17060	Open	To be finalised
Assessment Revision	Assessment Type	BOS entry trigger
0	Scattered Trees	Major Project

* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.

Threatened species reliably predicted to utilise the site. No surveys are required for these species. Ecosystem credits apply to these species.

Common Name	Scientific Name
Barking Owl	Ninox connivens
Black-chinned Honeyeater (eastern subspecies)	Melithreptus gularis gularis
Brown Treecreeper (eastern subspecies)	Climacteris picumnus victoriae
Dusky Woodswallow	Artamus cyanopterus cyanopterus
Glossy Black-Cockatoo	Calyptorhynchus lathami
Grey-crowned Babbler (eastern subspecies)	Pomatostomus temporalis temporalis
Hooded Robin (south-eastern form)	Melanodryas cucullata cucullata
Little Eagle	Hieraaetus morphnoides
Little Lorikeet	Glossopsitta pusilla
Little Pied Bat	Chalinolobus picatus
Major Mitchell's Cockatoo	Lophochroa leadbeateri
Masked Owl	Tyto novaehollandiae
Painted Honeyeater	Grantiella picta
Regent Honeyeater	Anthochaera phrygia
Scarlet Robin	Petroica boodang
Speckled Warbler	Chthonicola sagittata

Superb Parrot	Polytelis swainsonii
Swift Parrot	Lathamus discolor
Varied Sittella	Daphoenositta chrysoptera
White-bellied Sea-Eagle	Haliaeetus leucogaster
White-throated Needletail	Hirundapus caudacutus
Yellow-bellied Sheathtail-bat	Saccolaimus flaviventris

Threatened species assessed as not within the vegetation zone(s) for the PCT(s)

Refer to BAR for detailed justification

Common Name	Scientific Name	Justification in the BAM-C

Scattered Tree Report

Proposal Details

Assessment Id
00038586/BAAS17060/23/00038587

Assessment name
CWOREZ Talbragar Valley subregion - RNI1 Scattered Trees

BAM data last updated *
14/04/2023

Assessor Name
Lukas Leslie Clews

Report Created
13/06/2023

BAM Data version *
58

Assessor Number
BAAS17060

BAM Case Status
Open

Date Finalised
To be finalised

Assessment Revision
0

Assessment Type
Scattered Trees

BOS entry trigger
Major Project

* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.

Scattered Trees

PCT code	PCT name	No. of trees	Species	DBHOB Category	Contain hollows	Class	Assessment required
81	Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion	1	Eucalyptus spp.	>= 20cm and <50cm	True	2	Visual assessment for hollows, presence of important habitat features and habitat suitability for threatened species

Scattered Tree Report

81	Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion	12	Eucalyptus spp.	>= 50cm	True	3	Visual assessment for hollows, presence of important habitat features and habitat suitability for threatened species
81	Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion	2	Eucalyptus microcarpa	>= 20cm and <50cm	True	2	Visual assessment for hollows, presence of important habitat features and habitat suitability for threatened species
81	Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion	1	Eucalyptus blakelyi	>= 20cm and <50cm	False	2	Visual assessment for hollows, presence of important habitat features and habitat suitability for threatened species
81	Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion	4	Eucalyptus blakelyi	>= 20cm and <50cm	True	2	Visual assessment for hollows, presence of important habitat features and habitat suitability for threatened species
81	Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion	1	Eucalyptus camaldulensis	>= 50cm	True	3	Visual assessment for hollows, presence of important habitat features and habitat suitability for threatened species
81	Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion	2	Eucalyptus melliodora	>= 50cm	True	3	Visual assessment for hollows, presence of important habitat features and habitat suitability for threatened species

Scattered Tree Report

81	Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion	1	Eucalyptus microcarpa	>= 50cm	True	3	Visual assessment for hollows, presence of important habitat features and habitat suitability for threatened species

Appendix F

Herbarium correspondence

Clews, Lukas

From:	Zimmer, Heidi (NCMI, Black Mountain) <Heidi.Zimmer@csiro.au>
Sent:	Wednesday, November 2, 2022 9:23 AM
To:	Clews, Lukas
Cc:	Clements, Mark (NCMI, Black Mountain); Albrecht, Dave (NCMI, Black Mountain)
Subject:	Orchid specimen

Dear Lukas,

I am writing with respect to the specimen you submitted to the ANH on 21/9/22. Mark Clements has had some time to review the photos, specimen and location information and he believes it is likely to be Paraprasophyllum patens, or a close relative thereof.

Yours truly,

Heidi Zimmer

Dr Heidi Zimmer
Research Scientist (Botany), Centre for Australian National Biodiversity Research
E Heidi.Zimmer@csiro.au T +61 421551147
CSIRO, Australian National Herbarium, Clunies Ross Street, Canberra, ACT 2601
Post to: CANBR, GPO Box 1700, Canberra ACT 2601

Clews, Lukas

From: Zimmer, Heidi (NCMI, Black Mountain) <Heidi.Zimmer@csiro.au>
Sent: Tuesday, November 22, 2022 3:20 PM
To: Clews, Lukas
Subject: Paraprasophyllum patens

Dear Lukas,

I am writing with respect to the sample you submitted to the ANH on 20/10/22. Mark Clements and I have determined this to be a specimen of Paraprasophyllum patens.

Cheers,

Heidi

Dr Heidi Zimmer
Research Scientist (Botany), Centre for Australian National Biodiversity Research
E Heidi.Zimmer@csiro.au T +61 421551147
CSIRO, Australian National Herbarium, Clunies Ross Street, Canberra, ACT 2601
Post to: CANBR, GPO Box 1700, Canberra ACT 2601

The Royal
BOTANIC GARDENS
& Domain Trust

National Herbarium of New South Wales

Mr Lukas CLEWS
WSP Pty Ltd
43 Hersey St
Blaxland, NSW 2774

BIS Enquiry No: 22080
Botanical.Is@botanicgardens.nsw.gov.au
Ph. No: (02) 4631 5135
Date: 15th May 2023

Dear Lukas,

Re: *Prasophyllum* – specimen from Tallawang – 55H – 733647mE : 6430676mN

Your specimen has been determined as:

Prasophyllum campestre – det. A.E. Orme, 15th May 2023.

The dimensions of floral segments are all within the range for *P. campestre*. In most respects, *P. petilum* is smaller. The labellum shape and dimensions from several flowers in your specimen are a good match for *P. campestre*. Also, the labellum in *P. petilum* is shortly stalked, where in *P. campestre* (and your specimen) they are sessile.

We have retained your specimen for the herbarium collection.

Yours sincerely,

Andrew Orme
Identification Technical Officer
Botanical Identification Service

The Royal
BOTANIC GARDENS
& Domain Trust

National Herbarium of New South Wales

Sebastian MILLER
WSP-ecology
Level 27/680 George Street
Sydney, NSW 2000
AUSTRALIA

BIS Enquiry No: 22161B
Botanical.Is@botanicgardens.nsw.gov.au
Ph. No: (02) 4631 5135
Date: 16 January 2023

Dear Sebastian,

This reply replaces my previous one.

Thank you for your enquiry of 10-Jan-23. We are happy to provide the following information:

Re: Specimen 1: Eucalypt from -32.1149040 149.8923970 and Specimen 2: Eucalypt from-32.1290760 149.9170380

Specimen 1: *Eucalyptus* probably *cannonii* or *E. cannonii—macrorhyncha* Det. SF McCune 16 Jan 2023.

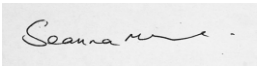
Specimen 2: *Eucalyptus cannonii* or *E. cannonii—macrorhyncha* Det. SF McCune 16 Jan 2023 – retained for the Herbarium collection.

Both specimens are windfall pieces and specimen 1 has eroded features while number 2 is of better quality. Looking at both specimens together, they appear to be the same taxon. Number 2 does have wider fruit with extravagantly exserted valves, consistent with *E. cannonii*. Intergrades between *E. cannonii* and *E. macrorhyncha* tend to have the buds of one and the fruit of the other taxon. Without fresh material, including fruit and mature buds it is difficult to give you a definitive identification.

An invoice for $55.00 (incl. GST) will be forwarded to you separately by our finance section to cover cost of identification.

Thank you for your enquiry.

Yours sincerely,



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visit NSW Flora Online at plantnet.rbgsyd.nsw.gov.au
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NSW GOVERNMENT | Planning, Industry & Environment

Seanna McCune
Identification Senior Technical Officer
Botanical Identification Service

The Royal
BOTANIC GARDENS
& Domain Trust

National Herbarium of New South Wales

Sebastian MILLER
WSP-ecology
Level 27/680 George Street
Sydney, NSW 2000
AUSTRALIA

BIS Enquiry No: 22189
Botanical.Is@botanicgardens.nsw.gov.au
Ph. No: (02) 4631 5135
Date: 7 February 2023

Dear Sebastian,

Re: Two eucalypt samples from Merotherie, collected 24 Jan 2023

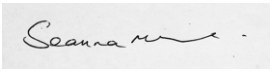
Sample 1. The fruit has a distinct medial rim and more strongly exserted valves suggesting that it is closer to ***Eucalyptus cannonii.*** But the buds are not angular - pointing to either a mixed collection of possible ***E. cannonii*** and ***E. macrorhyncha*** or an intergrade between these two species.

Sample 2***. E. macrorhyncha*** Det. S McCune 7 Feb 2023 - the buds are not angular and the fruit does not have a distinct medial rim.

An invoice for $55.00 (incl. GST) will be forwarded to you separately by our finance section to cover cost of identification.

Thank you for your enquiry.

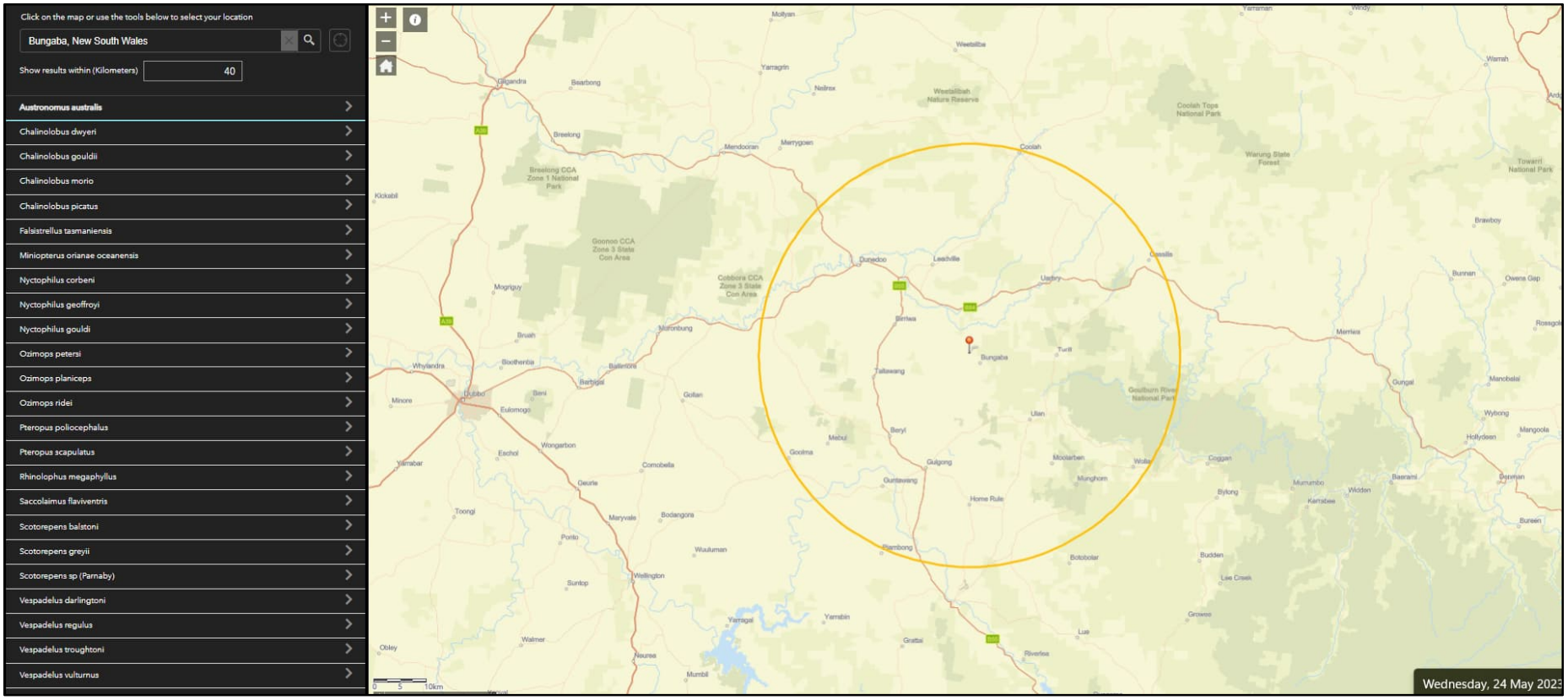
Yours sincerely,



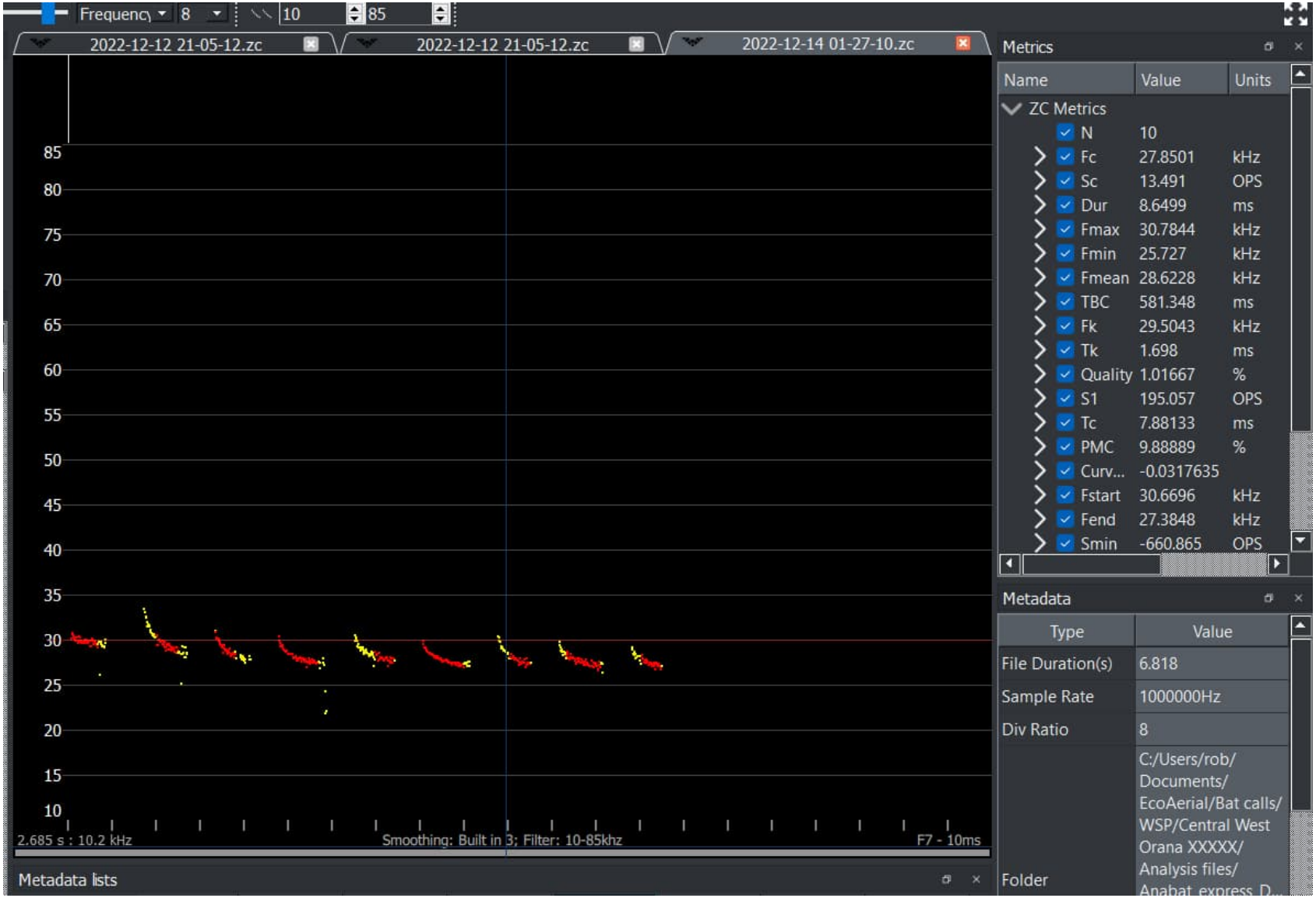
Seanna McCune
Identification Senior Technical Officer
Botanical Identification Service

Appendix G

Microbat survey results


Click on the map or use the tools below to select your location
Bungaba, New South Wales
Show results within (Kilometers)
40
Austronomus australis
Chalinolobus dwyeri
Chalinolobus gouldii
Chalinolobus morio
Chalinolobus picatus
Falsistrellus tasmaniensis
Miniopterus orianae oceanensis
Nyctophilus corbeni
Nyctophilus geoffroyi
Nyctophilus gouldi
Ozimops petersi
Ozimops planiceps
Ozimops ridei
Pteropus poliocephalus
Pteropus scapulatus
Rhinolophus megaphyllus
Saccolaimus flaviventris
Scotorepens balstoni
Scotorepens greyii
Scotorepens sp (Parnaby)
Vespadelus darlingtoni
Vespadelus regulus
Vespadelus troughtoni
Vespadelus vulturnus
Wednesday, 24 May 2023

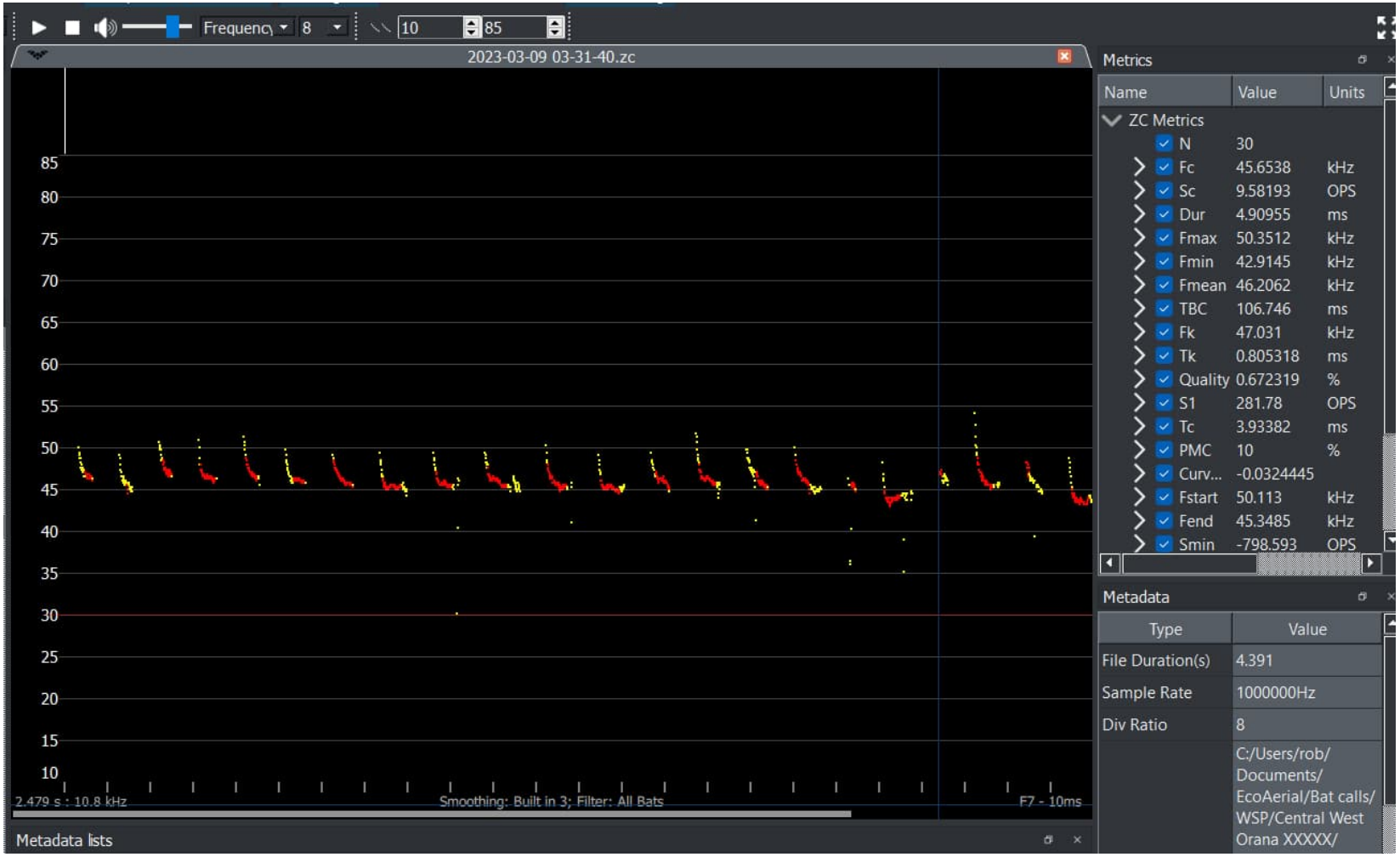
Southern freetail bat



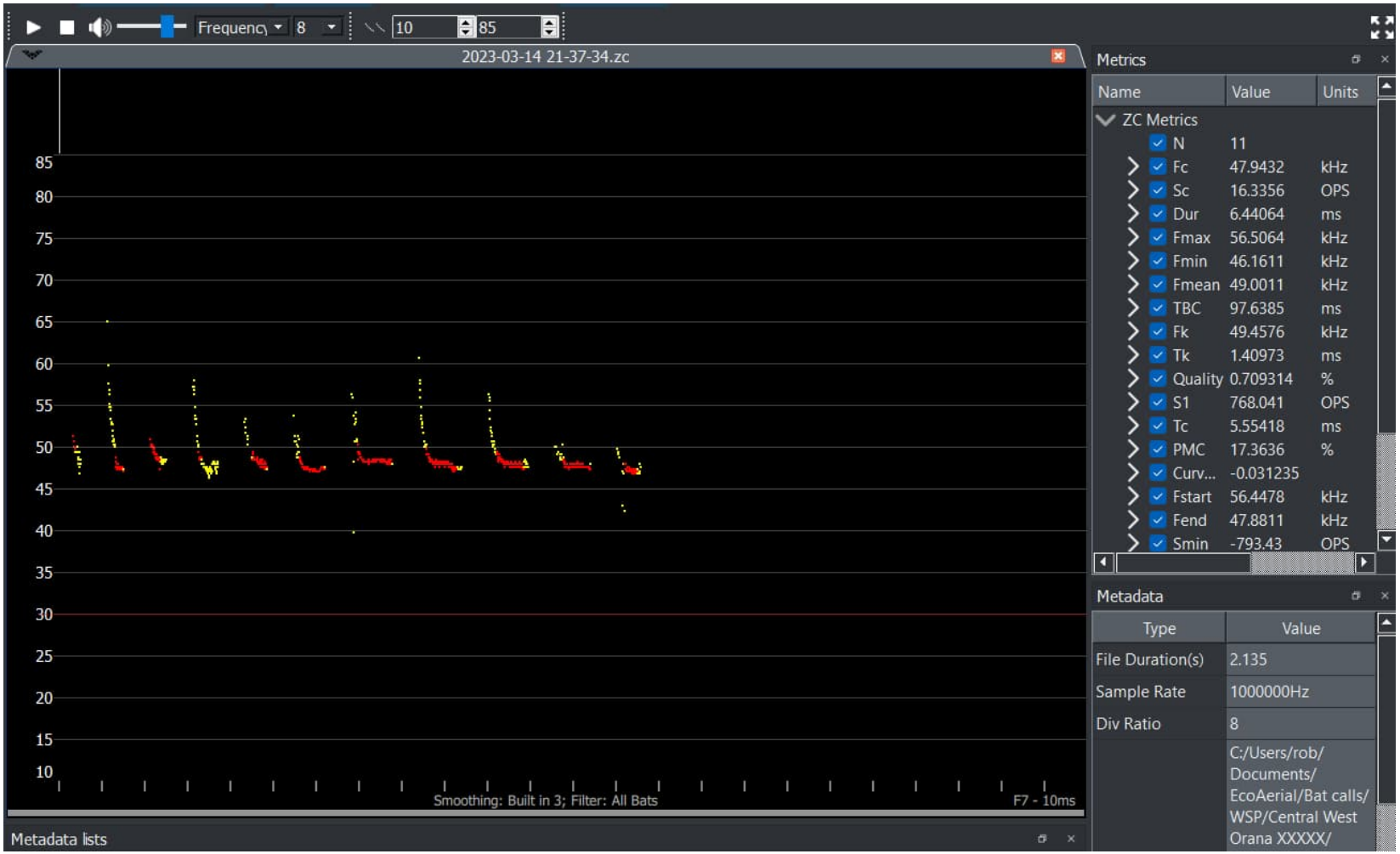
Inland Freetail Bat

Gould's Wattled Bat

Inland Broad-nosed Bat



Eastern Bent-wing Bat indicative of identification – Characteristic frequency and call shape is as described by Pennay, Law and Reinhold (2004). Bat Calls of New South Wales: Region based guide to the echolocation calls of Microchiropteran bats. NSW Department of Environment and Conservation, Hurstville.



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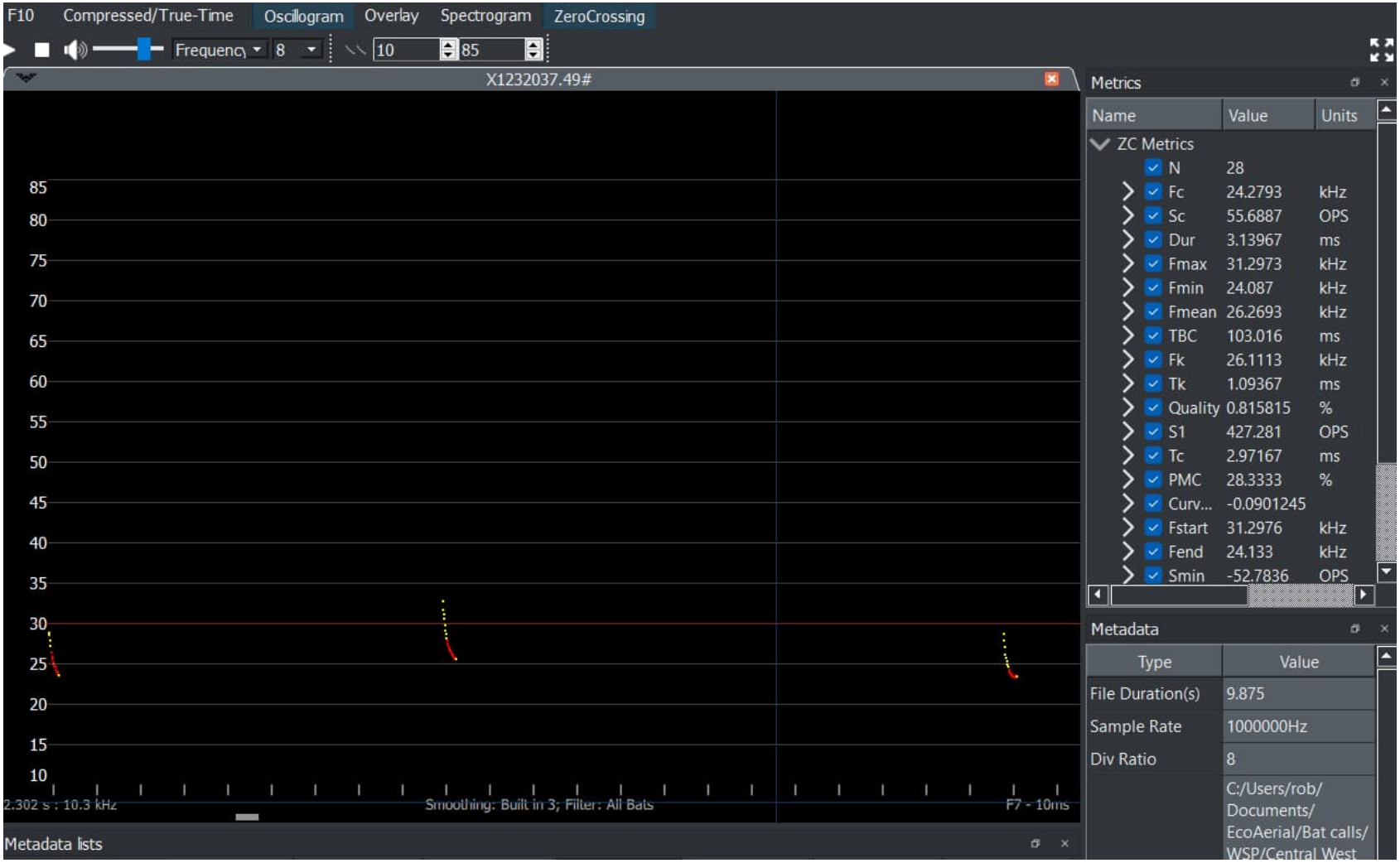
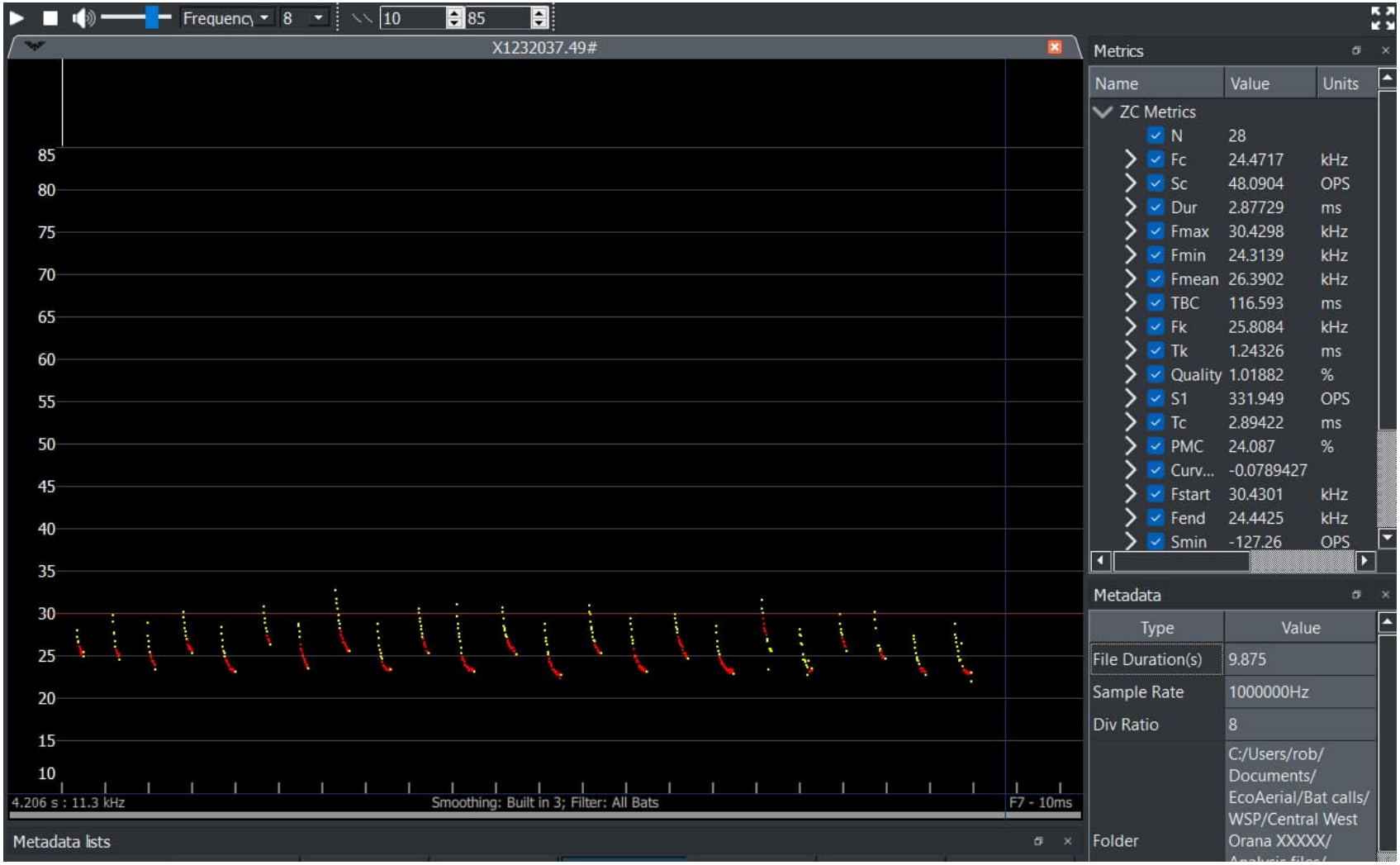
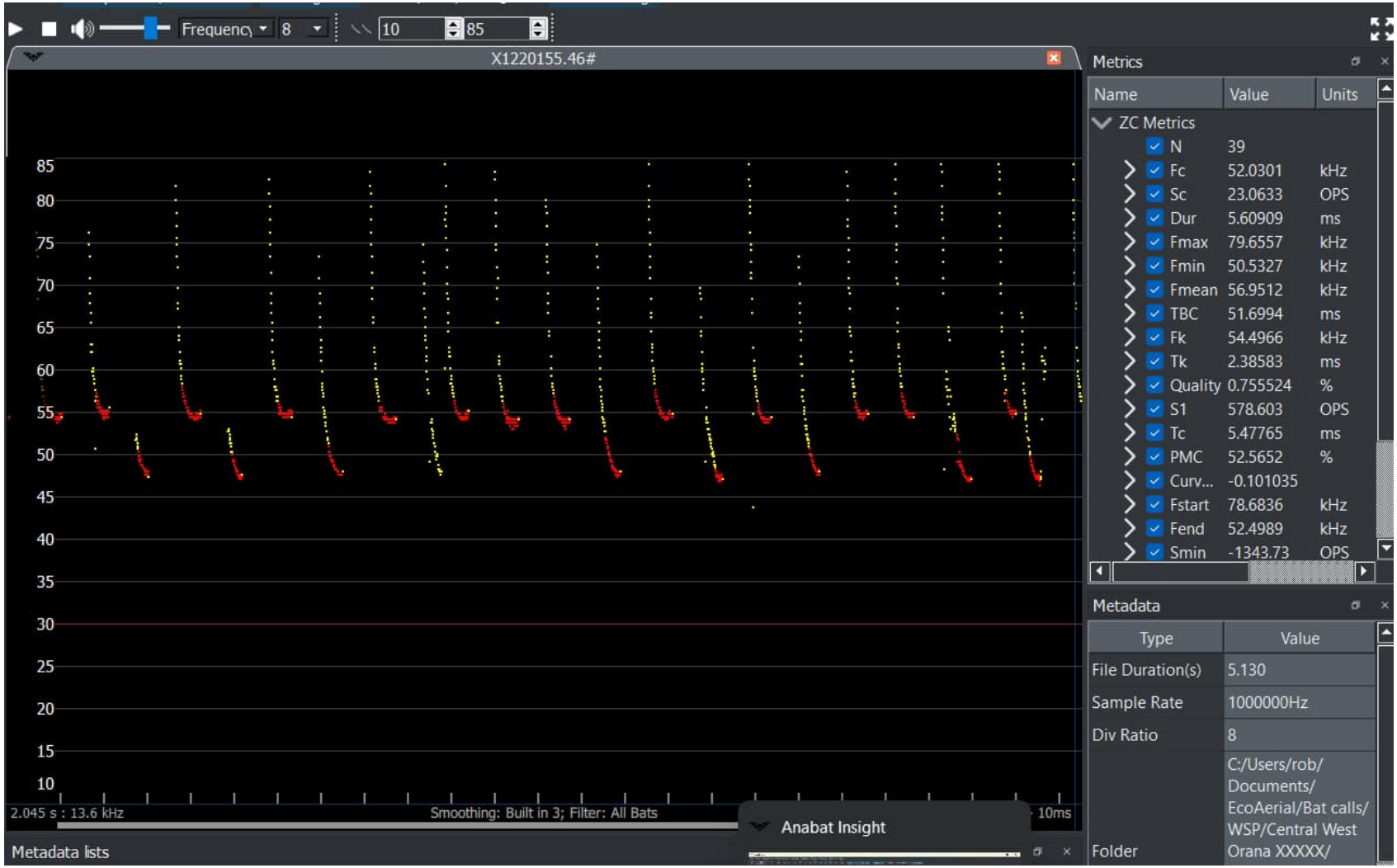


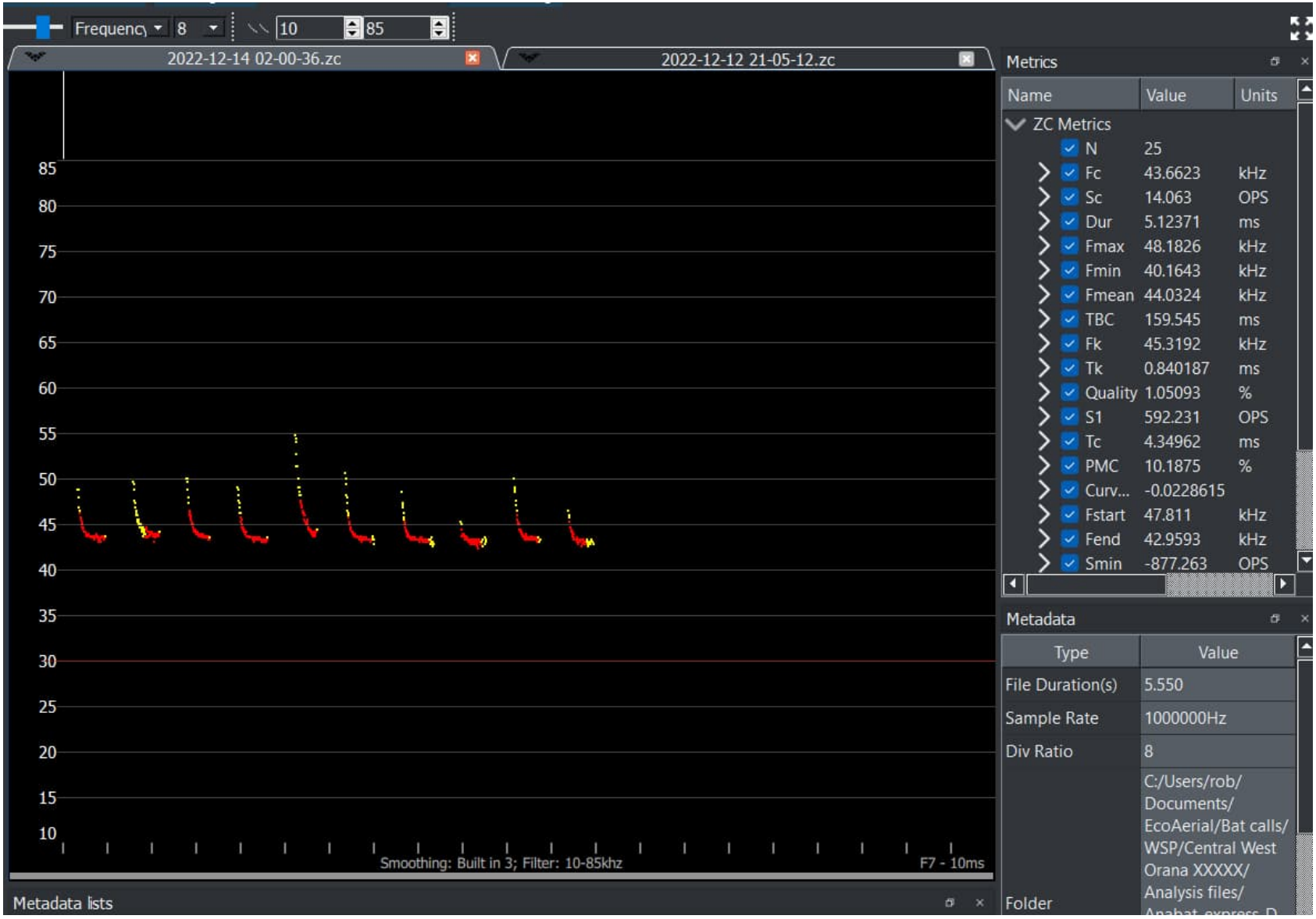
Large-eared Pied Bat- Characteristic frequency is as described by Pennay, Law and Reinhold (2004). Pulses shown in uncompressed mode showing alternation and consistent time between pulses. Call shape is not typical search phase call.



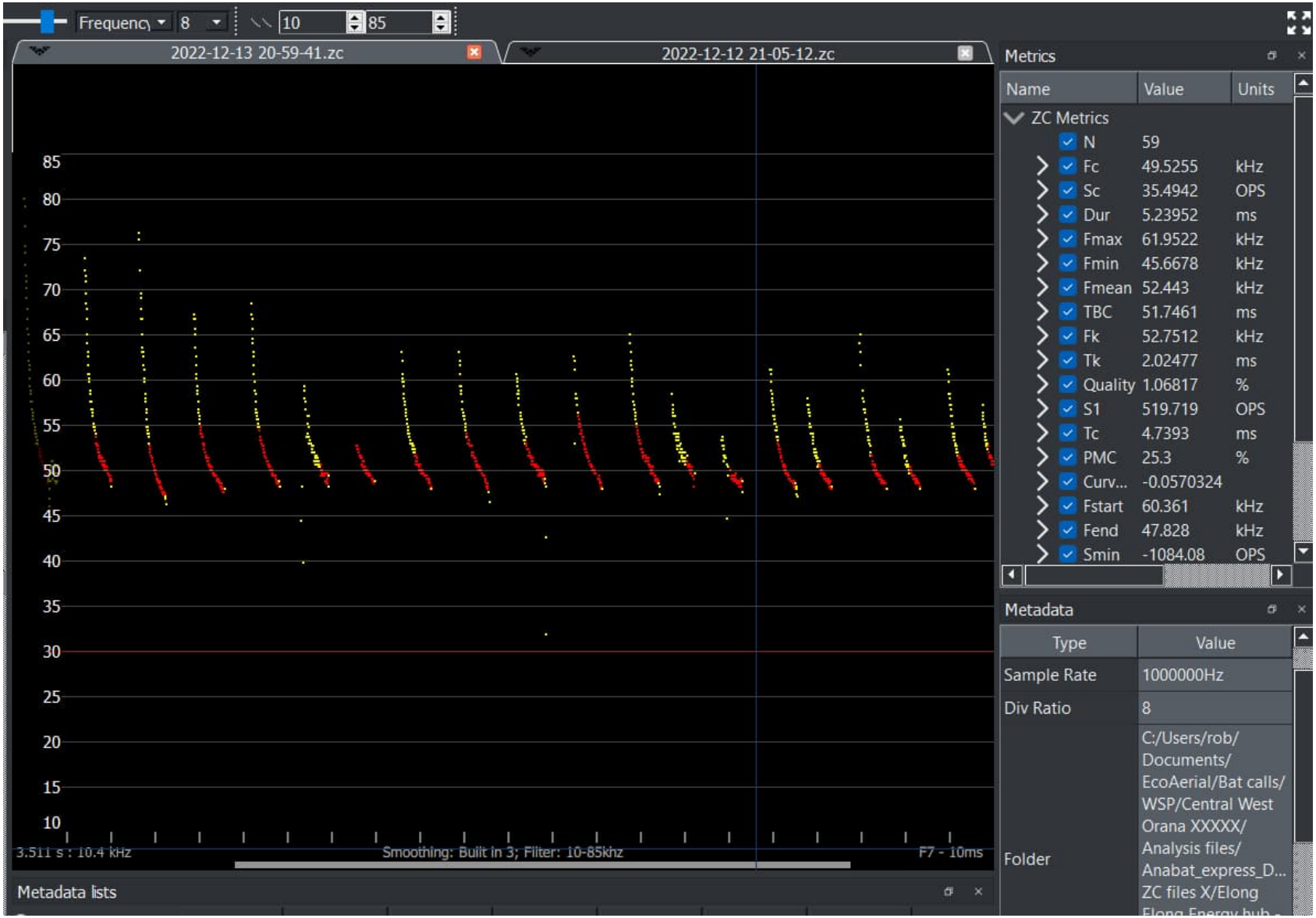
Large-eared Pied Bat- Characteristic frequency is as described by Pennay, Law and Reinhold (2004). Pulses show alternation and consistent time between pulses when viewed in uncompressed mode. Call shape is not typical search phase call.



Eastern Cave Bat – Top pulses in call image typical of *Vespadelus* with upsweeping tail and consistent with characteristic frequency.

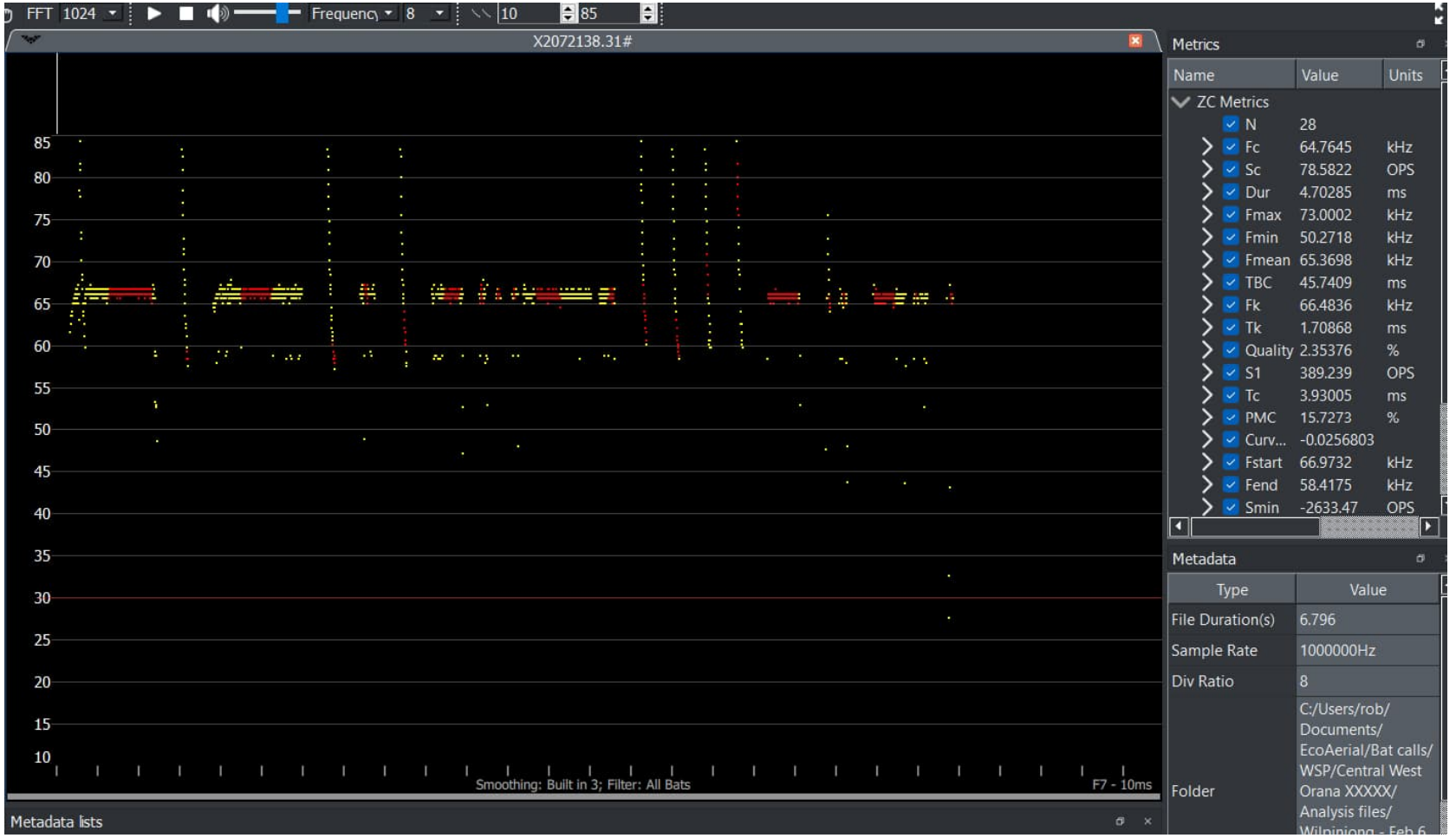


Large Forest Bat



Chocolate Wattled Bat

Eastern Horseshoe Bat (Potentially)- Unusual call with characteristic frequency consistent with Eastern Horseshoe Bat. Typical call shape is hidden due to echoes.



Eastern Horseshoe Bat (Potentially)- Unusual call with characteristic frequency consistent with Eastern Horseshoe Bat. First 2 pulses show signs of upsweeping initial section. Typical call shape is hidden due to echoes as per the southern region reference call in Pennay et al (2004).

Appendix H

Recorded fauna

Appendix H

Fauna species list

Table H.1 Fauna species list

Survey method	Common name	Scientific name
Call playback	Barking Owl	*Ninox connivens* [TS]
	Masked Owl	*Tyto novaehollandiae* [TS]
Camera trap	Australian Magpie	*Gymnorhina tibicen*
	Australian Raven	*Corvus coronoides*
	Black rat	*Rattus rattus*[*]
	Brown Goshawk/Collared Sparrowhawk	*Accipiter fasciatus/cirrocephalus*
	Brown Treecreeper	*Climacteris picumnus victoriae* [TS]
	Common Brushtail possum	*Trichosurus vulpecula*
	Common Ringtail possum	*Pseudocheirus peregrinus*
	Cow	*Bos taurus*[*]
	Eastern Grey Kangaroo	*Macropus giganteus*
	Eastern Yellow Robin	*Eopsaltria australis*
	Feathertail Glider	*Acrobates pygmaeus*
	Feral Pig	*Sus scrofa*[*]
	Lace monitor	*Varanus varius*
	Laughing Kookaburra	*Dacelo novaeguineae*
	Noisy Friarbird	*Philemon corniculatus*
	Noisy Miner	*Manorina melanocephala*
	Owlet Nightjar	*Aegotheles cristatus*
	Pied Butcherbird	*Cracticus nigrogularis*
	Pied Currawong	*Strepera graculina* [TS]
	Red Wattlebird	*Anthochaera carunculata*
	Red-necked Wallaby	*Macropus rufogriseus*
	Sacred Kingfisher	*Todiramphus sanctus*
	Sugar Glider	*Petaurus breviceps*
	Swamp Wallaby	*Wallabia bicolor*
	White-eared Honeyeater	*Lichenostomus leucotis*
	White-winged Chough	*Corcorax melanorhamphos*
	Willie Wagtail	*Rhipidura leucophrys*
	Yellow-footed Antechinus	*Antechinus flavipes*

Survey method	Common name	Scientific name
Diurnal bird survey	Australian Magpie	*Gymnorhina tibicen*
	Australian Pipit	*Anthus novaeseelandiae*
	Australian Raven	*Corvus coronoides*
	Australian Wood Duck	*Chenonetta jubata*
	Australasian Grebe	*Tachybaptus novaehollandiae*
	Black Falcon	*Falco subniger* TS
	Black Kite	*Milvus migrans*
	Black-winged Kite	*Elanus caeruleus*
	Brown Quail	*Coturnix ypsilophora*
	Brown Thornbill	*Acanthiza pusilla*
	Brown Treecreeper	*Climacteris picumnus victoriae* TS
	Buff-rumped Thornbill	*Acanthiza reguloides*
	Common Starling	*Sturnus vulgaris*
	Crested Pigeon	*Ocyphaps lophotes*
	Diamond Firetail	*Stagonopleura guttata* TS
	Dollarbird	*Eurystomus orientalis*
	Dusky Woodswallow	*Artamus cyanopterus cyanopterus* TS
	Eastern Rosella	*Platycercus eximius*
	Galah	*Eolophus roseicapilla*
	Glossy Black-Cockatoo	*Calyptorhynchus lathami* TS
	Grey Fantail	*Rhipidura albiscapa*
	Grey Shrike-thrush	*Colluricincla harmonica*
	Grey-crowned Babbler	*Pomatostomus temporalis temporalis* TS
	King Parrot	*Alisterus scapularis*
	Laughing Kookaburra	*Dacelo novaeguineae*
	Letter-winged Kite	*Elanus scriptus*
	Little Corella	*Cacatua sanguinea*
	Little Eagle	*Hieraaetus morphnoides* TS
	Little Lorikeet	*Glossopsitta pusilla* TS
	Little Raven	*Corvus mellori*
	Magpie-lark	*Grallina cyanoleuca*
	Masked Lapwing	*Vanellus miles*
	Mistletoebird	*Dicaeum hirundinaceum*

Survey method	Common name	Scientific name
	Musk Lorikeet	*Glossopsitta concinna*
	Noisy Friarbird	*Philemon corniculatus*
	Noisy Miner	*Manorina melanocephala*
	Pacific Black Duck	*Anas superciliosa*
	Pale-headed Rosella	*Platycercus adscitus*
	Painted Button Quail	*Turnix varius*
	Pied Butcherbird	*Cracticus nigrogularis*
	Pied Currawong	*Strepera graculina*
	Red Wattlebird	*Anthochaera carunculata*
	Red-necked Wallaby	*Macropus rufogriseus*
	Red-rumped Parrot	*Psephotus haematonotus*
	Red-winged Parrot	*Aprosmictus erythropterus*
	Rufous Whistler	*Pachycephala rufiventris*
	Scaly-breasted Lorikeet	*Trichoglossus chlorolepidotus*
	Speckled Warbler	*Chthonicola sagittata* [TS]
	Splendid Fairy Wren	*Malurus splendens*
	Spotted Harrier	*Circus assimilis*
	Spotted Pardalote	*Pardalotus punctatus*
	Striated Pardalote	*Pardalotus striatus*
	Striated Thornbill	*Acanthiza lineata*
	Sulphur-crested Cockatoo	*Cacatua galerita*
	Superb Fairy-wren	*Malurus cyaneus*
	Varied Sittella	*Daphoenositta chrysoptera* [TS]
	Variegated Fairy-wren	*Malurus lamberti*
	Wedge-tailed Eagle	*Aquila audax*
	White-browed Babbler	*Pomatostomus superciliosus*
	White-eared Honeyeater	*Lichenostomus leucotis*
	White-faced Heron	*Egretta novaehollandiae*
	White-plumed Honeyeater	*Lichenostomus penicillatus*
	White-winged Chough	*Corcorax melanorhamphos*
	Willie Wagtail	*Rhipidura leucophrys*
	Yellow-rumped Thornbill	*Acanthiza chrysorrhoa*

Survey method	Common name	Scientific name
Frog search	Broad-palmed Rocket Frog	*Litoria latopalmata*
	Common Eastern Froglet	*Crinia signifera*
	Common Yabby	*Cherax destructor*
	Eastern Banjo Frog	*Limnodynastes dumerilii*
	European Carp	*Cyprinus carpio*
	Peron's Tree Frog	*Litoria peronii*
	Striped Marsh Frog	*Limnodynastes peronii*
	Spotted Marsh Frog	*Limnodynastes tasmaniensis*
	Eel-tailed Catfish	*Tandanus tandanus*
	Rakali	*Hydromys chrysogaster*
Harp trap	Eastern Cave Bat	*Vespadelus troughtoni* [TS]
	Eastern Horseshoe Bat	*Rhinolophus megaphyllus*
	Gould's Wattled Bat	*Chalinolobus gouldii*
	Inland broad-nosed Bat	*Scotorepens balstoni*
	Large Bent-winged Bat	*Miniopterus orianae oceansis* [TS]
	Large-eared Pied Bat	*Chalinolobus dwyeri* [TS]
	Lesser long-eared Bat	*Nyctophilus geoffroyi*
	Little Forest Bat	*Vespadelus vulturnus*
	Southern Forest Bat	*Vespadelus regulus*
Invertebrate surveys	Australian Plague Locust	*Chortoicetes terminifera*
	Blackish Meadow Katydid	*Conocephalus semivittatus*
	Caledia	*Caledia captiva*
	Common Grass Blue Butterfly	*Zizina labradus*
	Common Macrotona Grasshopper	*Macrotona australis*
	Common Wasp Moth	*Eressa angustipenna*
	Giant Slant-faced Grasshopper	*Acrida conica*
	Garden Bermius	*Bermius brachycerus*
	Gumleaf Grasshopper	*Goniaea australasiae*
	Marcida Matchstick Grasshopper	*Keyacris marcida*
	Margined-Winged Stick-Insect	*Ctenomorpha marginipennis*
	Meadow Argus Butterfly	*Junonia villida*
	Plantain Moth	*Scopula rubraria*
	Purple-winged Mantid	*Tenodera australasiae*
	Southeastern Austroicetes	*Austroicetes vulgaris*

Survey method	Common name	Scientific name
Opportunistic	Cow	*Bos taurus**
	Eastern Grey Kangaroo	*Macropus giganteus*
	European Rabbit	*Oryctolagus cuniculus**
	European Red Fox	*Vulpes vulpes**
	Feral Goat	*Capra hircus**
	Feral Pig	*Sus scrofa**
	Wallaroo	*Osphranter robustus*
Reptile survey	Blue-bellied Black Snake	*Pseudechis guttatus*
	Copper-tailed Skink	*Ctenotus taeniolatus*
	Eastern Bearded Dragon	*Pogona barbata*
	Eastern Blue-tongue Lizard	*Tiliqua scincoides*
	Shingleback Lizard	*Tiliqua rugosa*
	Thick-tailed Gecko	*Underwoodisaurus milii*
	Two-clawed Worm Skink	*Anomalopus leuckartii*
	Leseur's Velvet Gecko	*Amalosia leseuri*
	Nobbi Dragon	*Diporiphora nobbi*
	Patternless Delma	*Delma inornata*
	Southern Rainbow Skink	*Carlia tetradactyla*
	Bougainville's Skink	*Lerista bougainvillii*
	Eastern Brown Snake	*Pseudonaja textilis*
	Sand Goanna	*Varanus gouldii*
	Red-bellied Black Snake	*Pseudechis porphyriacus*
	Yellow-faced Whipsnake	*Demansia psammophis*
Spotlighting	Australian Boobook	*Ninox boobook*
	Common Brushtail possum	*Trichosurus vulpecula*
	Common Ringtail possum	*Pseudocheirus peregrinus*
	Krefft's Glider	*Petaurus notatus*
	Owlet Nightjar	*Aegotheles cristatus*
	Squirrel Glider	*Petaurus norfolcensis* TS
	Sugar Glider	*Petaurus breviceps*
	Tawny Frogmouth	*Podargus strigoides*

Survey method	Common name	Scientific name
Anabat (passive and active)	Chocolate Wattled bat	*Chalinolobus morio*
	Eastern Bent-wing bat	*Miniopterus schreibersii oceanensis*
	Gould's Wattled Bat	*Chalinolobus gouldii*
	Inland Broad-nosed Bat	*Scotorepens balstoni*
	Little Broad-nosed Bat	*Scotorepens greyii*
	Eastern Cave Bat	*Vespadelus troughtoni*
	Large Forest Bat	*Vespadelus darlingtoni*
	Large-eared Pied Bat	*Chalinolobus dwyerii*
	Little Forest Bat	*Vespadelus vulturnus*
	Lesser Long-eared Bat	*Nyctophilus geoffroyi*
	Gould's Long-eared Bat	*Nyctophilus gouldi*
	Ride's Free-tailed Bat	*Ozimops ridei*
	South-eastern Freetail bat	*Ozimops planiceps*
	Southern Forest Bat	*Vespadelus regulus*
	Inland Freetail Bat	*Ozimops petersi*
	White-striped Freetail Bat	*Tadarida australis*
	Yellow-bellied Sheathtail Bat	*Saccolaimus flaviventris*

[TS] Threatened species

* Introduced species

Appendix I

Powerline impacts on birds and ameliorative measures

I1 Introduction

Ecologically, birds encounter power transmission infrastructure in two broad ways, as landscape features occurring in their resident territories, whether those territories are permanent or seasonal, or as unfamiliar features they encounter during long or short-distance movements. For birds which migrate, both broad types of power transmission infrastructure interaction may apply during different periods of their lifecycle.

The distinct types of impacts power transmission infrastructure represent to birds also fall into two broad categories; impacts associated with the power being carried through the infrastructure and impacts the infrastructure represents as collision risks. The different ways birds encounter power transmission infrastructure determines the type of risk infrastructure will represent to them.

The potential effects of power carried by electrical infrastructure are more likely to affect birds that are familiar with the infrastructure, and who use it on a day to day basis, while the collision risks power transmission infrastructure represents to birds are more likely to affect those birds that are unfamiliar with its presence or distracted by important behaviours.

Both behavioural groups are at risk from electrocution, for the same two behavioural reasons, both familiarity and ignorance.

Collision risk also represents a significant hazard to birds that are familiar with power infrastructure at a given location, just as humans might fall foul of familiar hazards due to concentration distractions. For example, while birds are defending territories, hunting, are being hunted, or aerial displaying, they will naturally be more susceptible to collisions with infrastructure that is usually familiar to them and otherwise avoided, particularly if the obstacles have some degree of detection difficulty.

I2 Power transmission and electric and magnetic fields

Electricity is generated from both natural and artificial sources. Extremely low frequency (ELF) Electrical and Magnetic fields (EMF) are those that fall within the 0–3000 Hz frequency range. ELF EMF's exist wherever electricity is generated, transmitted or distributed in power lines or cables, or used in electrical appliances (arpansa, 2020). Although ELF EMF's are sometimes produced through natural processes, artificial sources are the most common sources of ELF EMF and are generally a product of the generation, distribution and use of electricity at the frequency of 50 Hz in Australia or 60 Hz in some other countries (arpansa, 2020). The electrical component of ELF EMF is formed by voltage, but current produces the magnetic field component of ELF EMF (arpansa, 2020).

The level of electrical fields is measured in thousands (k) of volts (V) per (/) metre (m), kV/m or just as V/m. The level of magnetic fields is measured in units of amperes (A) per (/) metre (m), A/m, however it is often denoted by its magnetic flux density quantified in units of tesla (T) or microtesla (μT). Another unit that is often applied to the quantification of magnetic fields is the gauss (G) or milliGauss (mG), where one gauss is equal to 10^{-4} T (or 1 mG = 0.1 μT) (arpansa, 2020).

I2.1 ELF EMF and birds

It is widely known and observed that, of all fauna groups, birds most regularly use electrical power lines, and their associated infrastructure, such as towers and poles, for perching and nesting. The reasons bird species use tall structures, such as electrical transmission infrastructure include:

- increased separation from terrestrial threats
- as vantage points to allow early detection of airborne and terrestrial threats
- for a commanding view over a patch of hunting territory
- for the defence and proclamation of breeding territories, and
- as safe elevated locations to build nests and raise their young.

The use of power lines does not extend across all bird species, as the open spaces in which aerial power infrastructure are located is too exposed for many bird species, especially smaller cover preferring bird groups. Therefore, the most common powerline using groups are birds that use open and aerial habitats.

The infrastructure of electricity transmission is often desirable as nesting locations for large species, such as birds of prey and the corvids (ravens and crows), due to their propensity to build on high landscape features in otherwise open habitats.

While several small open country birds, such as larks, pipits and finches have been observed to use power lines through direct observations, there appears to be a reduced use of the tallest power infrastructure by such species, due to the considerable expenditure of energy required to reach it and the considerable separation it represents from their territories.

Aerial foraging species, such as dollarbirds, bee-eaters, swallows, martins and woodswallows are also frequent users of electricity infrastructure for resting or as hunting vantage points, however, the insect prey that this group targets can often be in greater densities closer to the ground, and so lower perches are more desirable when available.

Therefore, as the distance between vegetation from associated electricity infrastructure increases, many smaller bird species appear less likely to use it, particularly when lower and less exposed options are present in their habitats.

In wooded habitats where vegetation heights more closely approach the height of power lines, avifauna appear more likely to use them, due to the increased opportunity to perch on power infrastructure where it is more accessible, because of greater adjacent canopy heights.

Apart from those birds that use power infrastructure as perching opportunities, a small group of birds also use power infrastructure for nesting sites. Birds of prey, storks and cranes, and the corvids are the groups that are most likely to use the tallest power line infrastructure for nesting purposes.

I3 Effects of electric and magnetic fields on birds

Considerable research has been undertaken to determine if there are any significant effects from EMF upon living organisms, including birds. Several scientific papers have endeavoured to determine if there are changes to bird biology because of proximity to EMF with few undertaken on wild birds outside of laboratory contexts. Nevertheless, there are some studies which have tested the effects of EMFs on wild birds.

In their 2005 review paper, Fernie and Reynolds (2005) observe that electrical power lines are widely used throughout the developed world, and that, all electric currents, including those conducted by electrical power lines, produce electric and magnetic fields (EMFs) (Fernie and Reynolds, 2005). They note that, due to their propensity to use power line infrastructure, some birds, like humans, are exposed to EMFs throughout their lives. They also note that EMFs have been, not without controversy, implicated in adversely affecting different components of human health, and that past and ongoing laboratory research have used mammal and bird surrogates to determine if EMFs may adversely affect key life systems in humans. Their 2005 review, draws on previous EMF research on effects to wild and aviary kept birds, to determine if this body of work might contribute to the current knowledge on EMF potential to adversely affect humans (Fernie and Reynolds, 2005). They found that the majority of studies found when birds are subjected to EMFs, changes are observed in; bird behaviour, reproductive success, growth and development, physiology and endocrinology, and oxidative stress, although not always with a consistent effect or direction (Fernie and Reynolds, 2005).

Fernie *et al* (1999) observe that some bird groups reproduce within EMFs from transmission lines, and that critical survival processes are dependent on melatonin, while melatonin has only been equivocally suppressed by EMFs in mammalian species. They erected a study to examined whether EMFs affect photophasic plasma melatonin in adult and fledgling American Kestrels (*Falco sparverius*) during short-term (one breeding season) and long-term (two breeding seasons) breeding behaviours, and compared the results to observed changes in body mass (Fernie et al., 1999). The study included kestrels subjected to EMF effects and a control group of kestrels (56 pairs in all) against which results could be compared. They found that EMFs affected plasma melatonin in male kestrels, by suppressed plasma values at 42 days and elevated plasma values at 70 days of EMF exposure. The 42 day melatonin levels in EMF males were the same levels as 70 day control males, suggesting a seasonal phase-shift in melatonin profile due to EMF exposure (Fernie et al., 1999). Melatonin levels were also suppressed in long-term fledglings but not short-term fledglings or females. They propose higher levels of melatonin in male kestrels than females may affect the sexually different results to EMF exposure. Results found that melatonin levels were not correlated to body-mass in American Kestrels and it was considered likely that results returned by the study are relevant to wild raptors nesting within EMFs (Fernie et al., 1999).

Fernie *et al* (2000a) observed that although there was documentation of reduced avian reproductive success when associated with power lines, such impacts had not been directly attributable to EMFs. They also noted that while laboratory studies had been undertaken to determine the effects of EMFs on embryonic development, such studies were unable to test the effects of EMFs on other factors that affect breeding success in wild birds, such as fertility, egg size, hatching, and fledgling success (Fernie et al., 2000a). In response, they undertook a study to determine the effect of EMFs on the reproductive success on birds, using captive American Kestrels (*Falco sparverius*) over two consecutive annual breeding seasons. The kestrels were separated into separate control and EMF effect groups (Fernie et al., 2000a). EMF exposure was set to the same levels as would be experienced by wild breeding kestrels and weakly correlated with a reduction in egg laying in only the first year (Fernie et al., 2000a). In both breeding events pairs subjected to EMF exposure, experienced higher fertility and lower hatching success than control pairs (Fernie et al., 2000a). Fledgling success was higher for EMF subjected pairs than control pairs in only one of the breeding events. In a single year when egg composition and embryonic development were examined, eggs were larger, with more yolk, albumen, and water, but exhibited thinner egg shells than control eggs (Fernie et al., 2000a). Late-term EMF embryos were larger and longer than control embryos, although hatchlings were similar in body mass and size (Fernie et al., 2000a). For their study Fernie *et al* (2000a) found that there was a different result in reproductive success in EMF exposed kestrels, resulting in increased

fertility, egg size, embryonic development and fledgling success and reducing hatching success when compared to control kestrels.

Fernie *et al* (2006b) note that wild birds particularly raptors use electrical transmission infrastructure for perching, hunting, roosting nesting, and consequently are exposed to EMFs. They determined the time periods wild American Kestrels (*Falco sparverius*) were exposed to EMFs from 735-kV power lines, so that the effect of EMFs on the behaviour of captive breeding kestrels could be studied (Fernie et al., 2000b). During their study they found that wild kestrels were exposed to EMFs for 25% to 75% of the observation periods. Over a 24 hr period, it was estimated that EMF exposure to wild kestrels ranged from 71% during courtship, to 90% during incubation, which was comparable to the exposure figures (88%) that captive breeding kestrels were subjected to (Fernie et al., 2000b). The results found that captive female EMF kestrels exhibited increased activity and alertness, and, in comparisons to control females, perched more often on the pen roof. EMF female kestrels were observed to preen and rest less often during the rearing of their broods (Fernie et al., 2000b). As with female EMF kestrels, male EMF kestrels were observed to be more active than control males during courtship, and more alert during incubation (Fernie et al., 2000b). The observed behavioural changes in breeding EMF kestrels were unlikely to contribute to increased growth of nestlings or increase the survival rates of fledglings, or reduce hatching success, though previously reported as such (Fernie et al., 2000b). Fernie *et al* (2000b) note that behavioural changes observed in captive EMF kestrels may be observed in wild kestrels.

Fernie and Bird (2001) observe that exposure to EMFs alters melatonin, behaviour, growth, and reproduction of captive American Kestrels (*Falco sparverius*), particularly males. Therefore, they undertook a study to determine whether EMF exposure triggers an avian immune response and alters oxidative stress levels. Captive kestrels were bred under control or EMF conditions at levels similar to those wild kestrels are subject to (Fernie and Bird, 2001). They found that short-term (single breeding season) exposure to EMFs suppressed plasma total proteins, hematocrits and carotenoids in the first half of the breeding cycle, as well as suppressing erythrocyte cells and lymphocyte proportions at the end of the breeding season (Fernie and Bird, 2001). Long-term (two breeding seasons) studies also resulted in a suppression of hematocrits in the first half of the reproductive period (Fernie and Bird, 2001). The study deduced that the elevation of granulocytes, and the suppression of carotenoids, total proteins, and previously melatonin in the same kestrels, signified that the short-term EMF male kestrels had higher level of oxidative stress, due to an immune response and/or EMF exposure and that long-term EMF exposure may be linked to higher levels of oxidative stress through EMF exposure alone (Fernie and Bird, 2001).

In a study conducted over nine (9) breeding seasons, Tomas *et al* (2012) note that within a single population of Great Tits (*Parus major*), breeding occurrences subjected to the effects of EMF exposure showed an increase in clutch size (7%) and an increase in egg volume (3%) (Tomas et al., 2012). Although the study showed that there was an increase in both clutch size and egg volume the overall average productivity as a function of fledgling and reproductive success, including nestling body mass, did not exhibit any change (Tomas et al., 2012). In comparison to Great Tit breeding events not associated with artificial EMF influences, researchers noted Great Tit breeding events subjected to artificial EMF's influences realise the same breeding success, but with a greater expenditure of energy resources (Tomas et al., 2012).

I4 Power transmission line bird strike

Bernardino *et al.* (2018) observe that growing global energy demands are causing worldwide increases in electrical infrastructure, representing significant negative impacts to biodiversity, predominantly birds.

They undertook a systematic review of available literature, dealing with bird power line related collisions, with attention to specific areas of previous research, including:

- an assessment of overall trends in scientific research in recent decades
- a review of existing knowledge of bird collision factors, as well as their effectiveness in reducing collision risk; including
  - species-specific factors (e.g. vision, morphology)
  - site-specific factors (e.g. topography, light and weather conditions, and anthropogenic disturbance), and
  - power line-specific factors (e.g. number of wire levels, wire height and diameter)
- an evaluation of existing mitigation measures (e.g. power line routing, underground cabling, power line configuration, and wire marking), as well as their effectiveness in reducing collision risk (Bernardino et al., 2018).

The Bernardino *et al.* (2018) review concluded:

- a general paucity of specific scientifically tested information regarding factors leading to bird power line collision
- there are few studies conducted in Asia, Africa, and South America; and
- several suggested methods of good practice were not at the time of publication, supported by scientific evidence.

Gap analysis undertaken by the Bernardino *et al.* (2018) study identified three key directions for future research, innovation, and scientific testing of current impact avoidance methodologies:

1. Bird behaviour – including the use of data loggers and sensors
2. Impact assessment – the identification and understanding of specific drivers at mortality hotspots, assessment of population-level impacts, development of methods for automatic detection of bird impacts; and
3. Mitigation measures – outlining a greater need for BACI level studies to determine the effectiveness of different wire- marking/bird avoidance devices and strategies (Bernardino et al., 2018).

They conclude by observing that, globally, the predictiveness and effectiveness of bird power line impact and mitigation, is compromised by a general lack of understanding about the regionally specific complexity of bird ecologies and how they interact with different collision drivers (Bernardino et al., 2018).

In a review of 14 studies, qualified by specific inclusion criteria, Loss *et al* (2014) estimated that between 12 and 64 million birds are killed each year in the United States (U.S.) through power line associated fatalities. Eighty-nine percent (89%) of the bird fatalities were attributable to collision mortality, the remaining eleven percent (11%) were caused by electrocution (Loss et al., 2014). Variations in mortality rates were a product of the relatively small number of rigorous studies available that deal with the study of bird mortality (Loss et al., 2014). The review found that while there is a general dearth of studies, and most were limited in scope (relating to diversity of species, habitat types and locations), the data collected showed that bird mortality associated with power lines in the U.S. is substantial and requires conservation management and policies to lower mortality rates (Loss et al., 2014).

I5 Power transmission line impacts and the proposal

I5.1 Collision risks

I5.1.1 Alignment geographical context

The proposal study area occurs in the north-eastern section of the Central Western Slopes region, extending west, east and northeast of Gulgong. From its central hub in Merotherie it extends west to its western extremity at Goolma, with a branch extending south to Tallawang; it traverses southeast through Cope and Ulan to Wollar; and extends east and northeast via three branches that extend to Warrumbungle, Coolah and Cassilis. It straddles the central NSW section of the Great Dividing Range at elevations ranging between 450 m to 600 m within the southeast Australian temperate climate landscapes.

Gulgong itself is subject to cool winters, the monthly average minimums as low as 2.5ºC in July and highest minimums of 15ºC in January (average 9.6ºC), with mild to warm summers; January averaging maximums of 31ºC and minimums of 16ºC (average 23.2ºC). The higher altitude sections of the project area are likely to experience cooler minimums than Gulgong and more sheltered locations may experience warmer climate values. The highest rainfall values are in spring and summer with an annual mean rainfall of 650 mm.

Its location on the top of the Great Dividing Range precludes the occurrence of major rivers, waterways and wetlands, the nearest large bodies of water being Lake Burrendong some 30 km to the southwest of Gulgong and the smaller Lake Cudgegong around 50 km to the southeast of Gulgong. At their closest extremity the two lakes are over 70 km from the project alignment.

In its southeast the alignment traverses valleys on the southern edge of the Goulburn River National Park from Wollar, northwest through Wilpinjong and Moolarben to Ulan. It skirts the western boundary of Durridgere State Conservation Area northeast of Turill.

Although the region is not traversed by major waterways it occurs across the watersheds of a number of major river systems. To the east of the Great Dividing Range the project alignment traverses the Goulburn River catchment in its northeast and southeast branches, which ultimately join the Hunter River, which resolves in Newcastle. In the Coolah section of the of the project's northeast arm it occurs in the catchment of the Talbragar River, which eventually joins the Darling River system via the Macquarie and Barwon Rivers.

I5.1.2 Migratory and nomadic birds

Australia provides important seasonal and stochastic weather derived resources for many bird species from a range of bird groups. International migrant wader species, many from the northern hemisphere visit Australia during the austral summer, with some age cohorts overstaying the austral winter, while some New Zealand bird species visit Australia during the austral winter to escape New Zealand's cooler winter conditions.

Many passerines which breed in southern Australia, winter in northern Australia and New Guinea where food is more readily available during the winter months.

Large numbers of resident water birds are attracted to the ebb and flow of water levels between regional and state level distributions, which often entail long-distance movements to and from ephemeral wetlands.

Apart from migratory movements, many birds move regionally or within their established territories during the seeking of food or for territorial defence.

Not all movements by birds are undertaken during day as some birds move non-stop for days, as is the case with international migrants, and others move at night to avoid predators. A number of waterbirds and shorebirds have been observed to undertake movements from one wetland habitat to another during nocturnal hours (Richardson, 2016a). During winter occupation of the Hunter River estuary, migratory wading birds were observed to move equally during day and night periods, as a response to the availability of foraging areas and the need to access roosting areas during high tide levels (Richardson, 2004). Long distance movements, representing 1,000's of kilometres, by a number of shorebird species take place continuously without breaks throughout nocturnal and diurnal hours (Battley et al., 2012). McEvoy (2015) observed that long distance movements undertaken by radio-tracked South Australian Pacific Black Ducks, in response to moderate to high rainfall events, were almost exclusively undertaken during nocturnal hours (McEvoy, 2015). During the Pacific Black Duck study, reasons for nocturnal movements could not be clearly determined, although avoidance of diurnal avian predators, which are key predators of waterbirds and shorebirds, were cited as a likely incentive to avoiding long distance movements during the day (McEvoy, 2015). Birds of prey were observed to be the major predatory risk for diurnal shorebirds in a study of wintering shorebirds in the Hunter River Estuary (Richardson, 2004, Richardson, 2016c).

Considering the location and extent of the alignment, it is unlikely that it intersects significant known or predicted flight lines between inland and coastal wetlands.

Other groups of birds prone to nomadic movements are also likely to be at risk of collision, such as the larger birds of prey. While possessing excellent eyesight, birds of prey are at risk of power line strike as a consequence of their potential to strike obstacles before them when searching the ground for prey and the location of power lines within elevations where they fly.

While most birds of prey are not usually migratory, many periodically move in relation to variations in productivity (i.e. prey availability). Birds of prey respond by moving to areas where greater productivity increases survival and breeding-cycle success. A limited number of larger birds of prey, with some of the largest wingspans (WS) of Australia's birds, have been observed or are expected to regularly occur in habitats associated with the alignment, those most likely to occur in its vicinity from time to time (in order of wingspan width, include; Wedge-tailed Eagle (WS~2.8 m), Square-tailed Kite (WS~1.3 m), Little Eagle (WS~1.3 m), Spotted Harrier (WS~1.2 m) Black Kite (WS~1.2) Whistling Kite (WS~1.2), Brown Falcon (WS~1.2), Peregrine Falcon (WS~0.95), Australian Hobby (WS~0.9) and Nankeen Kestrel (WS~0.8) (Pizzey and Knight, 2012).

While it is highly likely that some bird species, within collision risk bird groups, would be at lesser risk of collision than others, even when closely related (Loss et al., 2014) to those at greatest risk, a greater or lesser proportion of different migrating or nomadic bird species are likely to be impacted by the introduction of additional infrastructure into their flight paths.

I5.1.3 Resident birds

A substantial proportion of birds that occur in territories through which the alignment passes, will not be at risk of power lines strike, since their use of habitat never extends to open areas especially at elevations where power lines are located. Nevertheless, there are some groups of resident birds that favour open areas, which are at increased risk of collision, because power lines occur in the habitats they often frequent. Although resident birds around the alignment footprint are likely to quickly adapt to changes made within their well-known territories, new infrastructure represents an increase in hazardous obstacles with which some groups might collide when distracted by high priority activities, such as hunting, territorial defence, breeding behaviours and learning to fly.

As noted above, a proportion of local birds are unlikely to be placed at risk of collision since their habits do not extend to the open elevated habitats where greater risk of collisions occurs. Large areas of the alignment are associated with either open country or managed understories associated with the new alignment and adjacent infrastructure, where the flight lines of small to small-medium sized birds are much less likely to intercept power lines and for such species, the chances of impact are considered unlikely.

Tall vegetation communities where canopies are dominated by taller forest trees are areas most likely to represent higher risk for smaller resident woodland bird guilds, although their lower flight speeds and sedentary behaviour reduce collision risks for many in this group.

Those considered as bird species to be at higher risk of collision include local birds that fall into guilds of larger and higher-flying birds, and which reside over larger territories, such as birds of prey, ravens and magpies, cockatoos and some parrots, and waterbirds and waterfowl where the alignment rarely occurs near wetland habitat; there is wetland habitat associated with the upper tributaries of Cockabutta Creek between Merotherie and Blue Springs Roads, and although it does not contain large areas of open water it has habitat characteristics that would appeal to snipe species when seasonally or stochastically occurring locally.

I5.2 Mitigation of collision risks to birds

Power lines represent a collision risk to birds, because they occur within spaces where they do not expect to encounter obstacles, and, due to a relatively narrow linear profile, power lines easily blend in with the landscape or are obscured by lighting conditions, such as darkness or other light conditions that obscure the presence of the lines or make them appear much further away. Key strategies for reducing the numbers of birds striking power lines is making them visible to birds. Mitigation measures employed in areas where birds are at greater risk often take the form of large bright beacon-like objects to make birds aware of the presence of power lines.

I5.3 EMF and electrocution risks

I5.3.1 Migratory and nomadic birds

Even though some species of migratory birds are electrocuted when they collide with power lines, it is most likely that many of these incidents are associated with smaller power line infrastructure, or installations where individual conductors and earth potentials are close together, such that birds have the potential to touch multiple components of different electrical potential. For birds moving through the alignment, it is considered unlikely that birds would be at high risk of electrocution, as electrocution would require contact with different phases or conductor potentials, and the horizontal separation between individual conductors, or bundled conductors, exceeds the wingspans (WS) of all birds, including the largest migratory birds, such as Brolgas (WS~2.4 m) Pelicans (WS~2.4–2.6 m) Black Swans (WS~2.0 m) and Australian Shelduck (WS~1.2 m) (Pizzey and Knight, 2012). Separation distances between tower arms and conductors achieved by insulators are shorter than between different conductors (7,200 mm and smaller designs 5,700 mm), but the separation, at 3,720 mm, is beyond the wingspans of all the world's birds. Large bird species are at a greater risk of collision impact injuries, than electrocution, due to their size and flight speed.

The other group of nomadic birds of sufficient sizes to be at risk of electrocution are the larger birds of prey, although as with other large bird species their wing spans are not sufficient to reach between different conductors or from conductors to conductive tower components. While most are not migratory many periodically move in relation to variations of ecological productivity, since dryer and wetter periods drive resource increases and lulls, and birds of prey respond by moving to areas where greater productivity increases survival and breeding-cycle success. Those larger birds of prey observed in habitats associated with the alignment, or are considered likely to occur in its vicinity from time to time, include; Wedge-tailed Eagle (WS~2.8 m), Square-tailed Kite (WS~1.3 m), Little Eagle (WS~1.3 m), Spotted Harrier (WS~1.2 m) Black Kite (WS~1.2) Whistling Kite (WS~1.2 m), Brown Falcon (WS~1.2 m), Peregrine Falcons (WS~0.95 m), Australian Hobby (WS~0.9 m) and Nankeen Kestrel (WS~0.8 m) (Pizzey and Knight, 2012). All bird of prey species have wingspans that are well below the smallest separations between conductors and other conductors, or potential earthing infrastructure components.

Although some birds of prey undertaking dispersive or nomadic movements may occasionally land on powerline infrastructure, under such circumstances they are unlikely to be sufficiently affected by EMF's to be of any significant effect. Nevertheless, birds of prey, which are resident in habitats associated with the alignment, are part of the group of birds which are most likely at risk to longer periods of exposure to EMFs because they often use the infrastructure for perching, but most particularly if they use the infrastructure for nesting. Most of the project's alignment occurs within

areas within areas where woodlands and forests are within the landscape, and which offer an abundance of suitably elevated nesting opportunities for birds of prey and so birds of prey using tower infrastructure for nesting purposes for this project are considered to be rare.

I5.3.2 Resident birds

Those birds that occur as residents in the habitats surrounding power line infrastructure are that subset of all birds that will have to live with power transmission infrastructure for a good portion, if not all, of their lives. However, for many of the birds that live in close association with such infrastructure the greatest risk is loss of habitat during the construction phase of the project. Providing sufficient habitat has been retained for them to survive after the infrastructure's installation their behaviour will continue as it did before construction. A range of small birds that prefer the cover and foraging opportunities that the foliage of trees and shrubs offer will never ascend to the powerline region of the installation or use the bottom of towers for perches.

Those species most likely to ascend to power lines and the tops of towers are those species that are tolerant of open spaces, and which habitually fly at those elevations and above. The most likely resident bird candidates to use power line infrastructure are large passerines like ravens and crows, birds of prey preferring open habitats, and aerial foraging species, such as woodswallows, swallows and martins, and dollarbirds and bee-eaters. Although magpies will use power lines, they forage on the ground and prefer perches and nesting locations with the added cover of trees. Often the height of high transmission lines is too high for them, and the same for smaller aerial foragers, much of the time, which also prefer to perch low when foraging close to the ground.

Although there is a small group of birds for which transmission towers are preferable for nest building, including ravens and crows, and medium to large birds of prey, in the landscapes surrounding the project alignments there are ample natural nesting opportunities, which are more likely to be used by these species than transmission line infrastructure. No nests in powerline infrastructure were observed during field works carried out throughout the project's alignments by a wide range of field personnel, but it considered likely that large birds from the group described above may occasionally use infrastructure where there are limited natural options.

When there are limited natural nest site opportunities, t is such species that have the greatest risk of EMF effects, due to their familiarity with infrastructure and extended periods in relatively close proximity to conductors. Most towers are designed to minimise their use by birds, however the benefits of power infrastructure to bird behavioural priorities make some individuals determined to use such structures across locations where elevated nest sites in old growth trees are limited.

In assessing the types of large transmission towers likely to be used for the project, the dimensions of transmission tower structures were considered. The minimum distance from conductors to earthed infrastructure that birds might build nests on is 3,930 mm, and greater than the wingspans of the largest Australian birds. If a nest is built on an arm with a conductor above it, the height of the nest and the bird will reduce that figure.

The period chicks will occupy the nest from the laying of the egg to leaving the nest has been added below for the birds of prey most likely to occur. For all these species the nest is not usually occupied outside the breeding period.

The largest Australian bird of prey occurring in the alignment locality is the Wedge-tailed Eagle, which has the longest incubation and nestling periods of Australian birds of prey with a maximum incubation period of 45 days, and maximum nestling periods of 85. The maximum nest occupation time for this species, from egg laying to departure, is around 130 days (~19 weeks).

For the next largest group of birds of prey (size wise), including species such as Little Eagle, Square-tailed Kite and Spotted Harrier, the incubation periods are around 40 days and nestling period around 60 days. The maximum nest occupation time for these species, from egg laying to departure, is around 100 days (~14 weeks).

Nest occupancy periods for smaller birds of prey from medium sized birds, such as Whistling Kites and Black Kites (~83 days), reduce progressively with size through the Pacific Baza and falcons, down to the smallest, represented by the Nankeen Kestrel, which has an incubation period of 29 days and a nestling period of 35 days, representing a total nest occupation time of 64 days (~9 weeks). The corvids will fall into a group that is smaller than the kites and largest falcons.

From data derived from a range of studies, it is considered likely that EMF's may influence the physiology of birds nesting on transmission towers. However, the levels of those effects to each species under all different conditions is not easily quantifiable and there is currently no conclusive evidence that such effects would have a significant effect on the long-term viability of local bird populations.

I5.4 Mitigation of EMF impacts to birds

Mitigation for EMF impacts are best implemented by tower designs that discourage birds from building nest on them. As it is an important priority for managers maintaining power transmission lines to ensure that nesting birds do not constitute a risk to power delivery, towers being considered are currently designed to discourage their use by birds, which also reduces the numbers of birds which may be affected by EMFs to a minimum.

I6 Conclusions and recommendations

Based on the available research, the following conclusions on potential impacts have been reached:

- The bird species considered to be at higher risk of collision include local birds that fall into guilds of larger and higher-flying birds, and which reside over larger territories. These birds include birds of prey, ravens and magpies, cockatoos and some parrots, waterbirds, and waterfowl.
- It is likely that EMF's may influence the physiology of birds nesting on transmission towers. However, the levels of those effects to each species under a range of different conditions is not easily quantifiable and there is currently no conclusive evidence to suggest that such effects would have a significant effect on the long-term viability of local bird populations.

Recommendations for management and mitigation consist of the following:

- line markers, otherwise known as "bird flappers" and "diverters" are well known throughout the world to be an effective mitigation strategy to warn birds of the presence of powerlines and may be included in the project design,
- towers would be designed to discourage nesting to reduce both potential collision and EMF impacts,
- a monitoring program could be considered for implementation to assess the ongoing risk to fauna, particularly birds, from the proposal, but chances of significant risk to local birds is assessed to be low.

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Appendix J

Examination of regional terrestrial habitat connectivity

J1 Impacts to regional habitat connectivity

J1.1 Introduction

The key impacts on terrestrial connectivity from the proposal will be associated with the construction requirements of Disturbance area A, which refers to an area around the transmission line towers, areas for brake and winch sites, areas for proposed compounds and accommodation camp sites, and for new/upgraded access tracks in which vegetation would be removed during construction.

This disturbance would include vegetation (including tree) removal and potential sub-surface impacts through construction activities such as grading, excavation, and full tree removal. Except in areas where only temporary disturbance is required (i.e. temporary access tracks and brake and winch sites), this area would also be subject to ongoing maintenance during operation (i.e. removal to ground level) for operational and safety requirements (including bushfire).

The remaining disturbance areas within the transmission line corridor (Disturbance area B) will retain vegetation to a height of 2 metres. The width of the disturbance areas A and B areas for transmission line components vary for the 330 kV and 500 kV transmission lines based on their vegetation clearing requirements and construction methodologies.

The proposed operational corridor will effectively result in steeping stones of maintained vegetation within the outer areas of the proposed corridor which will specifically facilitates the movement of most terrestrial fauna species minimum gap requirements, including semi-mobile and sedentary species except for canopy dependent arboreal mammals (e.g. Squirrel Glider).

Furthermore, the retention of understorey vegetation within these zones is likely to further mitigate the potential for increased predation by opportunistic species along the corridor.

The operational use of the easement post construction is expected to be minimal and not result in associated impacts of vehicle strike, noise and lighting that would permanently deter fauna movement or reduce further the majority of habitat values provided by the retain vegetation for connectivity.

J1.2 Co-locating the transmission line impacts on connectivity

Where possible the proposal has specifically incorporated into the alignment route selection the co-location with existing transmission line and infrastructure corridors. The co-location of the infrastructure is a key consideration for minimisation of impacts across a range of environmental variables being considered within the EIS, including biodiversity. The key benefits for co-location for biodiversity include:

- minimising edge effects
- minimising edge to areas ratio of proposal
- consolidating disturbances to areas within existing known disturbances
- reduced fragmentation.

While there are considerable overall environmental benefits of the proposal's co-location with existing infrastructure it is acknowledged this will potentially exacerbate the terrestrial connectivity impacts and crossing distances in some PCTs.

The disturbance area for the project exists within a 220 metre wide corridor (defined as the construction area), and is only indicative at this stage, pending final design. Within the disturbance area, two distinct areas outline the degree to which vegetation clearing will take place. Vegetation within Disturbance area A is assumed to be fully removed during the development of the project, and Disturbance area B is assumed to have partial clearing that is restricted to vegetation with growth height potential of 2 metres or above.

The width of the disturbance areas A and B for transmission line components vary for the 330 kV and 500 kV transmission lines based on their vegetation clearing requirements and construction methodologies, with the 500 kV line having a 140 metre wide corridor, and the 330 kV line having a 80 metre wide corridor.

J1.3 Target candidate species for mitigation

An effective approach to planning and designing strategies to reduce the negative effects of linear infrastructure on wildlife is to focus on a small number of 'target' species, rather than the hundreds of species that may occur there. This group of target species should reflect the broader assemblage of species in the area that are impacted by the linear infrastructure and represent the needs and requirements of all species. For example, target species should encompass a wide range of groups (e.g. birds, mammals, reptiles etc), include common and endangered species, and cover a range of modes of movement (e.g. flying and walking, terrestrial and arboreal) and gap-crossing abilities.

The threatened species, assessed in this BDAR, encompass all mobility classes and subsequently were considered valuable for determining the ecological characteristics for provision of an equivalent or better ecosystem functionality of any alternative biodiversity corridor. However, whilst threatened species have been used for consideration of wildlife connectivity, it is necessary to emphasize that ecosystem functionality is not restricted to these species. Locally occurring non-threatened fauna, such as kangaroos and possums, would also require consideration for ecosystem functionality and connectivity.

Target species were selected from the threatened species list, which were those species identified as having a moderate or higher likelihood of occurrence in the existing corridor, based on the availability of potential habitat, recent records and the professional opinion. Target species were categorised based on their movement capabilities:

- Mobile species are either capable of defending themselves or evading predators in the open, nomadic by nature, or may inhabit open country areas solely or as part of the range of habitats they frequent. Therefore, mobiles species are not considered to be affected by gaps of less than 1,000 m.
- Semi-mobile species are those species with semi-mobile capability, and while large enough to traverse reasonably large gaps in forest vegetation, they are essentially woodland and forest animals that are dependent on cover or woodland trees for their movements. Many small-medium sized birds and small microbats fall into this category, establishing relatively small home ranges in their preferred habitat with a reluctance to move outside those territories, but nevertheless being equipped with the means to cross larger gaps when they are forced to. Semi-mobile species are considered unaffected by gaps less than 100 m. However, gaps less than 100 m that also contain traffic and other disturbances may represent a filter or barrier to their movement.
- Sedentary species (many species of amphibian, reptile, small mammals, some Mallee birds) often occur with small territories that they rarely leave, due to the necessity of familiar cover to protect them from predatory animals. Such species are highly dependent upon the integrity of corridor habitats to maintain contact between populations at either end of the corridor. As the key requirements for this group, the least mobile cohort of corridor animals, represent the fundamental components of forest and woodland structure, the same structural components will be utilised by those animals which are more mobile and less dependent upon the linkage function of the corridor. For example, Squirrel Glider, reptiles and some small bird species.

For the purposes of this report, mobile species are not considered further as this group are not likely to be dependent upon specific mitigation measures to overcome the transmission line barrier.

Table J.1 Candidate species impacted by terrestrial connectivity (semi-mobile and sedentary species)

Common name	Barriers	Estimated gap crossing	Use of mitigation structures
Semi-mobile species			
Woodland birds (Brown Treecreeper, Varied Sittella, Diamond Firetail)	Fragmented landscape with no matrix of paddock trees linking adjacent habitat.	Woodland birds considered unlikely to cross unvegetated gaps >100 m.	— Species would typically require habitat stepping-stones to facilitate dispersal — Maintained vegetated understorey within B zone. — Maintained vegetated corridors <2 metres in height.
Koala	Barriers to movement include roads and urban development. Although known to cross agricultural land with scattered trees, areas devoid of vegetation restrict dispersal.	Species assumed unlikely to cross unvegetated gaps >100 m	— Known to use culvert underpasses, open span bridges and land bridges with appropriate species-specific furniture. — Maintained vegetated understorey within B zone. — Maintained vegetated corridors <2 metres in height.
Sedentary species			
Squirrel Glider	Squirrel Gliders are reluctant to come to the ground to cross gaps and crossing width depends on tree height on either side of the gap. Glides of 20 m – 30 m are typical.	Gaps >40 m likely to be prohibitive	— Known to use glider poles and canopy bridges over dual-carriageway highways, and likely to use Under-transmission glider poles — Maintained vegetated corridors <2 metres in height.
Reptiles (Striped Legless Lizard, Pink-tailed Legless Lizard)	Fragmentation of areas of Sand hill habitats and grassy woodlands	Species assumed unlikely to cross unvegetated gap >50 m	— Maintained vegetated understorey within B zone. — Maintained vegetated corridors <2 metres in height.
Species important for ecosystem function			
Arboreal mammals (e.g. Sugar Glider, Common Brushtail Possum)	Barriers to movement include roads and urban development.	Gaps >40 m likely to be prohibitive	— Known to use glider poles and canopy bridges over dual-carriageway highways, and likely to use Under-Transition glider poles — Maintained vegetated understorey within B zone. — Maintained vegetated corridors <2 metres in height.
Terrestrial mammals (Kangaroos and Wallabies)	Eastern Grey Kangaroo is an open country species. Swamp Wallaby generally restricted to vegetated habitats.	Swamp Wallaby assumed unlikely to cross gaps >100 m	— Maintained vegetated understorey within B zone. — Maintained vegetated corridors <2 metres in height.

J1.3.1 Under-transmission line glider poles and/or rope bridges

A novel approach to mitigate the barrier impacts of the transmission line for gliders is the use of under-transmission glider poles and/or rope bridges which can include timber poles and/or retained tall tree stumps. It is proposed that these will be installed in areas of identified Squirrel Glider habitat (see Figure 14-17 and Figure 14-18 that illustrate areas of connectivity).

The intention is to retain a single row or ideally a 10–20 m wide strip of tall tree stumps which allows gliders to traverse the gap. The use of 'natural' glider poles (i.e. retained tall tree stumps) offers a number of likely advantages over timber poles and the following points are relevant:

- They are wider than timber poles, providing a large landing surface.
- If the trees are resistant to decay and with the root system still intact, they should remain standing for at least 30 years, if not longer.
- The stumps will maintain bark for a number of years, and eventual decay of the wood will provide food for invertebrates, which in turn are food for Squirrel Gliders.
- If the tree survives pruning when the proposal is built above it and has coppice regrowth, this will provide additional shelter and food for gliders, and increase the standing life of the stump because the root system remains alive. Nevertheless, it is acknowledged that trees under the proposal will need to be maintained to safe operating height.
- Tree stumps will also provide habitat for a wide range of other species, including woodland birds, reptiles and other arboreal mammals.
- Chainsaw hollows can be installed into retained stumps if the stems are sufficiently large.
- Provided the tree has been sufficiently pruned and the weight of the canopy reduced, the risk of collapse and damage to the proposal structure will be minimal.
- Each tree to be retained as a stump should be inspected and pruned by a qualified arborist with a minimum Level 3 Certificate in Arboriculture or equivalent plus demonstrated experience in inspecting and pruning trees for habitat.
- The retained stumps should be located away from the proposal structure so that if they collapse, they do not damage the tower. If the stumps, branches or coppice regrowth is within striking distance of the proposal , they should be inspected by a qualified arborist every few years to assess the extent of coppice growth and decay and residual risk. Coppice regrowth is poorly connected to the main stem and poses a higher incidence of failure than normal branches. A qualified arborist should advise on the required inspection frequency.
- The structural root zone of each retained stump should not be damaged because these are what will support the tree in the long term.
- The retained stumps should be relatively straight and vertical to reduce the risk of collapse and maximise standing longevity. Decay within the trunks is acceptable provided there are multiple stems within gliding range.
- Maintain as much canopy adjacent to the proposal structures where the stumps will be retained to provide connection to the stumps and provide shelter to the stumps from extreme wind to increase their standing lifespan.

Figure J-1 provides a conceptual diagram for under-transmission line glider poles. This is an example of what could be implemented, the heights of poles and distances between poles included in the diagram are examples only. The glider poles and/or rope bridges that would be implemented would be designed considering the project constraints including:

- clear access must be maintained to transmission infrastructure for operation and maintenance
- an exclusion zone of 30 metres applies from any part of a transmission line structure, and 17 metres from the centre of a transmission line
- a height limit of 4.3 metres applies for all structures and development activities
- all metal structures must be earthed
- structures must be designed so they don't encourage climbing (by people).

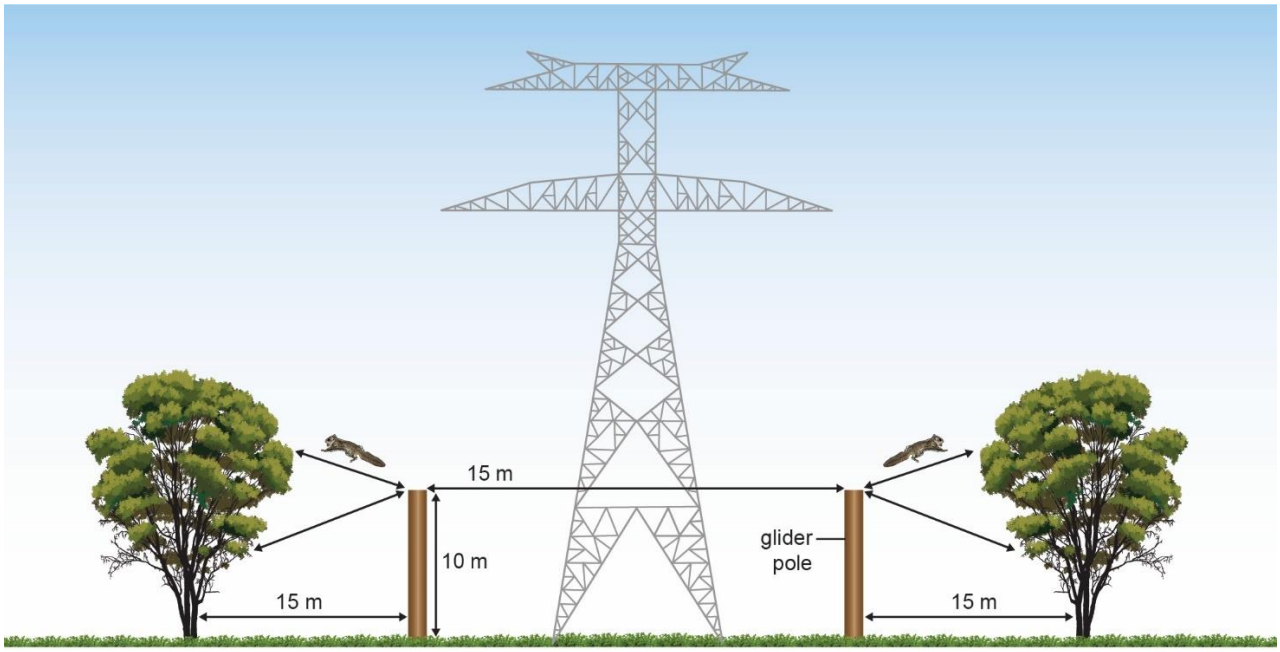

Figure J-1 Conceptual diagram of under-transmission glider poles (pole heights and distances to be determined during detailed design and in accordance with restrictions on structures within the easements)

Appendix K

Secretary's Environmental Assessment Requirements relating to biodiversity

K1 Secretary's Environmental Assessment Requirements

The project requires approval from the NSW Minister for Planning under Division 5.2, Part 5 of the *Environmental Planning and Assessment Act 1979* (the EP&A Act). The project has been declared as Critical State significant infrastructure under Section 5.13 of the EP&A Act. The NSW Planning Secretary's environmental assessment requirements (SEARs) for the project were issued on 7 October 2022.

Table K-1 outlines the SEARs for the project that relate to biodiversity and outlined where in this BDAR the SEARs have been addressed.

Table K-1 SEARs – Key Issue, Biodiversity

Item	Requirement	Where addressed in the BDAR
Key Issues		
Biodiversity	an assessment of the biodiversity impacts of the project, including impacts associated with transport route road upgrades, in accordance with the NSW *Biodiversity Conservation Act 2016* and the Biodiversity Assessment Method (BAM) 2020, and documented in a Biodiversity Development Assessment Report (BDAR);	This document in the BDAR has been prepared by an accredited assessor in accordance with the BAM.
	the BDAR must document the application of the avoid, minimise and offset framework including assessing all direct, indirect and prescribed impacts in accordance with the BAM;	This BDAR has been prepared in Accordance with the BAM. Avoidance and minimisation are outlined in BDAR Chapter 7. Offsets are outlined in BDAR Chapters 10 and 11.
	an assessment of the impacts of the project on listed aquatic threatened species, populations or ecological communities, scheduled under the *Fisheries Management Act 1994*, and a description of the measures to minimise and rehabilitate impacts; and	A BDAR is specific to terrestrial biodiversity and documents the results of applying the BAM which is established under the NSW *Biodiversity Conservation Act 2016*. A BDAR is not intended to address the impacts of the project on listed aquatic threatened species, populations or ecological communities, scheduled under the *Fisheries Management Act 1994*. However, BDAR Section 5.7 identifies listed aquatic threatened species, populations or ecological communities, scheduled under the *Fisheries Management Act 1994* likely to occur in the subject land. BDAR Section 8.3.1.6 identifies potential impacts on waterbodies, water quality and hydrological processes. This includes identification of potential impacts to habitat for FM Act listed aquatic threatened species, populations or ecological communities.

Item	Requirement	Where addressed in the BDAR
	if an offset is required, details of the measures proposed to address the offset obligations	BDAR Chapter 10 and Chapter 11 identify the required offset obligations for the project.
Water and Soils	an assessment of the impacts of the project on groundwater aquifers and groundwater dependent ecosystems having regard to the NSW Aquifer Interference Policy and relevant Water Sharing Plans.	BDAR Section 8.3.1.6 identifies potential impacts on waterbodies, water quality and hydrological processes. This includes identification of groundwater dependent ecosystems.
	where the project involves works within 40 metres of the high bank of any river, lake or wetlands (collectively waterfront land), identify likely impacts to the waterfront land, and how the activities are to be designed and implemented in accordance with the DPI Guidelines for Controlled Activities on Waterfront Land (2018) and (if necessary) Why Do Fish Need to Cross the Road? Fish Passage Requirements for Waterway Crossings (DPI 2003); and Policy & Guidelines for Fish Habitat Conservation & Management (DPI, 2013).	BDAR Section 8.3.1.6 identifies potential impacts on waterbodies, water quality and hydrological processes. This includes identification of Key Fish Habitats and work within waterfront land.

K2 Supplementary Secretary's Environmental Assessment Requirements

Supplementary SEARs for the project were issued on 23 March 2023.

On 2 March 2023, a delegate of the Federal Minister for the Environment determined that the project was a controlled action under section 75 of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). The EPBC Act controlling provisions for the proposed actions are:

listed threatened species and communities (sections 18 and 18A)
listed migratory species (sections 20 and 20A).

The project will be assessed in accordance with the bilateral assessment agreement Amending Agreement No. 1. The NSW Government and Australian Government have now finalised amendments to the Assessment Bilateral Agreement after changes to NSW legislation. The Australian Government has also formally endorsed the NSW Biodiversity Offsets Scheme through the Environment Protection and Biodiversity Conservation Act Condition-setting Policy. Under the Agreement, the NSW Government assesses development applications on behalf of the Australian Government. The Australian Government remains the decision-maker for the EPBC Act approval, considering the assessment report prepared by NSW's Department of Planning and Environment.

Table K-2 outlines the supplementary SEARs for the project that relate to biodiversity and outlined where in this BDAR the SEARs have been addressed.

Table K-2 Supplementary SEARs – Key Issue, Biodiversity

Item	Requirement	Where addressed in the EIS or BDAR
Introduction	On 2 March 2023, a delegate of the Federal Minister for the Environment determined Central-West Orana Renewable Energy Zone Transmission Project was a controlled action under section 75 of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). The EPBC Act controlling provisions for the proposed actions are: listed threatened species and communities (sections 18 and 18A) listed migratory species (sections 20 and 20A)	No action required

Item	Requirement	Where addressed in the EIS or BDAR
	The proposed action will be assessed in accordance with the bilateral assessment agreement Amending Agreement No. 1, and as such, is required to be assessed in the manner specified in Schedule 1 to that Agreement, including, addressing the matters outlined in Schedule 4 of the *Environment Protection and Biodiversity Conservation Regulations 2000* (EPBC Regulations).	The EIS delas with this
	The proponent must undertake an assessment of all protected matters that may be impacted by the development under the controlling provision identified in paragraph 1. The Commonwealth Department of Climate Change, Energy, the Environment and Water (DCCEEW) considers that the proposed action is likely to have a significant impact on threatened species and communities and migratory species listed in **Appendix A**.	BDAR Section 4.3.2 and Chapter 5 identify the EPBC Act listed communities and threatened species present within the subject land. BDAR Chapter 8 identifies biodiversity impacts including to biodiversity MNES. BDAR Appendix C provided a detailed examination of impacts to biodiversity MNES.
	The proponent must consider each of the protected matters under the triggered controlling provisions that may be impacted by the action. Note that this may not be a complete list and it is the responsibility of the proponent to undertake an analysis of the relevant impacts and ensure all protected matters that are likely to be impacted are assessed for the Commonwealth Minister's consideration	BDAR Section 4.3.2 and Chapter 5 identify the EPBC Act listed communities and threatened species present within the subject land. BDAR Chapter 8 identifies biodiversity impacts including to biodiversity MNES. BDAR Appendix C provided a detailed examination of impacts to biodiversity MNES.
Relevant Requirements	The Environmental Impact Statement (EIS) must address all matters outlined in Schedule 4 of the EPBC Regulations and all matters outlined below in relation to the controlling provisions.	Addressed in the EIS and BDAR.
Project Description	The title of the action, background to the action and current status.	Addressed in the EIS and in BDAR Chapter 1.
	The precise location and description of all works to be undertaken (including associated offsite works and infrastructure), structures to be built or elements of the action that may have impacts on Matters of National Environmental Significance (MNES)	Addressed in the EIS and in BDAR Chapter 1.

Item	Requirement	Where addressed in the EIS or BDAR
	How the action relates to any other actions that have been or are being taken in the region affected by the action.	Addressed in the EIS.
	How the works are to be undertaken and design parameters for those aspects of the structures or elements of the action that may have relevant impacts on MNES.	Addressed in the EIS and in BDAR Chapter 1.
Avoidance, mitigation and offsetting	For each of the relevant matters protected that are likely to be significantly impacted by the action, the EIS must provide information on proposed avoidance and mitigation measures to manage the relevant impacts of the action including: — a description, and an assessment of the expected or predicted effectiveness of the mitigation measures — any statutory policy basis for the mitigation measures — the cost of the mitigation measures — an outline of an environmental management plan that sets out the framework for continuing management, mitigation and monitoring programs for the relevant impacts of the action, including any provisions for independent environmental auditing — the name of the agency responsible for endorsing or approving each mitigation measure or monitoring program.	Addressed in the EIS and in BDAR Chapter 7 and Section 8.4.
	Where a significant residual adverse impact to a relevant protected matter is considered likely, the EIS must provide information on the proposed offset strategy, including discussion of the conservation benefit associated with the proposed offset strategy.	Offsets are addressed in BDAR Chapter 10 and Chapter 11.
	For each of the relevant matters likely to be impacted by the action the EIS must provide reference to, and consideration of, relevant Commonwealth guidelines and policy statements including any: — conservation advice or recovery plan for the species or community — relevant threat abatement plan for the species or community — wildlife conservation plan for the species — any strategic assessment.	Addressed in the EIS and in BDAR Appendix C.

Item	Requirement	Where addressed in the EIS or BDAR
Key Issues		
Biodiversity	The EIS must identify each EPBC Act listed threatened species and community and migratory species likely to be impacted by the action. For any species and communities that are likely to be impacted, the proponent must provide a description of the nature, quantum and consequences of the impacts. For species and communities potentially located in the project area or in the vicinity that are not likely to be impacted, provide evidence why they are not likely to be impacted	BDAR Section 4.3.2 and Chapter 5 identify the EPBC Act listed communities and threatened species present within the subject land. BDAR Chapter 8 identifies biodiversity impacts including to biodiversity MNES. BDAR Appendix C provided a detailed examination of impacts to biodiversity MNES.
	For each of the EPBC Act listed threatened species and communities and migratory species likely to be impacted by the action the EIS must provide a separate: — description of the habitat (including identification and mapping of suitable breeding habitat, suitable foraging habitat, important populations and habitat critical for survival), with consideration of, and reference to, any relevant Commonwealth guidelines and policy statements including listing advice, conservation advice and recovery plans. — details of the scope, timing and methodology for studies or surveys used and how they are consistent with (or justification for divergence from) published Australian Government guidelines and policy statements. — description of the relevant impacts of the action having regard to the full national extent of the species or community's range — description of the specific proposed avoidance and mitigation measures to deal with relevant impacts of the action — identification of significant residual adverse impacts likely to occur after the proposed activities to avoid and mitigate all impacts are taken into account. — a description of any offsets proposed to address residual adverse significant impacts and how these offsets will be established	BDAR Section 4.3.2 and Chapter 5 identify the EPBC Act listed communities and threatened species present within the subject land. BDAR Chapter 8 identifies biodiversity impacts including to biodiversity MNES. BDAR Appendix C provided a detailed examination of impacts to biodiversity MNES. Offsets are addressed in BDAR Chapter 10 and Chapter 11.

Item	Requirement	Where addressed in the EIS or BDAR
	— details of how the current published NSW Biodiversity Assessment Method (BAM) has been applied in accordance with the objects of the EPBC Act to offset significant residual adverse impacts; and — details of the offset package to compensate for significant residual impacts including details of the credit profiles required to offset the action in accordance with the BAM and/or mapping and descriptions of the extent and condition of the relevant habitat and/or threatened communities occurring on proposed offset sites	
	Any significant residual impacts not addressed by the BAM may need to be addressed in accordance with the EPBC Act 1999 Environmental Offset Policy. https://www.dcceew.gov.au/environment/epbc/publications/epbc-act-environmental-offsets-policy	Offsets are addressed in BDAR Chapter 10 and Chapter 11.
Other approvals and conditions	Information in relation to any other approvals or conditions required must include the information prescribed in Schedule 4 Clause 5 (a) (b) (c) and (d) of the EPBC Regulations.	Chapter 7 – Chapter 20 of the EIS EIS Appendix B (Strategic Planning review) EIS Appendix E (Statutory Compliance)
Environmental Record of person proposing to take the action	Information in relation to the environmental record of a person proposing to take the action must include details as prescribed in Schedule 4 Clause 6 of the EPBC Regulations.	The EIS.
Information Sources	For information given in an EIS, the EIS must state the source of the information, how recent the information is, how the reliability of the information was tested; and what uncertainties (if any) are in the information.	BDAR Section 1.5, Section 2.2.1 and Section 2.3.1 outline the information sources reviewed.

Appendix L

Assessments of significance – FM Act

L1 Introduction

Section 221ZV of the FM Act outlines the 'test of significance' that is to be undertaken to determine whether the proposal is likely to significantly affect threatened species listed under the FM Act. Assessments of significance have been completed for the following threatened species listed under the FM Act:

- Southern Purple Spotted Gudgeon (listed as Endangered under the FM Act): habitat mapped in the Talbragar Valley and Inland Slopes IBRA subregions in Sandy Creek, Laheys Creek, Patricks Creek, Tucklan Creek, Tallawang Creek, Huxleys Creek, Slapdash Creek, and White Creek, and some smaller unnamed watercourses.
- Eel Tailed Catfish in the Murray-Darling Basin (listed as Endangered Population under the FM Act): habitat is mapped in Talbragar River in the Inland Slopes IBRA subregion. An incidental observation of Eel Tailed Catfish was made in Laheys Creek during nocturnal bird and mammal surveys.
- Darling River Hardyhead in the Hunter River Catchment (listed as Endangered Population under the FM Act): habitat is mapped in Turill Creek, Four Mile Creek in the Pilliga and Liverpool Range IBRA subregions.

In the absence of any targeted aquatic threatened species surveys, these species are assumed to occur. These habitats are illustrated in Figure 14-19. These threatened fish species are assessed together below.

As outlined in Section 8.3.1.6 of the BDAR, it is considered unlikely that temporary impacts would result in any long-term degradation of mapped key fish habitat areas. All waterway crossing will be designed in accordance with *Why Do Fish Need to Cross the Road? Fish Passage Requirements for Waterway Crossings* (Fairfull and Witheridge, 2003) and *Policy & Guidelines for Fish Habitat Conservation & Management (2013 update)* (Department of Primary Industries, 2013). The extent of impact to waterbodies, water quality and hydrological processes is expected to be minor throughout the project, subsequently reducing the risk of impacts on threatened species within the subject land.

The following is to be taken into account for the purposes of determining whether a proposed development or activity is likely to significantly affect threatened species or ecological communities, or their habitats —

(a) in the case of a threatened species, whether the proposed development or activity is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction

This question applies to the Southern Purple Spotted Gudgeon. Importantly, the project is not likely to have an adverse effect on the life cycle of the Southern Purple Spotted Gudgeon such that a viable local population of the species is likely to be placed at risk of extinction.

Southern Purple Spotted Gudgeon is threatened by:

- predation and competition with introduced fish such as Eastern Gambusia (*Gambusia holbrooki*) and Redfin Perch (*Perca fluviatilis*)
- habitat disturbance by Common Carp (*Cyprinus carpio*)
- fluctuations in water levels and flow due to river regulation
- increased turbidity and damage of stream banks by livestock access
- decreased water quality due to agricultural runoff and siltation
- extreme weather events, such as drought and bushfires
- local extinctions may not be naturally recolonised because of the species' inability to disperse the long distances required.

The project will have a limited impact on these factors that threaten Southern Purple Spotted Gudgeon. Importantly, waterway crossings will be designed in accordance with *Why Do Fish Need to Cross the Road? Fish Passage Requirements for Waterway Crossings* (Fairfull and Witheridge, 2003) and *Policy & Guidelines for Fish Habitat Conservation & Management (2013 update)* (Department of Primary Industries, 2013). The extent of impact to waterbodies, water quality and hydrological processes is expected to be minor throughout the project, subsequently reducing the risk of impacts on threatened species within the subject land. Breeding and other lifecycle activities are expected to continue.

(b) in the case of an endangered population, whether the proposed development or activity is likely to have an adverse effect on the life cycle of the species that constitutes the endangered population such that a viable local population of the species is likely to be placed at risk of extinction

This question applies to the Eel Tailed Catfish in the Murray-Darling Basin and the Darling River Hardyhead in the Hunter River Catchment endangered populations. Importantly, the project is not likely to have an adverse effect on the life cycle of the Eel Tailed Catfish in the Murray-Darling Basin and the Darling River Hardyhead in the Hunter River Catchment endangered populations such that a viable local population of the species is likely to be placed at risk of extinction.

The Eel Tailed Catfish is threatened due to:

- loss of suitable habitat (lakes, billabongs, lagoons) through river regulation
- competitive and predatory interactions with introduced species such as Common Carp (*Cyprinus carpio*) and Redfin Perch (*Perca fluviatilis*)
- loss of habitat and spawning sites through siltation
- reduced success of spawning and recruitment due to alterations to flow patterns and flooding regimes
- reduced habitat and loss of temperature spawning cues due to cold-water discharge from the base of large dams and high-level weirs
- run-off of chemical pollution into waterways, including agricultural pesticides
- historical commercial and recreational overfishing.

The Darling River Hardyhead is threatened due to:

- the habitat of the Darling River Hardyhead has been degraded through soil erosion, land clearing and livestock damage to riverbanks
- thermal pollution (changes in water temperature) from large impoundments such as Glenbawn Dam, Lake Lidell and Lake St Clair is likely to harm populations downstream
- the presence of competing species, including alien Goldfish (Carassius auratus), eastern gambusia (Gambusa holbrooki) and common carp (Cyprinus carpio) may be causing significant declines of the Darling River Hardyhead in the Hunter River catchment. It is also likely that gambusia feed on the eggs and larvae of the Darling River Hardyhead
- water extraction from smaller tributary streams during droughts may put additional pressure on remnant populations.

The project will have a limited impact on these factors that threaten Eel Tailed Catfish and Darling River Hardyhead. The only likely impact to occur in an area of key fish habitat would be the removal or trimming of tree canopy on the creek banks to facilitate the construction and operation of the powerlines spanning each riparian area. All trunk bases and understorey would be retained in-situ adjoining the creek banks. All potential indirect impacts associated with erosion and sedimentation impacts would be managed and monitored to ensure that these do not impact the riparian areas.

At most, any impact to water quality would be temporary and negligible. Each riparian area would continue to function as it currently performs. It is considered unlikely that temporary impacts would result in any long-term degradation of mapped key fish habitat areas.

Importantly, waterway crossings will be designed in accordance with *Why Do Fish Need to Cross the Road? Fish Passage Requirements for Waterway Crossings* (Fairfull and Witheridge, 2003) and *Policy & Guidelines for Fish Habitat Conservation & Management (2013 update)* (Department of Primary Industries, 2013). The extent of impact to waterbodies, water quality and hydrological processes is expected to be minor throughout the project, subsequently reducing the risk of impacts on threatened species within the subject land. Breeding and other lifecycle activities are expected to continue.

(c) in the case of an endangered ecological community or critically endangered ecological community, whether the proposed development or activity—

(i) is likely to have an adverse effect on the extent of the ecological community such that its local occurrence is likely to be placed at risk of extinction, or

(ii) is likely to substantially and adversely modify the composition of the ecological community such that its local occurrence is likely to be placed at risk of extinction,

Not applicable.

(d) in relation to the habitat of a threatened species, population or ecological community—

- **(i) the extent to which habitat is likely to be removed or modified as a result of the proposed development or activity, and**
- **(ii) whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed development or activity, and**
- **(iii) the importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species or ecological community in the locality,**

The project crosses a number of waterways at various stages of the proposed development. However, the extent of impact to waterbodies, water quality and hydrological processes is expected to be minor throughout the project, subsequently reducing the risk of impacts on threatened species within the subject land.

All permanent disturbance areas in the project are located outside core riparian zone areas. This is essential as the degradation of riparian areas can result in significant soil and riverbank erosion, increased nutrients and sediment in waterways, and a reduction in the ability to filter overland run-off contaminants from waterways (Chua *et al*., 2019). Such changes to waterways also have the potential to impact both the aquatic and terrestrial biodiversity associated with affected habitats (Lind *et al*., 2019). Recognising this, the Recommended Mitigation Measures in Section 8.4 outline that any riparian areas subject to disturbance would be stabilised and rehabilitated, and that only vegetation of the tree-stratum can be cleared (with tree trunks to be retained), protecting the understory in such areas. As no core riparian zones are being permanently impacted, no direct impacts are expected to occur to these aquatic values of reliant threatened species.

Transmission line towers would be located 50 metres away from waterways, further reducing the risk of potential impacts to waterbodies, water quality and hydrological processes.

Impacts from the proposed development on aquatic habitats, particularly mapped key fish habitats (Strahler 4/5th Order streams) are considered likely to be negligible. Avoiding and minimising impacts on aquatic habitats would be a priority of detailed design and any residual indirect impacts would be subject to mitigation measures. Transmission line structures would be located around 50 to 100 metres from the waterways to minimise impact to riparian areas.

The only likely impact to occur in an area of key fish habitat would be the removal or trimming of tree canopy on the creek banks to facilitate the construction and operation of the powerlines spanning each riparian area All trunk bases and understorey would be retained in-situ adjoining the creek banks. All potential indirect impacts associated with erosion and sedimentation impacts would be managed and monitored to ensure that these do not impact the riparian areas.

All waterway crossing will be designed in accordance with *Why Do Fish Need to Cross the Road? Fish Passage Requirements for Waterway Crossings* (Fairfull and Witheridge, 2003) and *Policy & Guidelines for Fish Habitat Conservation & Management (2013 update)* (Department of Primary Industries, 2013). As such, habitat fragmentation will not occur.

Temporary impact associated with vehicle water crossings during the construction phase will be limited where possible to existing farm tracks and crossing points. An overview of each temporary water crossing is presented in Figure 14-19. These impacts have been restricted to eight mapped key fish habitats (Strahler 4/5th Order streams) being:

- L1W1 Wilpinjong Creek (Strahler 5)
- L1W2 Wilpinjong Creek (Strahler 5)
- L1W3 Wilpinjong Creek (Strahler 4)
- L1W4 Sportsmans Hollow Creek (Strahler 5)
- L1W7 Wilpinjong Creek (Strahler 5)
- L2W4 Talbragar Creek (Strahler 6)
- L2W8 Wagrobil Creek (Strahler 4)
- L3W4 Laheys Creek (Strahler 5).

At most, any impact to water quality would be temporary and negligible. Each riparian area would continue to function as it currently performs. It is considered unlikely that temporary impacts would result in any long-term degradation of mapped key fish habitat areas.

Habitat for these species is mapped as follows:

- Southern Purple Spotted Gudgeon (listed as Endangered under the FM Act): habitat mapped in the Talbragar Valley and Inland Slopes IBRA subregions in Sandy Creek, Laheys Creek, Patricks Creek, Tucklan Creek, Tallawang Creek, Huxleys Creek, Slapdash Creek, and White Creek, and some smaller unnamed watercourses.
- Eel Tailed Catfish in the Murray-Darling Basin (listed as Endangered Population under the FM Act): habitat is mapped in Talbragar River in the Inland Slopes IBRA subregion. An incidental observation of Eel Tailed Catfish was made in Laheys Creek during nocturnal bird and mammal surveys.
- Darling River Hardyhead in the Hunter River Catchment (listed as Endangered Population under the FM Act): habitat is mapped in Turill Creek, Four Mile Creek in the Pilliga and Liverpool Range IBRA subregions.

These habitats would be considered important for these species.

(e) whether the proposed development or activity is likely to have an adverse effect on any critical habitat (either directly or indirectly),

The proposal will not impact on any critical habitat.

(f) whether the proposed development or activity is consistent with a Priorities Action Statement

The NSW DPI Priorities Action Statements outline recovery actions for these species. The actions include:

- advice to consent and determining authorities
- collate and review existing information
- community and stakeholder liaison, awareness and education
- compliance/enforcement
- enhance, modify or implement NRM planning processes to minimize adverse impacts on threatened species
- habitat rehabilitation
- pest eradication and control
- research/monitoring
- stocking/translocation
- survey/mapping.

The project does not interfere with any of the recovery actions for these species.

(g) whether the proposed development or activity is or is part of a key threatening process or is likely to increase the impact of a key threatening process.

A KTP is a process that threatens, or may have the capability to threaten, the survival or evolutionary development of species, population or ecological community. Key threatening processes are listed by NSW fisheries include:

- degradation of native riparian vegetation along New South Wales water courses
- hook and line fishing in areas important for the survival of threatened fish species
- human-caused climate change
- installation and operation of instream structures and other mechanisms that alter natural flow regimes of rivers and streams
- introduction of fish to waters within a river catchment outside their natural range
- introduction of non-indigenous fish and marine vegetation to the coastal waters of New South Wales
- removal of large woody debris from New South Wales rivers and streams
- the current shark meshing program in New South Wales waters.

The project involves removing native riparian vegetation along New South Wales water courses and installation and operation of instream structures (access tracks).

The only likely impact to occur in an area of key fish habitat would be the removal or trimming of tree canopy on the creek banks to facilitate the construction and operation of the powerlines spanning each riparian area All trunk bases and understorey would be retained in-situ adjoining the creek banks. All potential indirect impacts associated with erosion and sedimentation impacts would be managed and monitored to ensure that these do not impact the riparian areas.

All waterway crossing will be designed in accordance with *Why Do Fish Need to Cross the Road? Fish Passage Requirements for Waterway Crossings* (Fairfull and Witheridge, 2003) and *Policy & Guidelines for Fish Habitat Conservation & Management (2013 update)* (Department of Primary Industries, 2013). As such, habitat fragmentation will not occur.

Conclusion

After consideration of the factors above, an overall conclusion has been made that the proposal is unlikely to result in a significant effect to Southern Purple Spotted Gudgeon, Eel Tailed Catfish in the Murray-Darling Basin or Darling River Hardyhead in the Hunter River Catchment. Impacts to habitat for these species is expected to be minimal and will be carefully managed.

Appendix M

Evidence to support and the justify the quantum of partial loss applied to disturbance area B and HZ

Our ref: PS130593-ECO-LTR-001 RevA

By email
ben.ellis@environment.nsw.gov.au

16 August 2023

Ben Ellis
A/Senior Team Leader Planning North West
Biodiversity, Conservation and Science Directorat

Dear Ben

Partial Impacts

1. Introduction to project

This letter has been prepared by WSP Australia Pty Ltd on behalf of Energy Corporation of NSW (Energy Co) for the proposed Central-West Orana Renewable Energy Zone (CWO REZ) transmission infrastructure Project (the Project).

WSP Australia Pty Ltd has prepared a Biodiversity Development Assessment Report (BDAR) for the Project in accordance with NSW Biodiversity Assessment Method 2020 (BAM). A key component of the projects assessment is determining the approach and extent of the partial impacts for transmission line maintenance and how these are assessed under the BAM.

Following ongoing consultation with Biodiversity Conservation & Science (BCS) a range of assessment approach and key considerations have been identified, with a particular focus on providing a project specific and evidence-based approach.

This memo presents the finding of the adopted evidence-based approach to partial impacts developed for the Project. It summaries the information previously presented in consultative workshop with BCS on the 9th May 2023.

1.1 Project description

The Project would comprise the following key features:

- a new switching station at Wollar, to connect the project to Transgrid's existing Wollar Substation and onto the National Electricity Market (NEM)
- primary network infrastructure, comprising twin double circuit 500 kV transmission lines and associated infrastructure

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- energy hubs at Merotherie and Elong Elong, to connect energy generation and storage projects within the Central-West Orana REZ to the new primary network infrastructure.
- secondary network infrastructure, comprising new single and double circuit 330 kV single lines to connect energy generation and storage projects within the Central-West Orana REZ to the energy hubs
- switching stations along the secondary network infrastructure, to transfer the energy generated from the energy generation projects onto the secondary network infrastructure
- establishment and upgrade of access tracks and public roads, and other ancillary works such as laydown and staging areas, earthwork material sites with crushing and screening plants, concrete batching plants, brake/winch sites, site offices and workforce accommodation camps
- utility adjustments required for construction of the new network infrastructure.

The Project disturbance area is identified based on realistic project component locations and areas however it is indicative at this stage. The area would be confirmed during finalisation of design and construction methodology and would be developed as part of the consideration of avoidance and impact minimisation. Disturbance area has the same meaning as 'Development site' as defined in the BAM.

The disturbance area would have varying degrees of physical disturbance along the transmission line alignment to reflect construction and operational requirements, and these have been applied to the biodiversity assessment. For the purpose of this BDAR, disturbance area has been divided into the following areas consisting of:

- **Disturbance area A** – assumed for complete removal of vegetation.
- **Disturbance area B** – assumed to have no ground disturbance except in circumstances associated with the operational requirements for vegetation maintenance to meet the vegetation clearance heights. The assumed partial vegetation clearing is restricted to clearance of vegetation with growth height potential of 2 metres or above.
- **Disturbance area HZ** – a hazard tree zone where there would be impacts to selected trees that are within the risk category height range 20–30 m and have poor structural stability posing a risk of falling.

The width of the disturbance areas A, B and HZ areas for transmission line components vary for the 330 kV and 500 kV transmission lines based on their vegetation clearing requirements and construction methodologies. Figure 1-1 identify the allocation of each area for each line type.

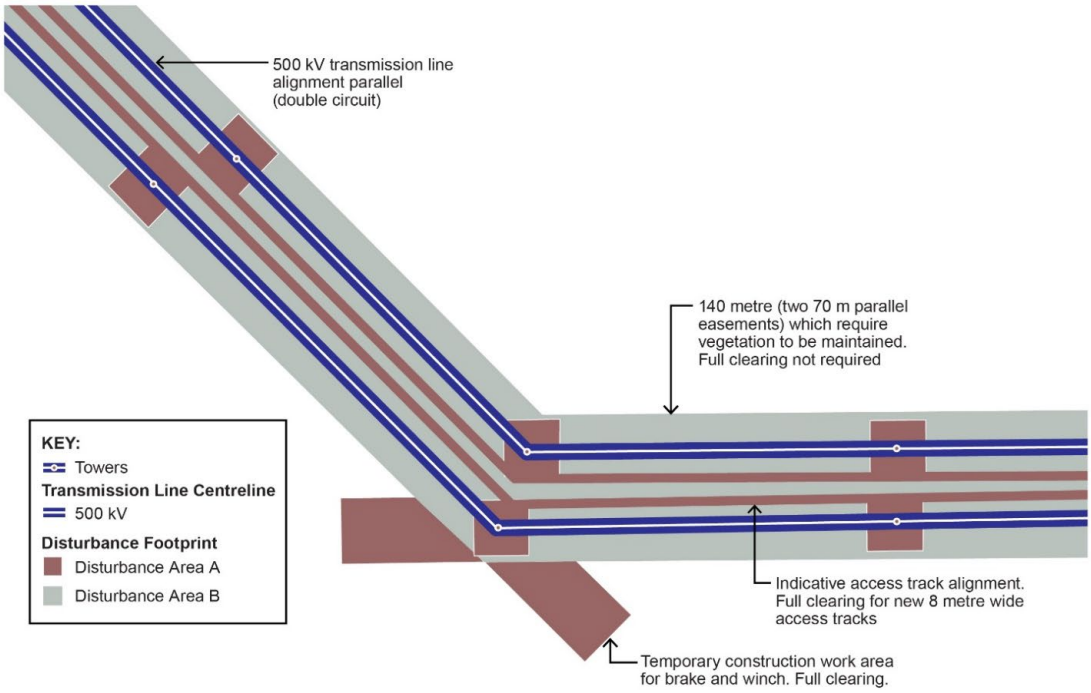


Figure 1-1 Indicative disturbance area definition for a typical twin 500 kV transmission line section

2. Background to partial impacts in ETL

The Project has identified partial impacts are applicable to two disturbance zones:

- **Disturbance area B** – assumed to have no ground disturbance except in circumstances associated with the operational requirements for vegetation maintenance to meet the vegetation clearance heights. The assumed partial vegetation clearing is restricted to clearance of vegetation with growth height potential of 2 metres or above.
- **Disturbance area HZ** – a hazard tree zone where there would be impacts to selected trees that are within the risk category height range 20–30 m and have poor structural stability posing a risk of falling.

These zones are associated with areas of the Electrical transmission line (ETL) corridor not subject to permanent construction footprints but rather areas of vegetation maintenance.

ETL corridor management traditionally focuses on the complete removal of vegetation using short rotation times with the aim to reduce the perceived fire hazard associated with transmission line corridor vegetation.

The Project has taken a different approach where the maintenance zone underneath the transmission line will be managed through the removal of vegetation with specific growth height levels in accordance with vegetation clearing requirements (i.e. down to a growth height of 2 metres) leaving the midstory and ground layers intact (Figure 2-1).

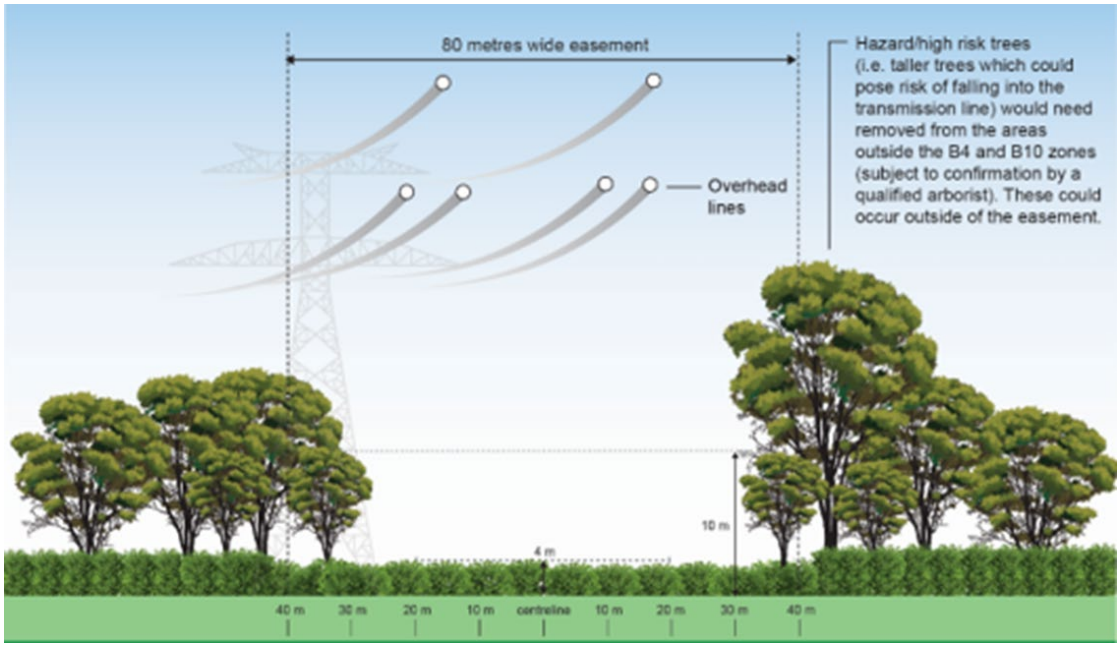


Figure 2-1 Conceptual layout of transmission line project

This partial clearing of the ETL easement forms part of the measures taken to minimise impacts to biodiversity values. Maintaining a shrub layer will help avoid total loss of species richness, encourage native species and limit colonisation opportunities of introduced species (see Clarke and White, 2008).

2.1.1 Key partial impacts to be considered

The maintenance of vegetation will still require the need to trim, spray or otherwise continually supress woody vegetation under powerlines. These impacts require quantification, with the key attributes assessed by the BAM as likely to be affected being:

- tree composition and structure
- shrub composition and structure
- litter cover function
- coarse woody debris function
- stem size class function
- regeneration function.

Following consultation with BCS in the following impacts were specifically identified for potential removal and continual suppression of the tree and shrub growth forms also has the potential to expose all other growth forms to indirect impacts including, but not limited to:

- disturbance facilitating penetration of the vegetation assemblage by exotic weed species
- a localised reduction/loss of the stored aerial and soil seed bank through the removal and disturbance of topsoil and the loss of serotinous flora species
- a localised change in the microclimate of the vegetation assemblage and habitat i.e. changes in temperature, wind, light and humidity as a result of the loss of canopy cover in the assemblage
- a localised change in the hydrology of the vegetation assemblage and habitat i.e. changes in surface water flows as a result of the loss of structural features capturing surface water
- a localised change in the soil conditions of the vegetation assemblage and habitat i.e. increased sedimentation and nutrient availability as a result of direct impact to the soil profile and the removal of stabilising vegetation
- a localised change in species interactions such as pollination and seed dispersal.

2.2 Literature based theory on partial impacts for ETL

ETL clearings develop into novel habitats over time (see Eldridge, Eyitayo et al., 2017) and species and functional composition have been shown to be different between sites with control and thinned canopy treatments with proportionally more individuals of grasses and forbs in thinned plots (see Tsai et al., 2018). Where structural elements such as the canopy tree layer is removed from existing ETL easements across NSW, shrubby mid storey layer, or derived shrub land and grassland vegetation structure may develop.

Canopy opening disturbance has immediate and substantive effects on understory microclimate and therefore the establishment and growth of understory plants (Tsai et al., 2018). Where shrub and ground stratum cover increases it has been documented that composition or species richness may decrease through species being out competed by more dominant species. Studies show a general shift to early successional shade intolerant species and those species that reproduce through clonal growth (see Luken, et al., 1992; Eldridge, Eyitayo et al. 2017; Walker & Koen, 1995).

Specifically, for the project, most Dry Sclerophyll Forest PCTs have existing woody shrub layers will likely see changes in the future shrub and ground layers cover scores, while for those PCTs with greater grassy understorey components (e.g. Grassy Woodlands) similar future increase in vegetation cover for grass and grass like, forb, fern and other species cover attributes is likely (Nobel, 1997; Both et al. 1996).

2.3 Approach to partial impacts within BAM-C

To facilitate these partial impact scenarios the BAM allows for circumstances where partial clearing of vegetation is proposed and remaining vegetation will be maintained (i.e. not degraded further over time). The consideration of these partial impacts within the BAM-C is applied through the adjustment of future value of the relevant vegetation integrity (VI) attributes. In assessing direct impacts on native vegetation, future VI scores were calculated in the BAM-C for each disturbance area subset and associated vegetation zone as follows:

- For disturbance area A, the future vegetation integrity score was calculated as zero (assuming total loss of native vegetation).
- For disturbance area B (partial clearing of the transmission line easement) future vegetation integrity scores have been calculated through changes to mean average scores in attributes associated with composition condition, structure condition, and function condition.
- For disturbance area HZ (Hazard High Risk Trees) future vegetation integrity scores have been calculated through changes to tree species composition and structure

2.3.1 BAM-C limitations in ability to measure partial impacts.

The BAM-C has a number of limitations when assessing partial flexibility in the input functions to calculate future vegetation integrity scores, specifically in that attributes can only be decreased from the recorded mean average. Attribute scores cannot be increased when using the clearing module. This limitation means that any composition, structure or function attribute cannot be adequately adjusted to reflect likely changes in vegetation integrity where evidence from existing powerline easements suggests the attributes are likely to increase (e.g. increased shrub cover due to tree removal).

These deficiencies in the BAM-C generates overlapping conservatism to final changes in VI and the assessed area of partial impact.

A summary of the key limitations of BAM-C is provided below:

- Only measures reductions in attributes values do not gain (e.g increased shrub or grass cover not measured)

  VI changes are limited by benchmark data and seasonal influences (changes that are still above benchmark values indicate no change in VI). For example an observed decrease in forb diversity in a high condition PCT with substantially higher diversity than benchmark values will only generate a change in the VI scores if it fall below the upper benchmark value.

- Partial impact zone (Disturbance area B) being assessed does not representative of final clearing footprint- (for the purpose of the BAM-C a partial impact zone is applied to all areas within the operational corridor, however ground disturbance will be limited to only woody tree and tall shrub removal)- for Grassy Woodland this is generally isolated to widely spaced canopy.

2.3.2 Previously approved approach to partial impacts

Previously approved ETL infrastructure projects assessment of partial impact in accordance with BAM have adopted conservative, literature-based changes in VI scores. Specifically, for Project Energy Connect West and East a negotiated partial assessment that adopted the following reductions in VI values:

- all canopy attributes to zero
- 30% reduction in composition of understory shrub, grass & grass like, forb, fern and other species
- 30% reduction in of understory structure
- 25% reduction in leaf litter and fallen timber.

These approved changes in BAM-C VI partial impact for Grassy Woodlands formations for PEC East resulted in VI reductions ranging for individual PCTs from -43.1 to -58 VI scores.

3. Methodology to evidence-based approach

3.1 Overview

EnergyCo have built on the previous approach of these approved methods to develop a Project specific and evidence-based approach to partial impacts. The following sections outline the methodology, results and proposed outcomes supporting the partial impact approach adopted within the BDAR.

To increase our current understanding of the partial impacts within maintenance areas of ETLs, a range of field validated data across accessible ETLs within the Project or same PCTs/ IBRA Subregions were collected.

This field survey provides an evidence-based approach that builds on and refines the previous literature-based assumptions in assessing partial impact. A total of 22 BAM plots across 11 separate sites and 10 PCTs (6 Grassy Woodland, 4 Dry Sclerophyll) (refer to Table 3.1 and Figure 3.1 below).

Table 3.1 PCTs subject to field survey.

PCT NUMBER	PCT	IBRA SUBREGION
Grassy Woodlands		
76	Western Grey Box tall grassy woodland on alluvial loam and clay soils in the NSW South Western Slopes and Riverina Bioregions	Inland Slopes
80	Western Grey Box - White Cypress Pine tall woodland on loam soil on alluvial plains of NSW South Western Slopes Bioregion and Riverina Bioregion	Lower Slopes
266	White Box grassy woodland in the upper slopes sub-region of the NSW South Western Slopes Bioregion	Inland Slopes
281	Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion	Kerrabee
461	Tumbledown Gum woodland on hills in the northern NSW South Western Slopes Bioregion and southern Brigalow Belt South Bioregion	Inland Slopes
618	White Box x Grey Box - red gum - Rough-barked Apple grassy woodland on rich soils on hills in the upper Hunter Valley	Kerrabee
Dry Sclerophyll Forests (Shrubby sub-formation)		
477	Inland Scribbly Gum - Red Stringybark - Black Cypress Pine - Red Ironbark open forest on sandstone hills in the southern Brigalow Belt South Bioregion and northern NSW South Western Slopes Bioregion	Inland Slopes
479	479-Narrow-leaved Ironbark- Black Cypress Pine - stringybark +/- Grey Gum +/- Narrow-leaved Wattle shrubby open forest on sandstone hills in the southern Brigalow Belt South Bioregion and Sydney Basin Bioregion	Inland Slopes
1606	White Box - Narrow-leaved Ironbark - Blakely's Red Gum shrubby open forest of the central and upper Hunter	Kerrabee
1674	Red Ironbark - Brown Bloodwood - Black Pine heathy open forest on sandstone ranges of the Sydney Basin	Inland Slopes

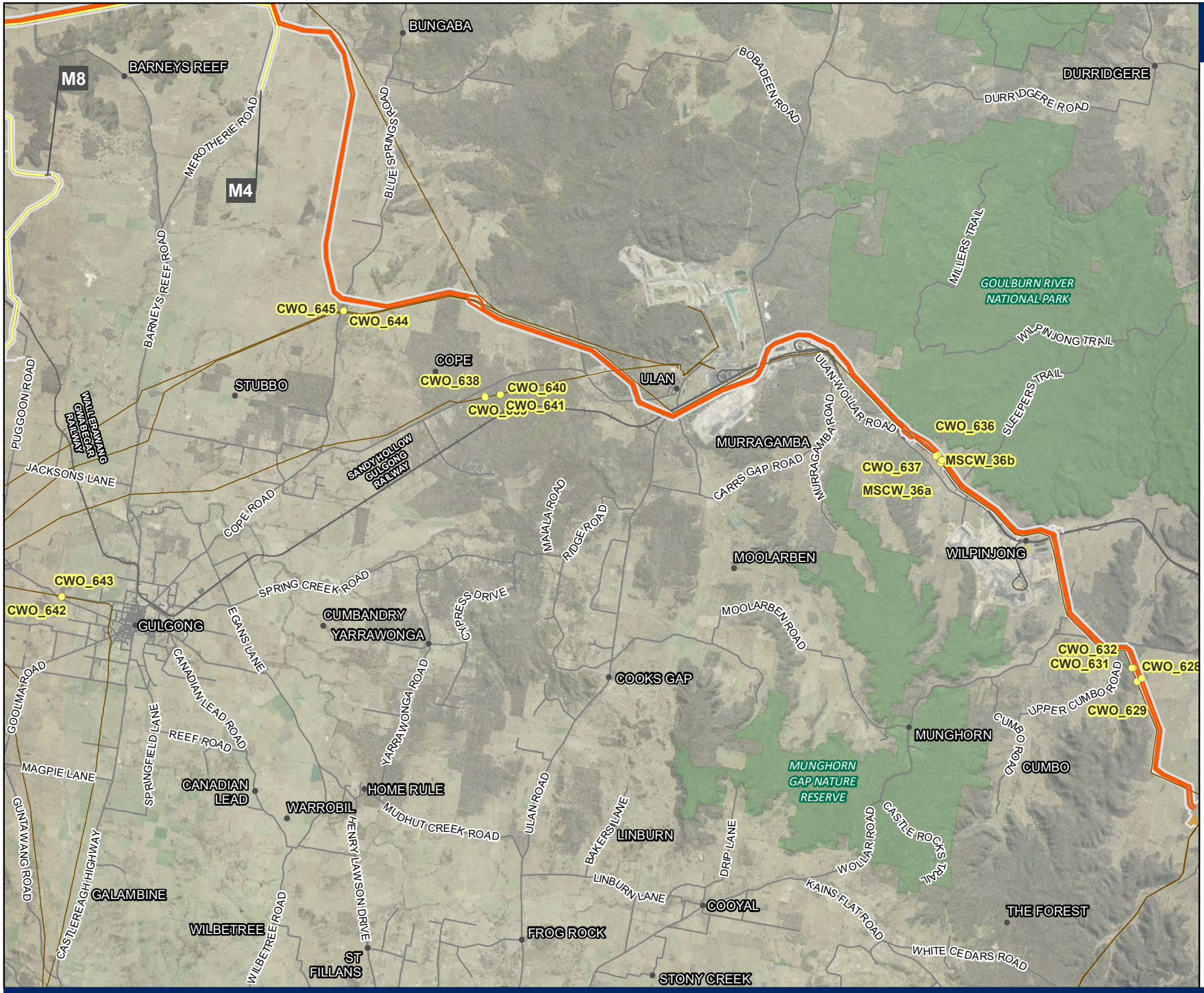
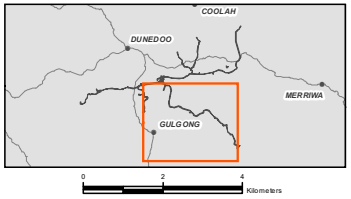


Figure 3-1
Partial Impact Survey Locations Overview

Legend

- Biodiversity Study Area
- 330kv transmission line
- 500kv transmission line
- Construction compound
- Switching Station
- Existing transmission line
- Road
- Railway
- State Forests
- BAM Quadrant



Coordinate system: GDA 1994 MGA Zone 55
Scale ratio correct when printed at A4

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Data sources: WSP 2023, EnergyCo, NSWSS

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Figure 3 -1
Partial Impact Survey Locations
Plots 642 & 643

OLD MILL ROAD

CWO_643

CWO_642

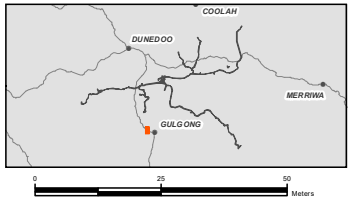
CASTLEREAGH HIGHWAY

Legend

- Existing transmission line
- Road
- BAM Quadrant

State Vegetation Mapping

- PCT : 0, Not classified
- PCT : 81, Grassy Woodlands



Coordinate system: GDA 1994 MGA Zone 55
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Data sources: WSP 2023, NSWSS

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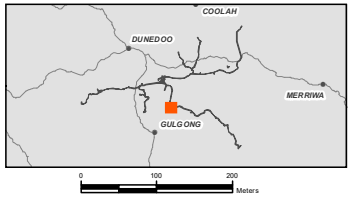
Figure 3 -1
Partial Impact Survey Locations
Plots 644 & 645

Legend

- 500 kV transmission line
- Biodiversity Study Area
- Existing transmission line
- Road
- Watercourse
- BAM Quadrant

State Vegetation Mapping

- PCT : 0, Not classified
- PCT : 1103, Grassy Woodlands
- PCT : 1610, Dry Sclerophyll Forests (Shrubby sub-formation)
- PCT : 1675, Dry Sclerophyll Forests (Shrubby sub-formation)
- PCT : 1881, Forested Wetlands
- PCT : 277, Grassy Woodlands
- PCT : 281, Grassy Woodlands
- PCT : 326, Grassy Woodlands
- PCT : 461, Grassy Woodlands
- PCT : 478, Dry Sclerophyll Forests (Shrubby sub-formation)
- PCT : 479, Dry Sclerophyll Forests (Shrubby sub-formation)



Coordinate system: GDA 1994 MGA Zone 55
Scale ratio correct when printed at A4

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Data sources: WSP 2023, EnergyCo, NSWSS

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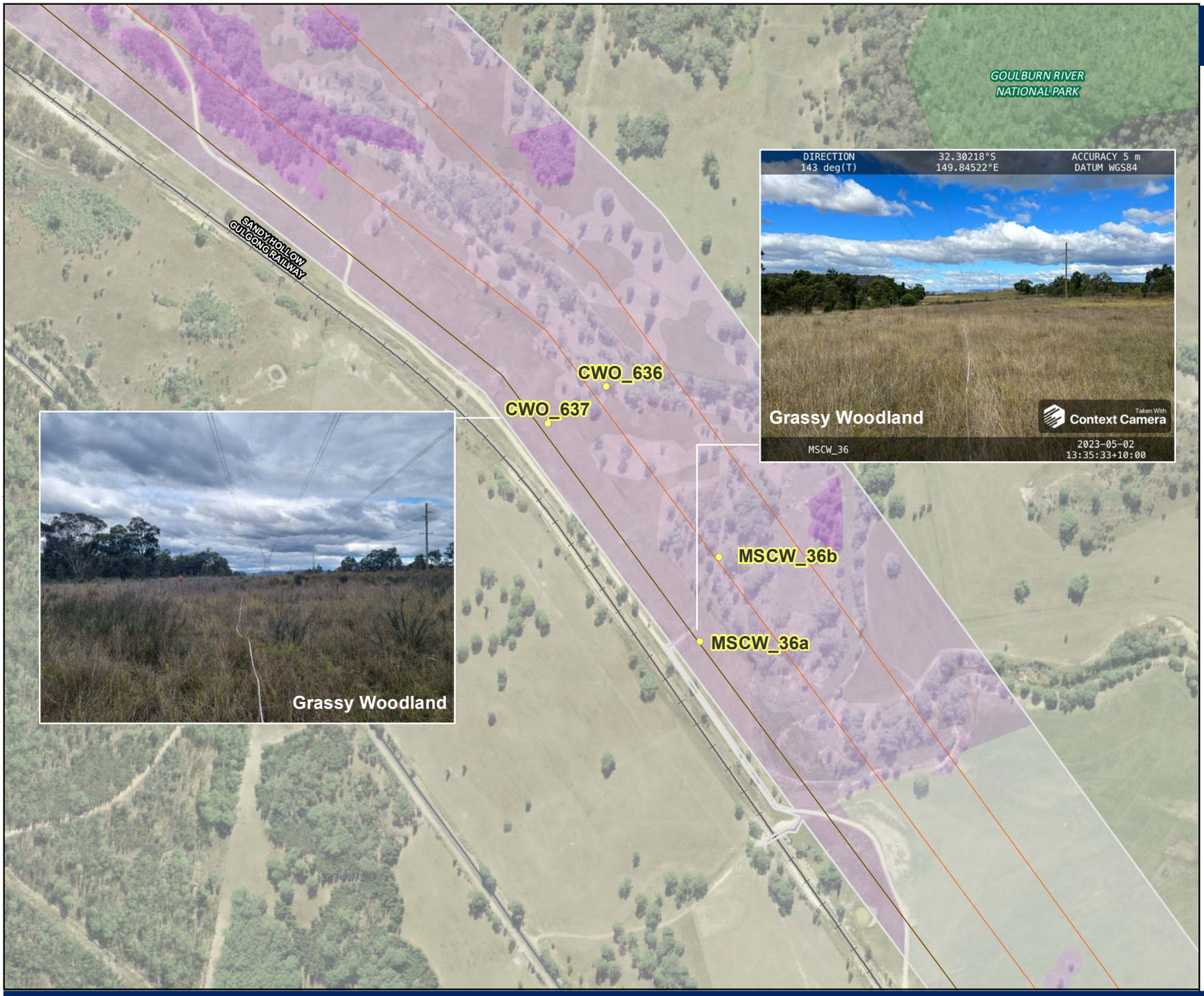

Figure 3 -1
Partial Impact Survey Locations
CWO 636-637 & MSCW_36a - 36b

Legend

- 500 kV transmission line
- Biodiversity Study Area
- Existing transmission line

Plant Community Types

PCT, Condition

- 281, Derived Native Grassland
- 281, Mod_good
- 281, Thinned
- 0, Miscellaneous ecosystem
- Road
- Railway
- State Forests
- BAM Quadrant

Coordinate system: GDA 1994 MGA Zone 55
Scale ratio correct when printed at A4

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Data sources: WSP 2023, EnergyCo, NSWSS

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Figure 3 -1
Partial Impact Survey Locations
CWO 629-628 & CWO 631-632

Legend

- 500 kV transmission line
- Biodiversity Study Area
- Existing transmission line
- Road
- BAM Quadrant

Plant Community Types

PCT, Condition

- 1610, Derived Native Grassland
- 1610, Mod_good
- 1176, Thinned
- 618, Mod_good
- 618, Derived Native Grassland
- 618, Thinned
- 0, Miscellaneous ecosystem

Coordinate system: GDA 1994 MGA Zone 55
Scale ratio correct when printed at A4

1:10,000

Data sources: WSP 2023, EnergyCo, NSWSS

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3.2 Survey methodology

3.2.1 Survey location

To ensure the analysis and assessment of partial impacts are suitably conservative, with limited variability, the following rule set was developed for all sample locations;

- publicly accessible or with landowner consent
- only sampled ETLs with a minimum of 40 m wide management easement (typically of 330 kV or greater kV)
- remnant reference sites are PCTs in moderate-good condition (VI >50).
- all paired sample sites were in the same PCT
- all paired sample sites were generally located <100m apart to avoid microclimate variability.
- all paired sample sites were subject to same existing management regimes and disturbances (land use).

3.2.2 Vegetation integrity plot – method

Vegetation integrity plots were completed in accordance with section 4.3.3 of the BAM. A schematic diagram illustrating the layout of each vegetation integrity plot is provided in Figure 3-2.

Figure 3-2 Vegetation integrity plot layout

The following site attributes were recorded at each vegetation integrity plot location:

- **Location:** (easting – northing grid type MGA 94, Zone 54 & 55).
- **Vegetation structure and dominant species and vegetation condition:** Vegetation structure was recorded through estimates of percentage foliage cover, average height and height range for each vegetation layer.
- **Native and exotic species richness** (within a 400-metre squared quadrat): This consisted of recording all species by systematically walking through each 20 metre x 20 metre plot. The cover and abundance (percentage of area of quadrat covered) of each species was estimated. The growth form, stratum/layer and whether each species was native/exotic/high threat weed was also recorded.
- **Number of trees with hollows** (1,000 metre squared quadrat): This was the frequency of hollows within living and dead trees within each 50 metre x 20 metre plot. A hollow was only recorded if (a) the entrance could be seen: (b) the estimated entrance width was at least five centimetres across: (c) the hollow appeared to have depth: (d) the hollow was at least one metre above the ground and the centre of the tree was located within the sampled quadrat.

- **Number of large trees and stem size diversity** (1,000 metre squared quadrat): tree stem size diversity was calculated by measuring the diameter at breast height (DBH) (i.e. 1.3 metre from the ground) of all living trees (greater than five centimetre DBH) within each 50 metre x 20 metre plot. For multi-stemmed living trees, only the largest stem was included in the count. Number of large trees was determined by comparing living tree stem DBH against the PCTs benchmarks.
- **Total length of fallen logs** (1,000 metre squared quadrat): This was the cumulative total of logs within each 50 metre x 20 metre plot with a diameter of at least 10 centimetres and a length of at least 0.5 metre.
- **Litter cover:** This comprised estimating the average percentage groundcover of litter (i.e. leaves, seeds, twigs, branchlets and branches with a diameter less than 10 centimetre which is detached from a living plant) from within five 1 metre x 1 metre sub-plots spaced evenly either side of the 50-metre central transect.
- **Evaluation of regeneration:** This was estimated as the presence/absence of overstorey species present at the site that was regenerating (i.e. saplings with a diameter at breast height less than or equal to five centimetres).

Prior to establishing plot survey locations, vegetation stratification was undertaken to provide a representative vegetation zone for sampling. Stratification involved marking waypoints and bearings randomly to provide a representative assessment of the vegetation integrity of the vegetation zone in the subject land and establishing the required number of plots at some of these waypoints.

Where a regularly sized 50 x 20 m plot could not be fit into vegetation due to size constraints (e.g. narrow roadside strip of vegetation, or narrow riparian zone) the plot size and shape was modified in shape keeping the required area of the quadrats (1,000 metre squared quadrat and nested 400-metre squared quadrat) intact. This was only done where the shape of the vegetation would not allow the use of a 50 x 20 m plot.

3.2.3 Vegetation integrity score calculations

As outlined in BAM Section 4.3.3, vegetation integrity is a metric-based assessment used to measure the condition of native vegetation against a benchmark, based on survey data collected by the assessor. Within each vegetation zone in the subject land, a quantitative measure of the composition, structure and function attributes is obtained from the survey. The composition, structure and relevant function attributes for each vegetation zone are then assessed against the benchmark data for the relevant PCT. The benchmark data used in the BDAR were the Version 1.2 benchmarks as of 31 January 2023. The default benchmarks for PCTs held within the BAM-C were not modified.

The plot survey data was used to determine the vegetation integrity scores for a vegetation zone. Equations 16–24 from Appendix H of the BAM (housed within the BAM-C) were used to determine the current vegetation integrity score for each vegetation zone.

3.2.4 Survey and data limitations

Survey of existing ETLs face a number of challenges, principally associated with access restrictions. Existing ETL easements are under management and access agreements between Transgrid and the landowner and not EnergyCo. Therefore the partial impact surveys were restricted to ETLs associated with the current Project and where available relevant ETLs for previous Transgrid projects (PEC).

The condition of ETLs significantly influences the measurable change to PCT condition. Where existing disturbances are high, interpreting changes in attribute data is limited (pasture improvement, substantial grazing with high weed cover low native diversity). Therefore to provide a conservative assessment of the partial impacts, all sample sites were identified in moderate to good condition with VI scores of >50.

Where existing management regimes (grazing) were observed and could not be avoided, sample sites were located in areas under the same level of management to ensure any observed VI changes were representative of easement management.

4. Field results

4.1 Grassy Woodlands

The summary data of the seven paired BAM plots for each of the PCTs within the Grassy Woodlands formation is provided below in Table 4.1. A comparative analysis of observed differences in sampled cover and composition attributes between the sampled remnant and adjoining ETL managed for a partial impact is provided in Figure 4.1. A summary of the quantum of the actual change in average vegetation integrity values is provided in Figure 4.2.

Table 4-1 Summary data of the sampled PCTs within the Grassy Woodlands formation within the ETL, adjoining remnant vegetation and corresponding literature based 30% reduction approved in previous ETL BAM assessments.

			Project-IBRA	Cover									Richness								
				Native	Trees	Shrubs	Grass	Forb	Fern	Other	Exotic	HighThreat	Native	Trees	Shrubs	Grass	Forb	Fern	Other	Exotic	HighThreat
76	Western Grey Box tall grassy woodland on alluvial loam and clay soils in the NSW South Western Slopes and Riverina Bioregions	**Benchmark**	**PEC -IS**	61	31	2	23	5	0	0			28	3	5	7	11	1	1		
		Remnant		85.5	15	5.8	57.6	7	0.1	0	2.2	0.3	19	1	2	9	6	1	0	10	1
		ETL		75.5	0	11	60.1	4.4	0	0	5.7	3	16	0	2	11	3	0	0	11	1
		30% Reduction			0	4.4	43.2	5.3	0.1	0.0	1.7	0.2	14.3	0.0	1.5	6.8	4.5	0.8	0.0	7.5	0.8
80	Western Grey Box - White Cypress Pine tall woodland on loam soil on alluvial plains of NSW South Western Slopes Bioregion and Riverina Bioregion	**Benchmark**	**PEC-LS**	61	31	2	23	5	0	0			28	3	5	7	11	1	1		
		Remnant		60.3	8	6	31.8	14.5	0	0	10.9	2	21	2	2	10	7	0	0	11	2
		ETL		38.3	2	0	27.1	9.1	0	0.1	22.6	15.1	17	1	0	8	7	0	1	15	3
		30% Reduction			0	4.5	23.9	10.9	0.0	0.0	8.2	1.5	15.8	0.0	1.5	7.5	5.3	0.0	0.0	8.3	1.5
266	White Box grassy woodland in the upper slopes sub-region of the NSW South Western Slopes Bioregion	**Benchmark**	**PEC-IS**	69	18	2	42	6	0	1			31	3	4	9	12	1	2		
		Remnant		97	55	0	28.3	12.5	1	0.2	16.1	15	23	3	0	9	8	1	2	10	1
		ETL		95.7	4.3	3	47	39.4	2	0	16.3	15	24	3	2	8	10	1	0	8	1
		30% Reduction			0	0	21.2	9.4	0.8	0.2	12.1	11.3	17.3	0.0	0.0	6.8	6.0	0.8	1.5	7.5	0.8
281	Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion	Benchmark	**CWO- Kerrabee**	80	21	5	45	8	0	1			37	4	6	10	13	1	3		
		Remnant		92.1	10.3	4	77.2	0.5	0.1	0	2.4	0.2	25	4	1	14	5	1	0	7	2
		ETL		65.4	1	6	57.7	0.5	0.2	0	6.2	0.2	25	1	3	15	5	1	0	4	1
		Remnant		83.8	17	15.9	46.9	2.7	1	0.3	1.2	0	43	2	6	21	11	1	2	2	0
		ETL		48.7	0.2	0.2	47.6	0.2	0.5	0	28.8	0.3	21	1	2	15	2	1	0	10	3
		30% Reduction			0	3	57.9	0.4	0.1	0	1.8	0.15	18.8	0.0	0.8	10.5	3.8	0.8	0.0	5.3	1.5
461	461-Tumbledown Gum woodland on hills in the northern NSW South Western Slopes Bioregion and southern Brigalow Belt South Bioregion	**Benchmark**	**CWO - Inland Slopes**	80	21	5	45	8	0	1			37	4	6	10	13	1	3		
		Remnant		68	18	15.9	15.6	17.8	0.5	0.2	0.3	0	38	5	9	9	13	1	1	3	0
		ETL		66.3	2.6	27.4	24	11.8	0.1	0.4	1.2	0	41	4	11	12	11	1	2	5	0
		30% Reduction		51.0	0.0	11.9	11.7	13.4	0.4	0.2	0.2	0.0	28.5	0.0	6.8	6.8	9.8	0.8	0.8	2.3	0.0
618	White Box x Grey Box - red gum - Rough-barked Apple grassy woodland on rich soils on hills in the upper Hunter Valley	Benchmark	**CWO-Kerrabee**	141	53	16	58	9	1	4	#	#	46	5	8	12	14	2	5	#	#
		Remnant		70.1	10	1.1	55.2	3.7	0	0.1	1.4	0.4	21	1	2	9	8	0	1	8	1
		ETL		43.8	0.1	0	38.3	5.4	0	0	3.8	5	19	1	0	9	9	0	0	6	1
		30% Reduction		52.575	0	0.825	41.4	2.775	0	0.075	1.05	0.3	15.75	0	1.5	6.75	6	0	0.75	6	0.75
Total Average		**Average Remnant**		**79.5**	**19.0**	**7.0**	**44.7**	**8.4**	**0.4**	**0.1**	**4.9**	**2.6**	**27.1**	**2.6**	**3.1**	**11.6**	**8.3**	**0.7**	**0.9**	**7.3**	**1.0**
		Average ETL		**62.0**	**1.5**	**6.8**	**43.1**	**10.1**	**0.4**	**0.1**	**12.1**	**5.5**	**23.3**	**1.6**	**2.9**	**11.1**	**6.7**	**0.6**	**0.4**	**8.4**	**1.4**
		30% Reduction		**51.8**	**0.0**	**4.1**	**33.2**	**7.0**	**0.2**	**0.1**	**4.2**	**2.2**	**18.4**	**0.0**	**2.0**	**7.5**	**5.9**	**0.5**	**0.5**	**6.1**	**0.9**
		Average change		**17.6**	**17.6**	**0.2**	**1.5**	**-1.7**	**0.0**	**0.0**	**-7.2**	**-3.0**	**3.9**	**1.0**	**0.3**	**0.4**	**1.6**	**0.1**	**0.4**	**-1.1**	**-0.4**
		Average Change (%)		**22.1**	**92.3**	**2.3**	**3.5**	**-20.6**	**-3.7**	**37.5**	**-145.2**	**-115.6**	**14.2**	**38.9**	**9.1**	**3.7**	**19.0**	**20.0**	**50.0**	**-15.7**	**-42.9**

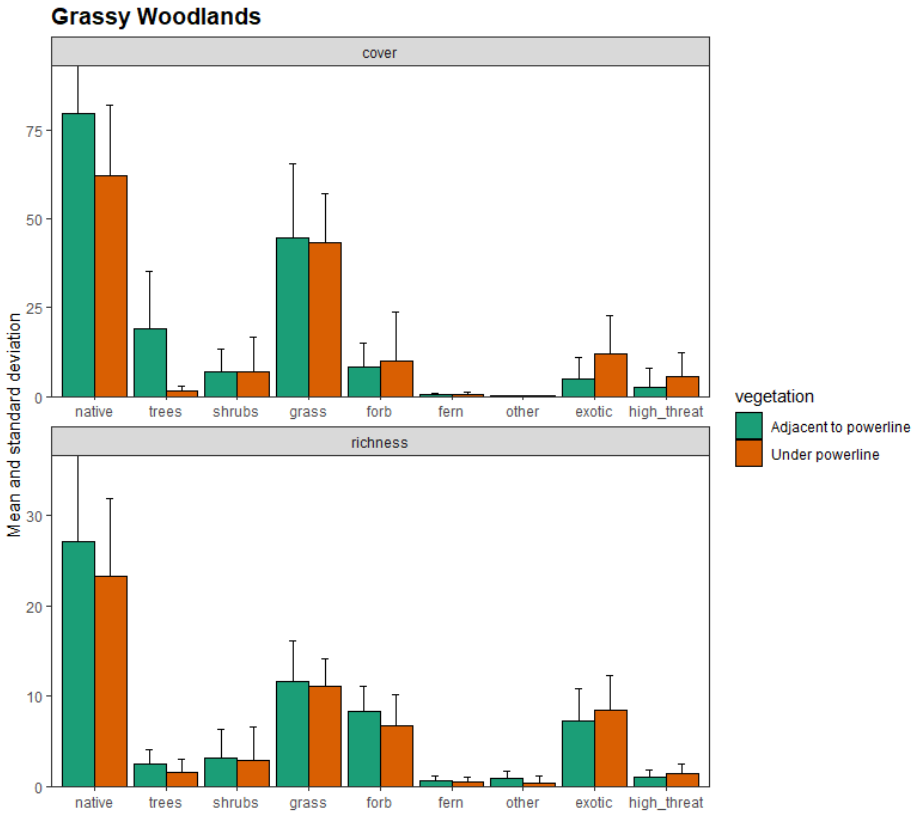

Figure 4-2 Grassy woodlands comparative change in vegetation integrity attributes values for Partial impact (Under powerline) and Remnant (adjacent to powerline)

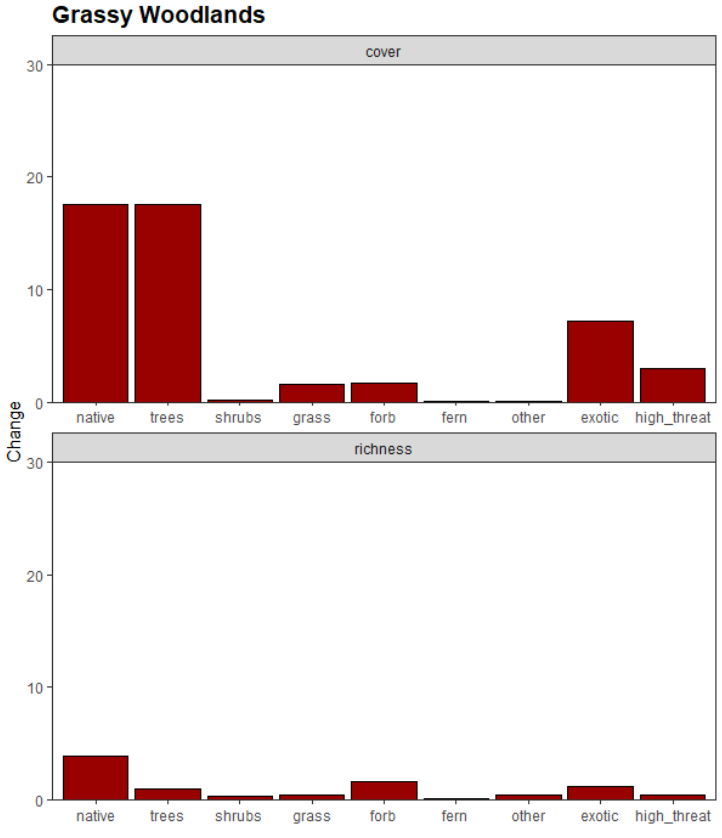

Figure 4-3 Grassy woodlands average change in vegetation integrity attributes values

4.2 Key trends and findings for Grassy woodlands attribute scores

Following analysis of the data the following general trends were observed for the Grassy Woodland Formation sample sites between the management of ETL and adjoining remnant vegetation areas:

- greatest change was associated with loss in canopy cover/composition (~20)
- ETL resulted in some increased weed cover and composition.
- the understory values for shrubs, grass, and other showed no or limited change in values
- very minor decreased in forb composition was observed combined with an increased in cover.

4.3 Changes in vegetation integrity for Grassy Woodland

The summary vegetation integrity data of each of the PCTs within the Grassy Woodlands formation following BAM-C calculation is provided below in Table 4.2. A comparative analysis of observed differences in sampled cover and composition attributes between the sampled remnant and adjoining ETL managed for a partial impact is provided in Figure 4.3.

Table 4-2 Summary vegetation integrity data of the sampled PCTs within the Grassy Woodlands formation within the ETL, adjoining remnant vegetation and corresponding literature based 30% reduction approved in previous ETL BAM assessments.

PCT	Grassy Woodlands		Composition condition VI score	Structure condition VI score	Function condition VI score	VI score	Change (%)
76	Western Grey Box tall grassy woodland on alluvial loam and clay soils in the NSW South Western Slopes and Riverina Bioregions						
		Remnant	71.1	77.7	58.8	**68.7**	
		ETL	42.3	49	12.3	**29.4**	**39.3**
		30% Reduction	**53.3**	49.2	13.5	**32.9**	
80	Western Grey Box - White Cypress Pine tall woodland on loam soil on alluvial plains of NSW South Western Slopes Bioregion and Riverina Bioregion						
		Remnant	78.7	57.1	28.2	**50.6**	
		ETL	66.4	46.2	32	**46.1**	**4.5**
		30% Reduction	55.4	49.2	10.6	**30.7**	
266	White Box grassy woodland in the upper slopes sub-region of the NSW South Western Slopes Bioregion						
		Remnant	86.5	97.2	100	**94.4**	
		ETL	94.3	71	32.7	**60.3**	**34.1**
		30% Reduction	66.5	56.6	34.9	**50.8**	
281	Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion						
		Remnant	72.1	78.8	73.5	**74.4**	**34.2**
		ETL	72.1	57.1	15.8	**40.2**	
		Remnant					
		ETL					
		30% Reduction	50.3	57	7.9	**28.2**	
461	Tumbledown Gum woodland on hills in the northern NSW South Western Slopes Bioregion and southern Brigalow Belt South Bioregion						
		Remnant	100	76	61.1	**77.4**	
		ETL	100	63.9	42.6	**64.8**	**12.6**
		30% Reduction	87.1	30.5	18.6	**36.7**	
618	White Box x Grey Box - red gum - Rough-barked Apple grassy woodland on rich soils on hills in the upper Hunter Valley						
		Remnant	84	85.9	81.7	**83.9**	
		ETL	71.8	65.4	16	**42.2**	**41.7**
		30% Reduction	69.5	62.3	24.2	**47.1**	
Total Average		**Average Remnant**	**82.1**	**78.8**	**67.2**	**74.9**	
		Average ETL	**74.5**	**58.8**	**25.2**	**47.2**	**27.7**
		30% Reduction	**63.7**	**50.8**	**18.3**	**37.7**	**49.6**
		Average change	**7.6**	**20.0**	**42.0**	**27.7**	**37.0**
		Change (%)	**9.2**	**25.4**	**62.5**	**37.0**	

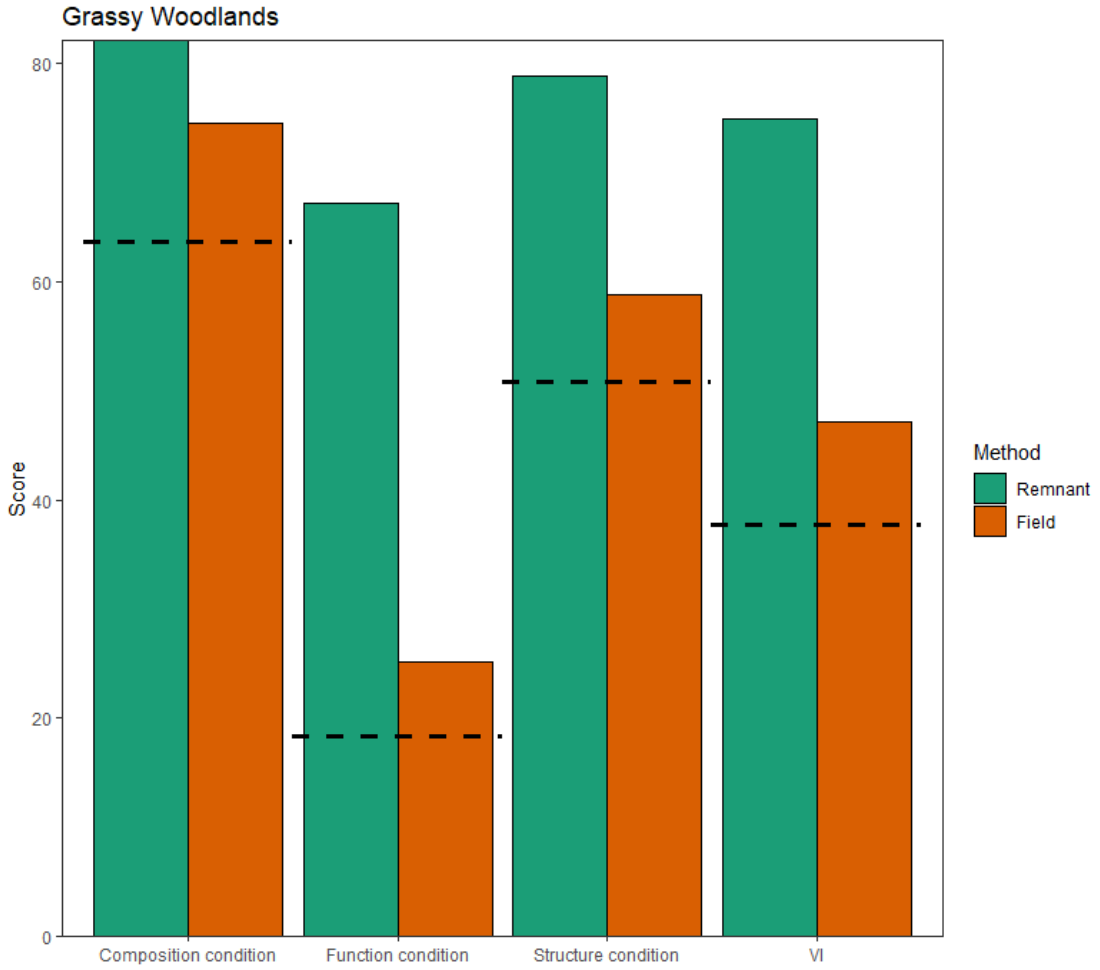

Figure 4-3 Grassy woodlands average change in vegetation integrity values within the ETL (Field), adjoining (remnant) vegetation and corresponding literature based 30% reduction (black hatch line) approved in previous ETL BAM assessments.

4.4 Key trends and findings for Grassy woodlands vegetation integrity (VI)

Following analysis of the data the following general trends were observed for the Grassy Woodland Formation sample sites between the management of ETL and adjoining remnant vegetation areas;

- the average changes composition component to VI is minimal <10% decrease with some PCTs actually increasing in native diversity
- greatest change to VI is attributed to the decreases in structure (25%) and function (60%) scores
- VI changes vary for PCTs based on benchmarks with range of decreases from -4.5 to -41 (Average of -27.7 GW)
- the total average VI reduction for Grassy Woodland was 27.7 or 37% decrease in VI score
- all field data attribute scores and VI components substantially less impacted than previously assumed in the literature based 30% reduction in values (black hatch line).

4.5 Dry Sclerophyll Forest

The summary data of the paired BAM plots for each of the PCTs within the Dry Sclerophyll Forest formation is provided below in Table 4.3. A comparative analysis of observed differences in sampled cover and composition attributes between the sampled remnant and adjoining ETL managed for a partial impact is provided in Figure 4.4. A summary of the quantum of the actual change in average vegetation integrity values is provided in Figure 4.5.

Table 4-3 Summary data of the sampled PCTs within the Dry Sclerophyll Forest formation within the ETL, adjoining remnant vegetation and corresponding literature based 30% reduction approved in previous ETL BAM assessments.

			Project-IBRA	Cover									Richness								
Dry Sclerophyll Forests (Shrubby sub-formation)				Native	Trees	Shrubs	Grass	Forb	Fern	Other	Exotic	HighThreat	Native	Trees	Shrubs	Grass	Forb	Fern	Other	Exotic	HighThreat
477	Inland Scribbly Gum - Red Stringybark - Black Cypress Pine - Red Ironbark open forest on sandstone hills in the southern Brigalow Belt South Bioregion and northern NSW South Western Slopes Bioregion	Benchmark	CWO-IS	169	69	70	22	6	1	1	0	0	45	5	17	9	9	2	3	0	0
		Remnant		66.1	14.0	27.8	23.0	1.1	0.1	0.1	0.1	0.0	34.0	3.0	10.0	15.0	4.0	1.0	1.0	1.0	0.0
		ETL		53.1	2.5	42.3	5.9	2.1	0.1	0.2	0.0	0.0	28.0	2.0	11.0	9.0	3.0	1.0	2.0	0.0	0.0
		30% Reduction		49.6	0.0	20.9	17.3	0.8	0.1	0.1	0.1	0.0	25.5	2.3	7.5	11.3	3.0	0.8	0.8	0.8	0.0
479	Narrow-leaved Ironbark- Black Cypress Pine - stringybark +/- Grey Gum +/- Narrow-leaved Wattle shrubby open forest on sandstone hills in the southern Brigalow Belt South Bioregion and Sydney Basin Bioregion	Benchmark	CWO-IS	169.0	69.0	70.0	22.0	6.0	1.0	1.0	0.0	0.0	45.0	5.0	17.0	9.0	9.0	2.0	3.0	0.0	0.0
		Remnant		132.3	80.0	23.4	26.5	2.0	0.1	0.3	0.1	0.0	47.0	5.0	14.0	16.0	9.0	1.0	2.0	1.0	0.0
		ETL		137.0	2.0	9.5	98.3	22.1	5.0	0.1	5.5	0.0	43.0	2.0	11.0	19.0	9.0	1.0	1.0	6.0	0.0
		30% Reduction		99.2	0.0	17.6	19.9	1.5	0.1	0.2	0.1	0.0	35.3	3.8	10.5	12.0	6.8	0.8	1.5	0.8	0.0
1606	White Box - Narrow-leaved Ironbark - Blakely's Red Gum shrubby open forest of the central and upper Hunter	Benchmark	CWO-Kerrabe	159.0	68.0	49.0	30.0	8.0	1.0	3.0			49.0	6.0	13.0	10.0	13.0	2.0	5.0		
		Remnant		65.1	15.1	46.3	2.6	1.0	0.1	0.0	0.1	0.0	24.0	3.0	9.0	6.0	5.0	1.0	0.0	1.0	0.0
		ETL		69.1	0.0	13.0	55.5	0.4	0.2	0.0	6.6	2.0	23.0	0.0	5.0	13.0	4.0	1.0	0.0	4.0	1.0
		30% Reduction		34.0	0.0	34.7	2.0	0.8	0.1	0.0	0.1	0.0	18.0	2.3	6.8	4.5	3.8	0.8	0.0	0.8	0.0
1674	Red Ironbark - Brown Bloodwood - Black Pine heathy open forest on sandstone ranges of the Sydney Basin	Benchmark	CWO-IS	169.0	69.0	70.0	22.0	6.0	1.0	1.0	0.0	0.0	45.0	5.0	17.0	9.0	9.0	2.0	3.0	0.0	0.0
		Remnant		57.4	25.0	21.0	8.1	0.3	0.0	3.0	0.2	0.0	19.0	1.0	6.0	9.0	2.0	0.0	1.0	2.0	0.0
		ETL		45.1	2.0	30.2	12.3	0.4	0.1	0.1	0.0	0.0	20.0	1.0	9.0	6.0	2.0	1.0	1.0	0.0	0.0
		30% Reduction		43.1	0.0	15.8	6.1	0.2	0.0	2.3	0.2	0.0	14.3	0.8	4.5	6.8	1.5	0.0	0.8	1.5	0.0
Total Average		**Average Remnant**		**80.2**	**33.5**	**29.6**	**15.1**	**1.1**	**0.1**	**0.9**	**0.1**	**0.0**	**31.0**	**3.0**	**9.8**	**11.5**	**5.0**	**0.8**	**1.0**	**1.3**	**0.0**
		Average ETL		**76.1**	**1.6**	**23.8**	**43.0**	**6.3**	**1.4**	**0.1**	**3.0**	**0.5**	**28.5**	**1.3**	**9.0**	**11.8**	**4.5**	**1.0**	**1.0**	**2.5**	**0.3**
		Average change		**4.1**	**31.9**	**5.9**	**-28.0**	**-5.2**	**-1.3**	**0.8**	**-2.9**	**-0.5**	**2.5**	**1.8**	**0.8**	**-0.3**	**0.5**	**-0.3**	**0.0**	**-1.3**	**-0.3**
		Change (%)		**5.2**	**95.2**	**19.8**	**-185.7**	**-468.2**	**-1700.0**	**88.2**	**-2320.0**	**#DIV/0!**	**8.1**	**58.3**	**7.7**	**-2.2**	**10.0**	**-33.3**	**0.0**	**-100.0**	**#DIV/0!**
		30% Reduction		**60.2**	**0.0**	**22.2**	**11.3**	**0.8**	**0.1**	**0.6**	**0.1**	**0.0**	**23.3**	**2.3**	**7.3**	**8.6**	**3.8**	**0.6**	**0.8**	**0.9**	**0.0**

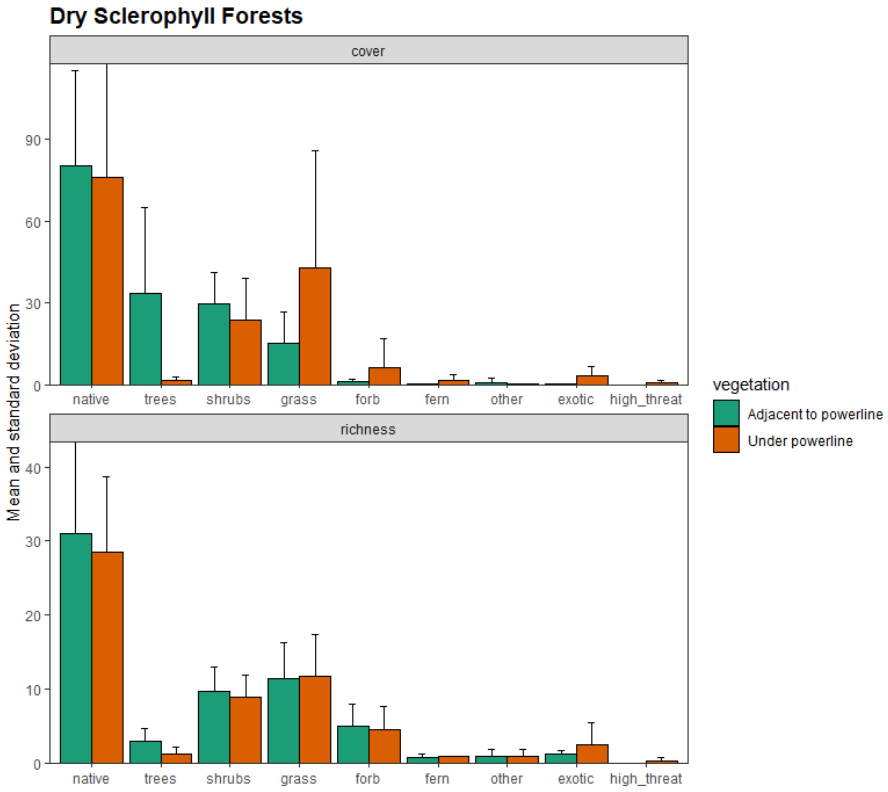

Figure 4-4 Dry Sclerophyll Forest comparative change in vegetation integrity attributes values for Partial impact (Under powerline) and Remnant (adjacent to powerline)

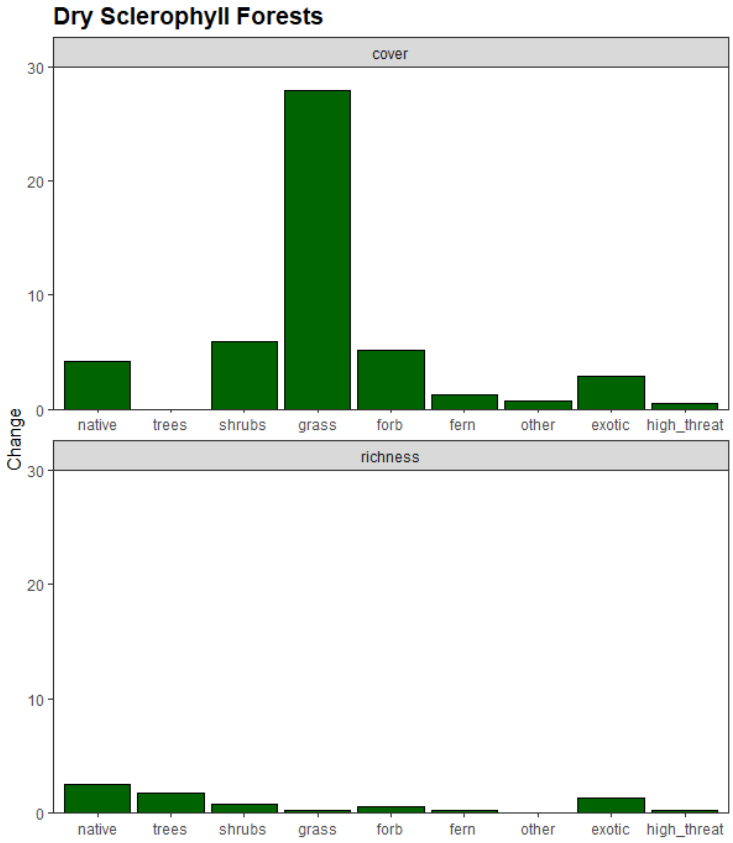

Figure 4-5 Dry Sclerophyll Forest average change in vegetation integrity attributes values

4.6 Key trends and findings for Dry Sclerophyll Forest attribute scores

Following analysis of the data the following general trends were observed for the Dry Sclerophyll Forest Formation sample sites between the management of ETL and adjoining remnant vegetation areas:

- the greatest change was associated with loss in canopy cover/composition
- there was an inverse relationship within the ETL for increased grass/forb and to a lesser extent decrease shrub cover for some PCTs - however not consistent
- only a marginal increase in weed cover and composition (<5%)
- no significant change in composition or total native cover.

4.7 Changes in vegetation integrity for Dry Sclerophyll Forest

The summary vegetation integrity data of each of the PCTs within the Dry Sclerophyll Forest formation following BAM-C calculation is provided below in Table 4.4. A comparative analysis of observed differences in vegetation integrity values within the ETL (Field), adjoining remnant vegetation and corresponding literature based 30% reduction is provided in Figure 4.6.

Table 4-4 Summary vegetation integrity data of the sampled PCTs within the Dry Sclerophyll Forest formation within the ETL, adjoining remnant vegetation and corresponding literature based 30% reduction approved in previous ETL BAM assessments.

PCT			Composition condition VI score	Structure condition VI score	Function condition VI score	VI score	Change (%)
Dry Sclerophyll Forests (Shrubby sub-formation)							
477	Inland Scribbly Gum - Red Stringybark - Black Cypress Pine - Red Ironbark open forest on sandstone hills in the southern Brigalow Belt South Bioregion and northern NSW South Western Slopes Bioregion						
		Remnant	85	37.3	93	66.5	
		ETL	72.7	20.7	17.8	29.9	36.6
		30% Reduction	64.7	28.5	21.2	33.9	
479	Narrow-leaved Ironbark- Black Cypress Pine - stringybark +/- Grey Gum +/- Narrow-leaved Wattle shrubby open forest on sandstone hills in the southern Brigalow Belt South Bioregion and Sydney Basin Bioregion						
		Remnant	100	98.2	100	99.4	
		ETL	90	32.6	18.4	37.8	61.6
		30% Reduction	79.1	29.7	34.1	43.1	
1606	White Box - Narrow-leaved Ironbark - Blakely's Red Gum shrubby open forest of the central and upper Hunter						
		Remnant	97.1	22.9	77	53.5	
		ETL	59.7	28.2	15.7	29.8	23.7
		30% Reduction	72.3	12.2	7.2	18.5	
1674	Red Ironbark - Brown Bloodwood - Black Pine heathy open forest on sandstone ranges of the Sydney Basin						
		Remnant	53.9	51.5	79.8	60.5	
		ETL	62	27.5	17.8	31.2	29.3
		30% Reduction	42.9	18.2	12.2	21.2	
Total Average		Average Remnant	80.9	48.3	68.7	60.8	
		Average ETL	71.1	27.3	17.4	32.2	28.7
		Average change	9.8	21.1	51.2	28.7	47.1
		Change (%)					52.0
		30% Reduction	64.8	22.2	18.7	29.2	

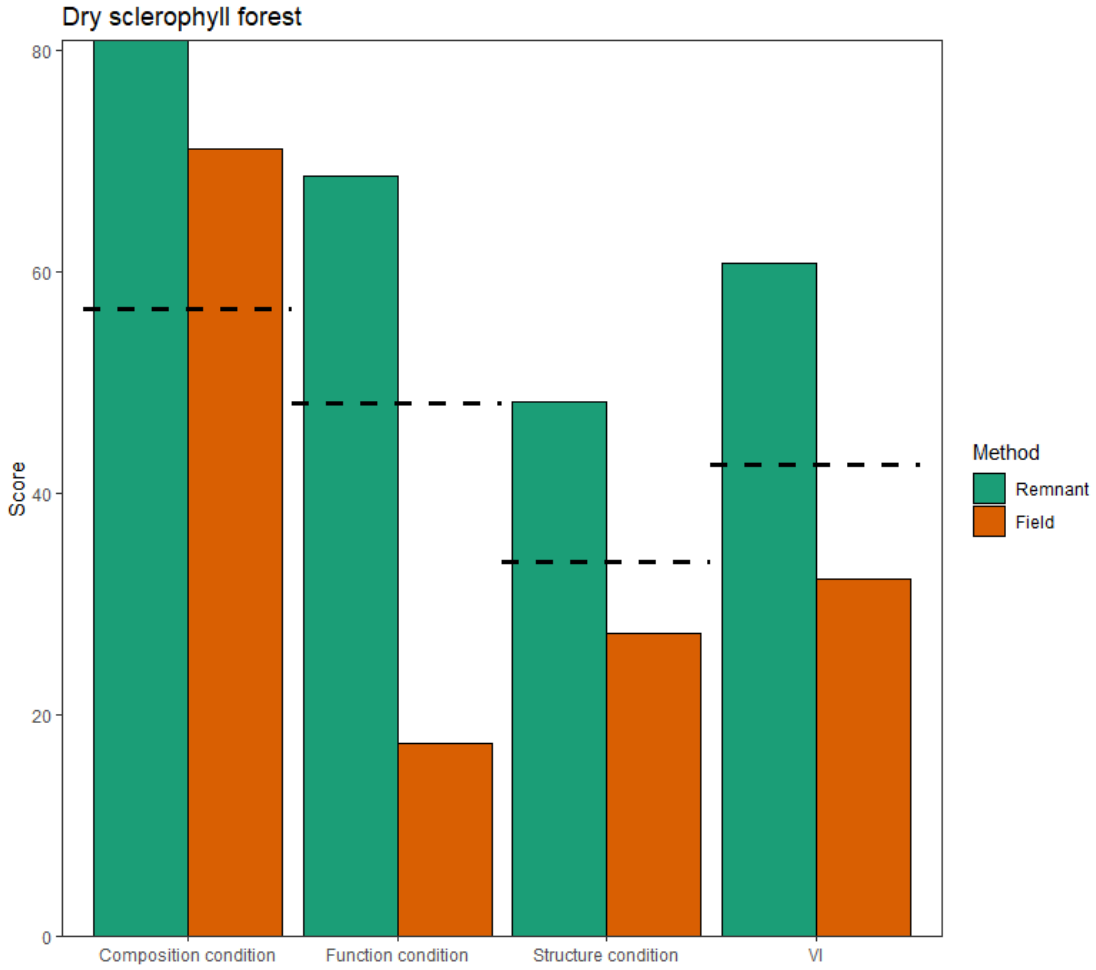

Figure 4-6 Dry Sclerophyll Forest average change in vegetation integrity values within the ETL (Field), adjoining remnant vegetation and corresponding literature based 30% reduction (black hatch line) approved in previous ETL BAM assessments.

4.8 Key trends and findings for Dry Sclerophyll Forest vegetation integrity (VI)

Following analysis of the data the following general trends were observed for the Dry Sclerophyll Forest Formation sample sites between the management of ETL and adjoining remnant vegetation areas:

- the average changes composition component to VI is minimal <10% decrease with some PCTs actually increasing in native diversity
- the greatest change to VI is attributed to the decreases in structure (20%) and function (50%) scores
- VI changes vary for PCTs based on benchmarks with range of decreases from -23.7 to -61 (Average of -28.65)
- the total average VI change was 47.1 % decrease
- field data attribute scores and VI components substantially less impacted than previously assumed in the literature based 30% reduction in values (black hatch line) for all but composition.

5. Conclusion

EnergyCo have undertaken an evidence-based approach to informing the potential partial impacts associated with ongoing maintenance of ETLs.

This approach builds on and compares the results of field-based sampling with previously approved literature-based assumptions of a 30% reduction in understorey values used for assessment of ETL partial impacts.

A summary of the vegetation integrity values determined from the field survey and assessed within the BAM-C for both Grassy Woodlands and Dry Sclerophyll vegetation formations is provided in Table 5.1.

Table 5-1 Summary vegetation integrity data of the sampled PCTs within the Dry Sclerophyll Forest formation within the ETL, adjoining remnant vegetation and corresponding literature based 30% reduction approved in previous ETL BAM assessments.

Vegetation Formation	Method	Composition condition score	Structure condition score	Function condition score	VI	Change (%)
Grassy Woodlands	Remnant	82.1	78.8	67.2	74.9	
	ETL	74.5	58.8	25.2	47.2	37.0
	30% reduction	63.7	50.8	18.3	37.7	49.6
Dry Sclerophyll Forests (Shrubby sub-formation)	Remnant	80.9	48.3	68.7	60.8	
	ETL	71.1	27.3	17.4	32.2	47.1
	30% reduction	64.8	22.2	18.7	29.2	52.0

The assessment of the field results has confirmed:

- field data supported higher VI scores than previously predicted through application of a 30% reduction in the understorey values
- the greatest change was a decrease in Function and Structure scores with only minimal (<10%) change in Composition
- at a vegetation formation level Grassy Woodlands and Dry Sclerophyll Forest are impacted differently, particularly for vegetation integrity Structure values
- the Dry Sclerophyll Forest PCTs are likely to result in reductions in Shrub cover attributes of up to 20% with inverse increases in grass and forbs
- the Grassy Woodlands PCTs will have minimal impacts to structure and only minor 10% reduction in understory composition.

Based on the above key findings, the Projects partial impact within ETL management zone (Disturbance Area B) adopted the following manual adjustment to VI values within the BAM-C (refer to Table 5.2).

Table 5-2 Proposed adjustment to BAMC vegetation integrity scores for partial impacts within the ETL by formation.

Attribute	Vegetation layer	Previously approved	Proposed GW	Proposed DSF
Composition	Canopy	Complete removal	Complete removal	Complete removal
	Shrub	30%	10% reduction	10% reduction
	Understory	30%	10% reduction	10% reduction
Structure	Canopy	Complete removal	Complete removal	Complete removal
	Shrub	30%	0%	20% reduction
	Understory	30%	0%	0%
Function	Canopy	Complete removal		
	Understory	30% Reduction in LL and Fallen Timber		

We would appreciate the opportunity to meet and discuss this application and potential timing for any determination.

Yours sincerely

Alex Cockerill
National Executive - Ecology

List of attachments

Attachment A 0BData sheets for Partial Impact

Attachment A

Data sheets for Partial Impact

PEC			Covers	Native	Trees	Shrubs	Grass	Forb	Fern	Other	Exotic	HighThreat
PCT 80	Veg Zone ID: remnant		# spp	Count	Count	Count	Count	Count	Count	Count	Count	Count
Date: 17/01/23			32	21	2	2	10	7	0	0	11	2
Species	**Cover**	**Abundance**	Sum cover	Sum	Sum	Sum	Sum	Sum	Sum	Sum	Sum	Sum
			71.2	60.3	8	6	31.8	14.5	0	0	10.9	2
Alternanthera denticulata	0.5	100	FG					0.5				
Atriplex semibaccata	1	10	SG			1						
Austrostipa scabra subsp. falcata	2	200	GG				2					
Avena sp.	1	20	EX								1	
Boerhavia coccinea	2	100	FG					2				
Carex inversa	2	50	GG				2					
Chloris truncata	0.8	20	GG				0.8					
Cirsium vulgare	0.3	5	EX								0.3	
Conyza sp.	0.3	20	EX								0.3	
Dianella revoluta	0.9	10	FG					0.9				
Digitaria divaricatissima	1	20	GG				1					
Ehrharta calycina	1	100	HT									1
Einadia nutans	5	20	FG					5				
Eleocharis sp.	1	100	GG				1					
Elymus scaber	1	20	GG				1					
Enchylaena tomentosa	5	20	SG			5						
Enteropogon sp.	10	100	GG				10					
Eriochloa pseudoacrotricha	5	200	GG				5					
Eucalyptus blakelyi	1	1	TG		1							
Eucalyptus microcarpa	7	2	TG		7							
Juncus sp.	1	20	GG				1					
Lactuca serriola	2	100	EX								2	
Lepidium africanum	2	50	EX								2	
Marrubium vulgare	1	1	EX								1	
Paspalum dilatatum	1	10	HT									1
Rumex crispus	1	20	EX								1	
Rytidosperma caespitosum	8	200	GG				8					
Sida corrugata	2	100	FG					2				
Solanum esuriale	4	100	FG					4				
Trifolium arvense	1	20	EX								1	
Trifolium campestre	0.3	20	EX								0.3	
Vittadinia sp.	0.1	10	FG					0.1				

Easting	448089
Northing	6143266
Orientation	207
Plot size	20 X 20 X 50
Attributes 20x50m plot	
Stem classes	
80+	0
50-79	0
30-49	1
20-29	Y
10-19	Y
5-9	Y
<5	N
Hollows	0
Length logs (m)	1
Attributes 1x1 plot (%)	
Litter (%)	49
	36.75

PEC			Covers	Native	Trees	Shrubs	Grass	Forb	Fern	Other	Exotic	HighThreat
PCT 80	0		# spp	Count	Count	Count	Count	Count	Count	Count	Count	Count
Date: 17/01/23			32	17	1	0	8	7	0	1	15	3
Species	**Cover**	**Abundance**	Sum cover	Sum	Sum	Sum	Sum	Sum	Sum	Sum	Sum	Sum
			60.9	38.3	2	0	27.1	9.1	0	0.1	22.6	15.1
Alternanthera denticulata	2	500	FG					2				
Avena sp.	2	50	EX								2	
Boerhavia coccinea	0.8	30	FG					0.8				
Carex inversa	3	100	GG				3					
Chloris truncata	0.1	10	GG				0.1					
Cirsium vulgare	1	20	EX								1	
Convolvulus sp.	0.1	10	OG							0.1		
Dianella revoluta	1	10	FG					1				
Echium plantagineum	0.1	20	EX								0.1	
Ehrharta calycina	5	500	HT									5
Einadia nutans	1	10	FG					1				
Eleocharis sp.	2	200	GG				2					
Elymus scaber	1	20	GG				1					
Enteropogon sp.	6	200	GG				6					
Eucalyptus microcarpa	2	11	TG		2							
Euphorbia drummondii	0.1	10	FG					0.1				
Hypericum perforatum	0.1	10	HT									0.1
Juncus sp.	3	100	GG				3					
Lactuca serriola	0.8	20	EX								0.8	
Modiola caroliniana	1	200	EX								1	
Panicum decompositum	7	100	GG				7					
Paspalum dilatatum	10	100	HT									10
Rumex crispus	1	20	EX								1	
Rytidosperma penicillatum	5	100	GG				5					
Sida corrugata	0.2	10	FG					0.2				
Solanum esuriale	4	100	FG					4				
Solanum nigrum	0.1	10	EX								0.1	
Sonchus oleraceus	0.1	10	EX								0.1	
Trifolium arvense	0.1	10	EX								0.1	
Trifolium campestre	0.1	10	EX								0.1	
Verbascum thapsus	1	10	EX								1	
Zinnia peruviana	0.2	10	EX								0.2	

Easting	448119
Northing	6143283
Orientation	332
Plot size	20 X 20 X 50
Attributes 20x50m plot	
Stem classes	
80+	0
50-79	0
30-49	N
20-29	N
10-19	N
5-9	Y
<5	Y
Hollows	0
Length logs (m)	0
Attributes 1x1 plot (%)	
Litter (%)	60

PEC			Covers	Native	Trees	Shrubs	Grass	Forb	Fern	Other	Exotic	HighThreat
PCT 76	Veg Zone ID: remnant		# spp	Count	Count	Count	Count	Count	Count	Count	Count	Count
Date: 21/01/23			29	19	1	2	9	6	1	0	10	1
Species	**Cover**	**Abundance**	Sum cover	Sum	Sum	Sum	Sum	Sum	Sum	Sum	Sum	Sum
			87.7	85.5	15	5.8	57.6	7	0.1	0	2.2	0.3
Atriplex semibaccata	5	20	SG			5						
Austrostipa bigeniculata	40	200	GG				40					
Austrostipa elegantissima	0.8	20	GG				0.8					
Austrostipa scabra subsp. Falcata	5	20	GG				5					
Avena sp.	0.1	1	EX								0.1	
Bromus catharticus	0.1	10	EX								0.1	
Calotis cuneifolia	5	100	FG					5				
Centaurea solstitialis	0.8	10	EX								0.8	
Cheilanthes sieberi	0.1	1	EG						0.1			
Chloris truncata	0.1	10	GG				0.1					
Conyza sp.	0.1	1	EX								0.1	
Einadia nutans	0.4	2	FG					0.4				
Elymus scaber	0.1	5	GG				0.1					
Enteropogon acicularis	0.8	10	GG				0.8					
Eucalyptus microcarpa	15	3	TG		15							
Hypericum perforatum	0.3	2	HT									0.3
Lactuca serriola	0.1	1	EX								0.1	
Lomandra multiflora	0.8	5	GG				0.8					
Maireana enchylaenoides	0.1	1	FG					0.1				
Oxalis perennans	0.1	10	FG					0.1				
Plantago lanceolata	0.1	1	EX								0.1	
Romulea sp.	0.1	20	EX								0.1	
Rytidosperma laeve	6	200	GG				6					
Rytidosperma setaceum	4	100	GG				4					
Sclerolaena muricata var. semiglabra	0.8	1	SG			0.8						
Sida corrugata	1	20	FG					1				
Sonchus oleraceus	0.1	1	EX								0.1	
Trifolium striatum	0.4	20	EX								0.4	
Vittadinia cuneata var. hirsuta	0.4	10	FG					0.4				

Easting	
Northing	6106914
Orientation	250
Plot size	20 X 20 X 50
Attributes 20x50m plot	
Stem classes	
80+	3
50-79	1
30-49	N
20-29	Y
10-19	N
5-9	N
<5	N
Hollows	2
Length logs (m)	2
	1.5
Attributes 1x1 plot (%)	
Litter (%)	63
	47.25

			Covers	Native	Trees	Shrubs	Grass	Forb	Fern	Other	Exotic	HighThreat
PCT 76	Veg Zone ID: DNG		# spp	Count	Count	Count	Count	Count	Count	Count	Count	Count
Date: 21/01/23			27	16	0	2	11	3	0	0	11	1
Species	Cover	Abundance	Sum cover	Sum	Sum	Sum	Sum	Sum	Sum	Sum	Sum	Sum
			81.2	75.5	0	11	60.1	4.4	0	0	5.7	3
Atriplex semibaccata	10	100	SG			10						
Austrostipa bigeniculata	20	100	GG				20					
Austrostipa scabra subsp. Falcata	15	200	GG				15					
Avena sp.	0.4	30	EX								0.4	
Centaurea solstitialis	0.4	20	EX								0.4	
Centaurea solstitialis (branched thing with semi clasp)	0.1	1	ex								0.1	
Chloris truncata	10	200	GG				10					
Conyza sp.	0.1	20	EX								0.1	
Cyperus eragrostis	3	30	HT									3
Eleocharis sp.	3	100	GG				3					
Enteropogon acicularis	1	50	GG				1					
Eriochloa pseudoacrotricha	4	200	GG				4					
Hordeum sp.	0.4	20	EX								0.4	
Juncus usitatus	2	100	GG				2					
Cenchrus clandestinus	0.3	20	EX								0.3	
Linum marginale	0.3	100	FG					0.3				
Oxalis perennans	0.1	20	FG					0.1				
Panicum effusum	0.1	10	GG				0.1					
Rumex crispus	0.1	1	EX								0.1	
Rytidosperma caespitosum	3	100	GG				3					
Rytidosperma penicillatum	1	20	GG				1					
Rytidosperma setaceum	1	20	GG				1					
Sclerolaena muricata var. semiglabra	1	3	SG			1						
Sida corrugata	4	200	FG					4				
Sonchus oleraceus	0.1	1	EX								0.1	
Trifolium striatum	0.1	20	EX								0.1	
Vulpia myuros	0.7	100	EX								0.7	

Easting	521371
Northing	6106936
Orientation	80
Plot size	20 X 20 X 50
Attributes 20x50m plot	
Stem classes	
80+	0
50-79	0
30-49	N
20-29	N
10-19	N
5-9	N
<5	N
Hollows	0
Length logs (m)	12
Attributes 1x1 plot (%)	
Litter (%)	34

PEC			Covers	Native	Trees	Shrubs	Grass	Forb	Fern	Other	Exotic	HighThreat
PCT 266	Veg Zone ID: remnant		# spp	Count	Count	Count	Count	Count	Count	Count	Count	Count
Date: 21/01/23			33	23	3	0	9	8	1	2	10	1
Species	**Cover**	**Abundance**	Sum cover	Sum	Sum	Sum	Sum	Sum	Sum	Sum	Sum	Sum
			113.1	97	55	0	28.3	12.5	1	0.2	16.1	15
Acacia pycnantha	10	30	TG		10							
Arthropodium sp.	0.1	10	FG					0.1				
Austrostipa bigeniculata	5	200	GG				5					
Austrostipa elegantissima	0.1	1	GG				0.1					
Austrostipa scabra subsp. falcata	15	400	GG				15					
Brachychiton populneus	10	30	TG		10							
Briza maxima	0.1	10	EX								0.1	
Bromus catharticus	0.3	10	EX								0.3	
Cheilanthes sieberi	1	100	EG						1			
Cirsium vulgare	0.1	1	EX								0.1	
Conyza sp.	0.1	1	EX								0.1	
Desmodium sp.	0.1	10	OG							0.1		
Dianella revoluta	0.8	10	FG					0.8				
Dichelachne crinita	2	50	GG				2					
Einadia nutans	0.3	20	FG					0.3				
Elymus scaber	0.3	20	GG				0.3					
Eucalyptus albens	35	20	TG		35							
Glycine tabacina	0.1	10	OG							0.1		
Gonocarpus elatus	0.1	10	FG					0.1				
Hypericum perforatum	15	300	HT									15
Hypochaeris radicata	0.1	1	EX								0.1	
Lomandra filiformis subsp. Filiformis	0.1	1	GG				0.1					
Marrubium vulgare	0.1	1	EX								0.1	
Oxalis perennans	0.1	10	FG					0.1				
Petrorhagia nanteuilii	0.1	10	EX								0.1	
Rytidosperma bipartitum	0.5	20	GG				0.5					
Rytidosperma caespitosum	5	200	GG				5					
Sida corrugata	1	100	FG					1				
Sonchus oleraceus	0.1	5	EX								0.1	
Sporobolus creber	0.3	5	GG				0.3					
Trifolium arvense	0.1	10	EX								0.1	
Vittadinia cuneata var. hirsuta	0.1	10	FG					0.1				
Xerochrysum viscosum	10	300	FG					10				

Easting	528367
Northing	6111268
Orientation	20
Plot size	20 X 20 X 50
Attributes 20x50m plot	
Stem classes	
80+	2
50-79	3
30-49	Y
20-29	Y
10-19	Y
5-9	Y
<5	Y
Hollows	5
Length logs (m)	53
	39.75
Attributes 1x1 plot (%)	
Litter (%)	74
	55.5

PEC			Covers	Native	Trees	Shrubs	Grass	Forb	Fern	Other	Exotic	HighThreat
PCT 266	Veg Zone ID: DNG		# spp	Count	Count	Count	Count	Count	Count	Count	Count	Count
Date: 21/01/23			32	24	3	2	8	10	1	0	8	1
Species	**Cover**	**Abundance**	Sum cover	Sum	Sum	Sum	Sum	Sum	Sum	Sum	Sum	Sum
			112	95.7	4.3	3	47	39.4	2	0	16.3	15
Acacia baileyana	1	4	SG			1						
Acacia pycnantha	0.5	1	TG		0.5							
Acacia spectabilis	2	2	SG			2						
Aristida ramosa	35	200	GG				35					
Austrostipa bigeniculata	0.8	10	GG				0.8					
Austrostipa scabra subsp. falcata	3	100	GG				3					
Avena sp.	0.1	10	EX								0.1	
Briza maxima	0.7	20	EX								0.7	
Briza minor	0.1	10	EX								0.1	
Callitris glaucophylla	0.8	1	TG		0.8							
Calotis cuneata	1	50	FG					1				
Calotis lappulacea	0.1	1	FG					0.1				
Centaurium tenuiflorum	0.1	1	EX								0.1	
Cheilanthes sieberi	2	100	EG						2			
Chrysocephalum apiculatum	1	20	FG					1				
Conyza sp.	0.1	10	EX								0.1	
Dianella longifolia	0.5	2	FG					0.5				
Dianella revoluta	1	20	FG					1				
Dichelachne crinita	5	200	GG				5					
Digitaria divaricatissima	0.1	5	GG				0.1					
Elymus scaber	0.3	20	GG				0.3					
Eucalyptus albens	3		TG		3							
Euchiton sphaericus	0.1	5	FG					0.1				
Gonocarpus elatus	0.5	50	FG					0.5				
Hypericum perforatum	15	200	HT									15
Lomandra filiformis subsp. filiformis	0.8	20	GG				0.8					
Microtis sp.	0.1	10	FG					0.1				
Romulea sp.	0.1	20	EX								0.1	
Rytidosperma caespitosum	2	100	GG				2					
Sonchus oleraceus	0.1	10	EX								0.1	
Tricoryne elatior	0.1	20	FG					0.1				
Xerochrysum viscosum	35	500	FG					35				

Easting	528357
Northing	611122
Orientation	265
Plot size	20 X 20 X 50
Attributes 20x50m plot	
Stem classes	
80+	0
50-79	0
30-49	N
20-29	N
10-19	N
5-9	N
<5	Y
Hollows	0
Length logs (m)	10
Attributes 1x1 plot (%)	
Litter (%)	54

Date	5/2/2023		Covers	Native	Trees	Shrubs	Grass	Forb	Fern	Other	Exotic	HighThreat
Plot Name	CWO_636		# spp	Count	Count	Count	Count	Count	Count	Count	Count	Count
PCT	281		34	25	4	1	14	5	1	0	7	2
			Sum cover	Sum	Sum	Sum	Sum	Sum	Sum	Sum	Sum	Sum
Species	Cover	Abundance	94.7	92.1	10.3	4	77.2	0.5	0.1	0	2.4	0.2
Angophora floribunda	8	2	TG		8							
Callitris endlicheri	2	1	TG		2							
Cassinia sifton	4	20	SG			4						
Themeda triandra	0.5	10	GG				0.5					
Calotis lappulacea	0.1	5	FG					0.1				
Petrorhagia nanteuilii	0.1	5	EX								0.1	
Hypochaeris radicata	1	40	EX								1	
Wahlenbergia spp.	0.1	10	FG					0.1				
Sporobolus creber	20	200	GG				20					
Lomandra longifolia	1	5	GG				1					
Conyza bonariensis	0.1	5	EX								0.1	
Plantago lanceolata	0.5	20	EX								0.5	
Microlaena stipoides	5	100	GG				5					
Echinopogon caespitosus	0.1	10	GG				0.1					
Gahnia aspera	3	5	GG				3					
Casuarina cunninghamiana sul	0.2	3	TG		0.2							
Paspalum dilatatum	0.1	5	HT									0.1
Podolepis omissa	0.1	5	FG					0.1				
Aristida ramosa	20	200	GG				20					
Bothriochloa macra	0.1	5	GG				0.1					
Verbena bonariensis	0.1	10	EX								0.1	
Panicum effusum	0.2	10	GG				0.2					
Cheilanthes sieberi	0.1	10	EG						0.1			
Setaria parviflora	0.5	20	EX								0.5	
Austrostipa scabra	20	200	GG				20					
Dichelachne micrantha	2	30	GG				2					
Fimbristylis dichotoma	0.1	20	GG				0.1					
Hypericum perforatum	0.1	10	HT									0.1
Aristida vagans	5	50	GG				5					
Eragrostis leptostachya	0.2	20	GG				0.2					
Veronica plebeia	0.1	5	FG					0.1				
Laxmannia gracilis	0.1	5	FG					0.1				
Trifolium arvense	0.1	5	EX								0.1	
Eucalyptus blakelyi	0.1	1	TG		0.1							

Easting	767801
Northing	6422810
Orientation	300
Plot size	20 X 20 X 50
Attributes 20x50m plot	
Stem classes	
80+	1
50-79	2
30-49	4
20-29	yes
10-19	yes
5-9	no
<5	yes
Hollows	0
Length logs (m)	8
Attributes 1x1 plo	32
Litter (%)	45
	15
	40
	55
	5

Date	5/2/2023		Covers	Native	Trees	Shrubs	Grass	Forb	Fern	Other	Exotic	HighThreat
Plot Name	CWO_637		# spp	Count	Count	Count	Count	Count	Count	Count	Count	Count
PCT	281 DNG		30	25	1	3	15	5	1	0	4	1
			Sum cover	Sum	Sum	Sum	Sum	Sum	Sum	Sum	Sum	Sum
Species	Cover	Abundance	71.8	65.4	1	6	57.7	0.5	0.2	0	6.2	0.2
Sporobolus creber	30	300	GG				30					
Hypochaeris radicata	5	200	EX								5	
Melaleuca spp.	1	5	SG			1						
Austrostipa scabra	1	20	GG				1					
Eragrostis elongata	3	200	GG				3					
Fimbristylis dichotoma	0.1	10	GG				0.1					
Cheilanthes sieberi	0.2	50	EG						0.2			
Microtis spp.	0.1	5	FG					0.1				
Digitaria ramularis	1	100	GG				1					
Setaria parviflora	1	20	EX								1	
Aristida ramosa	20	100	GG				20					
Arundinella nepalensis	0.2	2	GG				0.2					
Cassinia sifton	1	5	SG			1						
Plantago lanceolata	0.1	10	EX								0.1	
Panicum effusum	0.1	10	GG				0.1					
Kunzea parvifolia	4	10	SG			4						
Themeda triandra	0.5	10	GG				0.5					
Chrysocephalum apicu	0.1	10	FG					0.1				
Angophora floribunda	1	5	TG		1							
Gahnia aspera	1	2	GG				1					
Calotis cuneifolia	0.1	10	FG					0.1				
Verbena bonariensis	0.1	20	EX								0.1	
Lomandra multiflora s	0.1	1	GG				0.1					
Paspalum dilatatum	0.2	5	HT									0.2
Stackhousia viminea	0.1	5	FG					0.1				
Laxmannia gracilis	0.1	5	FG					0.1				
Juncus flavidus	0.1	5	GG				0.1					
Carex appressa	0.2	5	GG				0.2					
Aristida vagans	0.2	10	GG				0.2					
Lomandra filiformis su	0.2	1	GG				0.2					

Easting	767733
Northing	6422767
Orientation	140
Plot size	20 X 20 X 50
Attributes 20x50m plot	
Stem classes	
80+	0
50-79	0
30-49	0
20-29	no
10-19	no
5-9	no
<5	yes
Hollows	0
Length logs (m)	0
Attributes 1x1 plo	9
Litter (%)	5
	10
	5
	15
	10

CWO			Covers	Native	Trees	Shrubs	Grass	Forb	Fern	Other	Exotic	HighThreat	55
PCT 461	Veg Zone ID: remnant		# spp	Count	Count	Count	Count	Count	Count	Count	Count	Count	
Date: 29/03/23			41	38	5	9	9	13	1	1	3	0	
Species	**Cover**	**Abundance**	Sum cover	Sum	Sum	Sum	Sum	Sum	Sum	Sum	Sum	Sum	
			68.3	68	18	15.9	15.6	17.8	0.5	0.2	0.3	0	
Angophora floribunda	10	5	TG		10								
Callitris endlicheri	5	20	TG		5								
Allocasuarina verticillata	2	10	TG		2								
Exocarpos strictus	0.5	5	SG			0.5							
Cassinia sifton	10	20	SG			10							
Gonocarpus elatus	15	200	FG					15					
Cheilanthes sieberi	0.5	100	EG						0.5				
Austrostipa scabra	5	200	GG				5						
Hypericum gramineum	0.5	20	FG					0.5					
Hibbertia obtusifolia	0.1	5	SG			0.1							
Dichondra repens	0.1	20	FG					0.1					
Persoonia linearis	2	10	SG			2							
Dichelachne crinita	3	50	GG				3						
Melichrus urceolatus	1	10	SG			1							
Rytidosperma caespitosum	0.8	20	GG				0.8						
Fimbristylis dichotoma	0.1	20	GG				0.1						
Aristida ramosa	5	100	GG				5						
Cymbopogon refractus	1	10	GG				1						
Astroloma humifusum	1	20	SG			1							
Solanum sp.	0.2	5	FG					0.2					
Panicum effusum	0.5	10	GG				0.5						
Eragrostis brownii	0.1	5	GG				0.1						
Euphorbia drummondii	0.1	5	FG					0.1					
Vittadinia cuneata	0.2	20	FG					0.2					
Grevillea triternata	0.1	5	SG			0.1							
Dianella caerulea	0.1	5	FG					0.1					
Acacia linearifolia	0.2	1	TG		0.2								
Goodenia hederacea	0.2	30	FG					0.2					
Styphelia triflora	1	20	SG			1							
Stypandra glauca	0.8	20	FG					0.8					
Eucalyptus dealbata	0.8	5	TG		0.8								
Podolepis omissa	0.1	5	FG					0.1					
Conyza sp.	0.1	5	EX								0.1		
Xerochrysum viscosum	0.1	5	FG					0.1					
Verbascum thapsus	0.1	1	EX								0.1		
Opuntia stricta	0.1	1	EX								0.1		
Hardenbergia violacea	0.2	1	OG							0.2			
Pomax umbellata	0.3	50	FG					0.3					
Lomandra filiformis subsp. filiformis	0.1	5	GG				0.1						
Cassinia quinquefaria	0.2	5	SG			0.2							
Dichondra sp. Inglewood	0.1	20	FG					0.1					

Easting	756385
Northing	6425691
Orientation	315
Plot size	20 X 20 X 50
Attributes 20x50m plot	
Stem classes	
80+	1
50-79	0
30-49	Yes
20-29	Yes
10-19	Yes
5-9	No
<5	Yes
Hollows	0
Length logs (m)	23
	17.25
Attributes 1x1 plo	\
Litter (%)	39
	29.25

CWO			Covers	Native	Trees	Shrubs	Grass	Forb	Fern	Other	Exotic	HighThreat	55	Easting	756446
PCT 461	Veg Zone ID: DNG		# spp	Count	Count	Count	Count	Count	Count	Count	Count	Count		Northing	6425717
Date: 29/03/23			46	41	4	11	12	11	1	2	5	0		Orientation	305
Species	Cover	Abundance	Sum cover	Sum	Sum	Sum	Sum	Sum	Sum	Sum	Sum	Sum		Plot size	20 X 20 X 50
			67.5	66.3	2.6	27.4	24	11.8	0.1	0.4	1.2	0		Attributes 20x50m plot	
Persoonia linearis	2	10	SG			2								Stem classes	
Angophora floribunda	1	5	TG		1									80+	0
Callitris endlicheri	1	5	TG		1									50-79	0
Cassinia sifton	20	100	SG			20								30-49	No
Xerochrysum viscosum	10	100	FG					10						20-29	No
Gonocarpus elatus	0.8	50	FG					0.8						10-19	No
Cymbopogon refractus	5	50	GG				5							5-9	No
Cheilanthes sieberi	0.1	20	EG						0.1					<5	Yes
Goodenia hederacea	0.1	20	FG					0.1						Hollows	0
Centaurium tenuiflorum	0.1	5	EX								0.1			Length logs (m)	125
Austrostipa scabra	5	50	GG				5								
Digitaria ramularis	0.8	20	GG				0.8							Attributes 1x1 plot (%)	
Astroloma humifusum	1	10	SG			1								Litter (%)	25
Dichondra repens	0.1	20	FG					0.1							
Melichrus urceolatus	0.8	10	SG			0.8									
Panicum effusum	0.1	10	GG				0.1								
Echinopogon caespitosus	1	20	GG				1								
Hypericum hypericoides	0.5	20	EX								0.5				
Acacia linearifolia	0.2	1	TG		0.2										
Hibbertia obtusifolia	0.2	20	SG			0.2									
Tricoryne elatior	0.1	10	FG					0.1							
Entolasia stricta	0.1	10	GG				0.1								
Vittadinia cuneata	0.1	10	FG					0.1							
Styphelia triflora	1	10	SG			1									
Exocarpos strictus	1	20	SG			1									
Aristida ramosa	10	100	GG				10								
Grevillea triternata	0.1	1	SG			0.1									
Bidens subalternans	0.1	10	EX								0.1				
Rytidosperma caespitosum	0.2	20	GG				0.2								
Austrostipa densiflora	1	20	GG				1								
Fimbristylis dichotoma	0.1	20	GG				0.1								
Themeda triandra	0.5	5	GG				0.5								
Pomax umbellata	0.1	10	FG					0.1							
Acacia penninervis	0.2	1	SG			0.2									
Allocasuarina verticillata	0.4	5	TG		0.4										
Calotis lappulacea	0.2	5	FG					0.2							
Cassinia laevis	0.6	3	SG			0.6									
Lomandra longifolia	0.2	1	GG				0.2								
Verbascum thapsus	0.1	1	EX								0.1				
Hardenbergia violacea	0.3	1	OG							0.3					
Solanum sp.	0.1	5	FG					0.1							
Wahlenbergia sp.	0.1	10	FG					0.1							
Podolepis omissa	0.1	10	FG					0.1							
Glycine clandestina	0.1	5	OG							0.1					
Opuntia stricta	0.4	1	EX								0.4				
Acacia implexa	0.5	3	SG			0.5									

Date	5/1/2023		Covers	Native	Trees	Shrubs	Grass	Forb	Fern	Other	Exotic	HighThreat
Plot Name	CWO_628		# spp	Count	Count	Count	Count	Count	Count	Count	Count	Count
PCT	618		30	21	1	2	9	8	0	1	8	1
			Sum cover	Sum	Sum	Sum	Sum	Sum	Sum	Sum	Sum	Sum
Species	Cover	Abundance	71.9	70.1	10	1.1	55.2	3.7	0	0.1	1.4	0.4
Eucalyptus albens	10	3	TG		10							
Austrostipa verticillata	40	100	GG				40					
Austrostipa scabra	10	100	GG				10					
Digitaria diffusa	1	20	GG				1					
Calotis lappulacea	1	20	FG					1				
Aristida ramosa	2	30	GG				2					
Carex inversa	0.5	20	GG				0.5					
Eragrostis brownii	0.2	10	GG				0.2					
Einadia hastata	2	20	FG					2				
Dodonaea viscosa	0.1	1	SG			0.1						
Conyza bonariensis	0.1	10	EX								0.1	
Crassula sieberiana	0.1	30	FG					0.1				
Sporobolus creber	0.4	30	GG				0.4					
Chloris ventricosa	0.8	20	GG				0.8					
Hypochaeris radicata	0.1	5	EX								0.1	
Glycine clandestina	0.1	5	OG							0.1		
Dichondra repens	0.2	100	FG					0.2				
Hypericum perforatum	0.4	20	HT									0.4
Acacia falcata	1	2	SG			1						
Rumex brownii	0.1	1	FG					0.1				
Cirsium vulgare	0.2	2	EX								0.2	
Solanum nigrum	0.1	5	EX								0.1	
Geranium solanderi	0.1	5	FG					0.1				
Sida corrugata	0.1	1	FG					0.1				
Modiola caroliniana	0.1	5	EX								0.1	
Sida rhombifolia	0.4	5	EX								0.4	
Centaurea solstitialis	0.2	2	EX								0.2	
Oxalis perennans	0.1	1	FG					0.1				
Bidens subalternans	0.2	5	EX								0.2	
Panicum effusum	0.3	10	GG				0.3					

Easting	775265
Northing	6414614
Orientation	180
Plot size	20 X 20 X 50
Attributes 20x50m plot	
Stem classes	
80+	0
50-79	6
30-49	0
20-29	no
10-19	no
5-9	no
<5	yes
Hollows	1
Length logs (m)	28
Attributes 1x1 plo	46
Litter (%)	40
	30
	45
	55
	60

Date	5/1/2023		Covers	Native	Trees	Shrubs	Grass	Forb	Fern	Other	Exotic	HighThreat
Plot Name	CWO_629		# spp	Count	Count	Count	Count	Count	Count	Count	Count	Count
PCT	618 DNG -Powerline		26	19	1	0	9	9	0	0	6	1
			Sum cover	Sum	Sum	Sum	Sum	Sum	Sum	Sum	Sum	Sum
Species	Cover	Abundance	52.6	43.8	0.1	0	38.3	5.4	0	0	3.8	5
Eucalyptus albens	0.1	1	TG		0.1							
Austrostipa verticillata	20	100	GG				20					
Mentha satureioides	1	100	FG					1				
Einadia hastata	3	40	FG					3				
Chloris ventricosa	5	100	GG				5					
Sporobolus creber	5	100	GG				5					
Rumex brownii	0.1	1	FG					0.1				
Hypericum perforatum	5	20	HT									5
Modiola caroliniana	0.4	20	EX								0.4	
Dichondra sp. Inglewood	0.1	20	FG					0.1				
Carex inversa	2	100	GG				2					
Digitaria ramularis	1	50	GG				1					
Hypochaeris radicata	0.1	5	EX								0.1	
Cyperus gracilis	1	100	GG				1					
Calotis lappulacea	0.3	20	FG					0.3				
Oxalis perennans	0.2	100	FG					0.2				
Marrubium vulgare	1	20	EX								1	
Chondrilla juncea	0.1	1	EX								0.1	
Wahlenbergia spp.	0.1	5	FG					0.1				
Hydrocotyle spp.	0.5	50	FG					0.5				
Aristida ramosa	2	50	GG				2					
Bothriochloa macra	2	50	GG				2					
Euphorbia drummondii	0.1	5	FG					0.1				
Gahnia aspera	0.3	1	GG				0.3					
Verbena bonariensis	0.2	10	EX								0.2	
Opuntia stricta	2	5	EX								2	

Easting	775103
Northing	6414515
Orientation	165
Plot size	20 X 20 X 50
Attributes 20x50m plot	
Stem classes	
80+	0
50-79	0
30-49	0
20-29	no
10-19	no
5-9	no
<5	yes
Hollows	0
Length logs (m)	0
Attributes 1x1 plo	10
Litter (%)	10
	5
	5
	10
	20

Date	5/3/2023		Covers	Native	Trees	Shrubs	Grass	Forb	Fern	Other	Exotic	HighThreat
Plot Name	CWO_644		# spp	Count	Count	Count	Count	Count	Count	Count	Count	Count
PCT- 618?	Blue Sping Rd		34	32	3	10	12	6	0	1	2	0
			Sum cover	Sum	Sum	Sum	Sum	Sum	Sum	Sum	Sum	Sum
Species	Cover	Abundanc	57.2	56.6	25	16.9	14	0.6	0	0.1	0.6	0
Eucalyptus fibrosa	10	5	TG		10							
Eucalyptus moluccana	10	8	TG		10							
Eucalyptus blakelyi	5	1	TG		5							
Cassinia sifton	10	50	SG			10						
Melaleuca thymifolia	1	1	SG			1						
Cassytha spp.	0.1	5	OG							0.1		
Sannantha cunninghamii	5	50	SG			5						
Juncus planifolius	1	50	GG				1					
Juncus flavidus	5	50	GG				5					
Eragrostis leptostachya	0.8	20	GG				0.8					
Tricoryne elatior	0.1	10	FG					0.1				
Goodenia hederacea	0.1	20	FG					0.1				
Dichelachne micrantha	1	20	GG				1					
Rytidosperma spp.	1	30	GG				1					
Carex appressa	3	20	GG				3					
Setaria parviflora	0.5	20	EX								0.5	
Gahnia aspera	0.3	1	GG				0.3					
Dianella revoluta	0.1	10	FG					0.1				
Lachnagrostis filiformis	0.4	20	GG				0.4					
Acacia buxifolia	0.3	3	SG			0.3						
Senecio spp.	0.1	1	FG					0.1				
Styphelia triflora	0.1	2	SG			0.1						
Acacia spp.	0.1	1	SG			0.1						
Hibbertia spp.	0.1	5	SG			0.1						
Phyllanthus hirtellus	0.1	10	SG			0.1						
Aristida ramosa	0.8	20	GG				0.8					
Hypochaeris radicata	0.1	10	EX								0.1	
Eragrostis brownii	0.1	10	GG				0.1					
Pultenaea retusa	0.1	1	SG			0.1						
Astroloma humifusum	0.1	1	SG			0.1						
Echinopogon caespitosus	0.5	20	GG				0.5					
Lomandra filiformis subsp. filiformis	0.1	5	GG				0.1					
Gonocarpus elatus	0.1	10	FG					0.1				
Goodenia gracilis	0.1	20	FG					0.1				

Easting	746039
Northing	6428102
Orientation	90
Plot size	20 X 20 X 50
Attributes 20x50m plot	
Stem classes	
80+	0
50-79	2
30-49	4
20-29	yes
10-19	yes
5-9	no
<5	yes
Hollows	2
Length logs (m)	48
Attributes 1x1 plo	47
Litter (%)	75
	60
	30
	55
	15

Date	5/3/2023		Covers	Native	Trees	Shrubs	Grass	Forb	Fern	Other	Exotic	HighThreat
Plot Name	CWO_645		# spp	Count	Count	Count	Count	Count	Count	Count	Count	Count
PCT -618?	Blue Sping Rd		46	37	1	7	17	10	1	1	8	1
			Sum cover	Sum	Sum	Sum	Sum	Sum	Sum	Sum	Sum	Sum
Species	Cover	Abundance	68.5	51.9	0.1	15.2	29.7	6.5	0.3	0.1	11.6	5
Eucalyptus blakelyi	0.1	2	TG		0.1							
Sannantha cunninghamii	5	40	SG			5						
Melaleuca thymifolia	0.2	1	SG			0.2						
Juncus flavidus	5	50	GG				5					
Juncus usitatus	3	50	GG				3					
Carex appressa	10	50	GG				10					
Setaria parviflora	10	1000	EX								10	
Cassytha spp.	0.1	5	OG							0.1		
Dichelachne micrantha	1	20	GG				1					
Eragrostis brownii	0.1	20	GG				0.1					
Opercularia diphylla	0.2	20	FG					0.2				
Panicum effusum	0.5	10	GG				0.5					
Dianella revoluta	5	100	FG					5				
Aristida ramosa	1	50	GG				1					
Sporobolus creber	5	100	GG				5					
Hypochaeris radicata	0.5	40	EX								0.5	
Cheilanthes sieberi	0.3	50	EG						0.3			
Eragrostis leptostachya	0.2	20	GG				0.2					
Aristida vagans	0.5	20	GG				0.5					
Fimbristylis dichotoma	0.1	20	GG				0.1					
Verbena bonariensis	0.2	10	EX								0.2	
Microlaena stipoides	1	100	GG				1					
Lissanthe strigosa	2	20	SG			2						
Acacia decora	3	5	SG			3						
Lachnagrostis filiformis	1	50	GG				1					
Calotis cuneifolia	0.1	10	FG					0.1				
Cassinia sifton	2	30	SG			2						
Acacia buxifolia	2	5	SG			2						
Styphelia triflora	1	5	SG			1						
Paspalum dilatatum	5	50	HT									5
Goodenia gracilis	0.2	50	FG					0.2				
Eriochilus cucullatus	0.1	5	FG					0.1				
Laxmannia gracilis	0.5	30	FG					0.5				
Echinopogon caespitosus	1	30	GG				1					
Wahlenbergia gracilis	0.1	5	FG					0.1				
Conyza bonariensis	0.1	5	EX								0.1	
Digitaria ramularis	0.1	5	GG				0.1					
Senecio spp.	0.1	5	FG					0.1				
Cirsium vulgare	0.1	5	EX								0.1	
Veronica plebeia	0.1	5	FG					0.1				
Plantago lanceolata	0.1	10	EX								0.1	
Haloragis heterophylla	0.1	10	FG					0.1				
Lysimachia arvensis	0.5	20	EX								0.5	
Sonchus oleraceus	0.1	5	EX								0.1	
Rytidosperma caespitosum	0.1	10	GG				0.1					
Paspalidium constrictum	0.1	5	GG				0.1					

Easting	746025
Northing	6428067
Orientation	100
Plot size	20 X 20 X 50
Attributes 20x50m plot	
Stem classes	
80+	0
50-79	0
30-49	0
20-29	no
10-19	no
5-9	no
<5	yes
Hollows	0
Length logs (m)	61
Attributes 1x1 plo	13
Litter (%)	10
	5
	10
	25
	15

Date	5/3/2023		Covers	Native	Trees	Shrubs	Grass	Forb	Fern	Other	Exotic	HighThreat
Plot Name	CWO_638		# spp	Count	Count	Count	Count	Count	Count	Count	Count	Count
PCT	477_mod-good		35	34	3	10	15	4	1	1	1	0
			Sum cover	Sum	Sum	Sum	Sum	Sum	Sum	Sum	Sum	Sum
Species	Cover	Abundance	66.2	66.1	14	27.8	23	1.1	0.1	0.1	0.1	0
Eucalyptus rossii	10	6	TG		10							
Eucalyptus crebra	2	1	TG		2							
Eucalyptus blakelyi	2	1	TG		2							
Cassinia sifton	15	50	SG			15						
Poa sieberiana	5	20	GG				5					
Dianella revoluta	0.1	5	FG					0.1				
Lomandra filiformis subsp. f	0.5	20	GG				0.5					
Gonocarpus elatus	0.5	20	FG					0.5				
Aristida vagans	1	40	GG				1					
Hypochaeris radicata	0.1	10	EX								0.1	
Pultenaea foliolosa	2	10	SG			2						
Cheilanthes sieberi subsp. si	0.1	10	EG						0.1			
Entolasia stricta	0.6	30	GG				0.6					
Grevillea sericea	2	10	SG			2						
Laxmannia gracilis	0.4	20	FG					0.4				
Sannantha cunninghamii	5	20	SG			5						
Cyperus gracilis	0.1	5	GG				0.1					
Hibbertia spp.	0.1	1	SG			0.1						
Cassytha spp.	0.1	5	OG							0.1		
Dichelachne micrantha	1	30	GG				1					
Aristida ramosa	5	100	GG				5					
Arundinella nepalensis	1	20	GG				1					
Lepidosperma laterale	5	20	GG				5					
Lissanthe strigosa	1	10	SG			1						
Euphorbia drummondii	0.1	1	FG					0.1				
Juncus flavidus	0.1	5	GG				0.1					
Acacia hakeoides	0.2	1	SG			0.2						
Pimelea spp.	1	20	SG			1						
Acacia spp.	0.5	1	SG			0.5						
Lomandra multiflora subsp.	1	20	GG				1					
Lomandra confertifolia subs	2	20	GG				2					
Lomandra filiformis subsp. c	0.1	10	GG				0.1					
Melaleuca thymifolia	1	1	SG			1						
Gahnia aspera	0.5	2	GG				0.5					
Rytidosperma caespitosum	0.1	5	GG				0.1					

Easting	751185
Northing	6424963
Orientation	225
Plot size	20 X 20 X 50
Attributes 20x50m plot	
Stem classes	
80+	0
50-79	8
30-49	4
20-29	yes
10-19	yes
5-9	yes
<5	yes
Hollows	3
Length logs (m)	36
Attributes 1x1 plo	61
Litter (%)	50
	65
	80
	40
	70

Date	5/3/2023		Covers	Native	Trees	Shrubs	Grass	Forb	Fern	Other	Exotic	HighThreat
Plot Name	CWO_639		# spp	Count	Count	Count	Count	Count	Count	Count	Count	Count
PCT	477_DNG		28	28	2	11	9	3	1	2	0	0
			Sum cover	Sum	Sum	Sum	Sum	Sum	Sum	Sum	Sum	Sum
Species	Cover	Abundance	53.1	53.1	2.5	42.3	5.9	2.1	0.1	0.2	0	0
Acacia spectabilis	1	5	SG			1						
Acacia hakeoides	1	5	SG			1						
Grevillea sericea	5	30	SG			5						
Lissanthe strigosa	5	30	SG			5						
Sannantha cunninghamii	10	500	SG			10						
Rytidosperma spp.	0.2	20	GG				0.2					
Gonocarpus elatus	1	50	FG					1				
Pimelea spp.	2	100	SG			2						
Wahlenbergia spp.	0.1	5	FG					0.1				
Aristida ramosa	2	100	GG				2					
Melaleuca erubescens	2	10	SG			2						
Cheilanthes sieberi	0.1	10	EG						0.1			
Laxmannia gracilis	1	50	FG					1				
Cassinia sifton	1	20	SG			1						
Eragrostis elongata	0.1	10	GG				0.1					
Eucalyptus spp.	2	20	TG		2							
Eucalyptus blakelyi	0.5	5	TG		0.5							
Cassytha spp.	0.1	5	OG							0.1		
Lomandra multiflora sub	0.2	5	GG				0.2					
Lomandra filiformis subs	0.1	10	GG				0.1					
Poa sieberiana	0.1	5	GG				0.1					
Lepidosperma laterale	2	20	GG				2					
Arundinella nepalensis	1	10	GG				1					
Acacia spp.	0.2	1	SG			0.2						
Isopogon anemonifolius	0.1	5	SG			0.1						
Macrozamia spp.	0.1	2	OG							0.1		
Pultenaea spp.	15	500	SG			15						
Gahnia aspera	0.2	1	GG				0.2					

Easting	751213
Northing	6424910
Orientation	255
Plot size	20 X 20 X 50
Attributes 20x50m plot	
Stem classes	
80+	0
50-79	0
30-49	0
20-29	no
10-19	no
5-9	yes
<5	yes
Hollows	0
Length logs (m)	4
Attributes 1x1 plo	9
Litter (%)	2
	10
	5
	25
	3

CWO			Covers	Native	Trees	Shrubs	Grass	Forb	Fern	Other	Exotic	HighThreat	55
PCT 479	Veg Zone ID: remnant		# spp	Count	Count	Count	Count	Count	Count	Count	Count	Count	
Date: 28/02/2023			48	47	5	14	16	9	1	2	1	0	
Species	**Cover**	**Abundance**	Sum cover	Sum	Sum	Sum	Sum	Sum	Sum	Sum	Sum	Sum	
			132.4	132.3	80	23.4	26.5	2	0.1	0.3	0.1	0	
Angophora floribunda	40	40	TG		40								
Eucalyptus rossii	5	2	TG		5								
Eucalyptus tereticornis	5	3	TG		5								
Eucalyptus macrorhyncha	10	3	TG		10								
Callitris endlicheri	20	30	TG		20								
Acacia ausfeldii	0.5	5	SG			0.5							
Exocarpos strictus	3	30	SG			3							
Cassinia sifton	5	50	SG			5							
Styphelia triflora	1	10	SG			1							
Leucopogon sp.	0.1	1	SG			0.1							
Lissanthe strigosa	5	50	SG			5							
Acacia implexa	1	5	SG			1							
Dianella longifolia	0.3	25	FG					0.3					
Sannantha cunninghamii	1	100	SG			1							
Gonocarpus elatus	0.1	1	FG					0.1					
Persoonia linearis	1	20	SG			1							
Hibbertia sp. riparia?	0.1	10	SG			0.1							
Brunoniella australis	0.1	10	FG					0.1					
Astroloma humifusum	5	500	SG			5							
Schoenus apogon	0.5	1000	GG				0.5						
Wahlenbergia gracilis	0.1	10	FG					0.1					
Laxmannia gracilis	0.1	25	FG					0.1					
Austrostipa densiflora	10	200	GG				10						
Lomandra gracilis	0.1	1	GG				0.1						
Lomandra multiflora	0.1	2	GG				0.1						
Aristida ramosa	10	200	GG				10						
Eragrostis sp.	1	25	GG				1						
Rytidosperma caespitosum	1	100	GG				1						
Juncus usitatus	0.1	1	GG				0.1						
Microtis sp.	0.1	1	FG					0.1					
Arundinella nepalensis	1	10	GG				1						
Echinopogon ovatus	0.2	25	GG				0.2						
Pomax umbellata	1	100	FG					1					
Conyza sp.	0.1	1	EX								0.1		
Hibbertia obtusifolia	0.5	50	SG			0.5							
Cheilanthes sieberi	0.1	10	EG						0.1				
Rytidosperma setaceum	0.1	10	GG				0.1						
Rytidosperma setaceum	0.1	10	GG				0.1						
Goodenia heterophylla	0.1	10	FG					0.1					
Clematis sp.	0.1	1	OG							0.1			
Macrozamia reducta	0.2	2	OG							0.2			
Chrysocephalum apiculatum	0.1	10	FG					0.1					
Brachyloma daphnoides	0.1	1	SG			0.1							
Acacia decora	0.1	1	SG			0.1							
Themeda triandra	2	25	GG				2						
Lachnagrostis filiformis	0.1	1	GG				0.1						
Panicum effusum	0.1	10	GG				0.1						
Fimbristylis dichotoma	0.1	1	GG				0.1						

Easting	754723
Northing	6426846
Orientation	182
Plot size	20 X 20 X 50
Attributes 20x50m plot	
Stem classes	
80+	0
50-79	3 large trees
30-49	Yes
20-29	Yes
10-19	Yes
5-9	Yes
<5	Yes
Hollows	1
Length logs (m)	86
Attributes 1x1 plot (%)	
Litter (%)	70

CWO			Covers	Native	Trees	Shrubs	Grass	Forb	Fern	Other	Exotic	HighThreat	55
PCT 479	Veg Zone ID: DNG		# spp	Count	Count	Count	Count	Count	Count	Count	Count	Count	
Date: 28/02/2023			49	43	2	11	19	9	1	1	6	0	
Species	**Cover**	**Abundance**	Sum cover	Sum	Sum	Sum	Sum	Sum	Sum	Sum	Sum	Sum	
			142.5	137	2	9.5	98.3	22.1	5	0.1	5.5	0	
Angophora floribunda	1	5	TG		1								
Eucalyptus blakelyi	1	6	TG		1								
Acacia decora	2	10	SG			2							
Acacia ulicifolia	1	10	SG			1							
Lissanthe strigosa	2	25	SG			2							
Cassinia sifton	0.5	10	SG			0.5							
Acacia ausfeldii	2	20	SG			2							
Kunzea sp.	1	20	SG			1							
Themeda triandra	5	25	GG				5						
Aristida personata	20	1000	GG				20						
Laxmannia gracilis	0.5	500	FG					0.5					
Fimbristylis dichotoma	0.1	10	GG				0.1						
Eragrostis alveiformis	5	500	GG				5						
Wahlenbergia gracilis	0.1	10	FG					0.1					
Echinopogon ovatus	5	100	GG				5						
Microtis sp.	0.1	1	FG					0.1					
Cheilanthes sieberi	5	500	EG						5				
Hypochaeris radicata	5	500	EX								5		
Eragrostis elongata	0.2	20	GG				0.2						
Lomandra multiflora	0.1	1	GG				0.1						
Austrostipa densiflora	25	2000	GG				25						
Haloragis heterophylla	20	2000	FG					20					
Aristida vagans	10	2000	GG				10						
Microlaena stipoides	5	500	GG				5						
Sporobolus creber	20	2000	GG				20						
Tricoryne elatior	0.1	1	FG					0.1					
Aristida sp.	0.2	20	GG				0.2						
Eulalia aurea	0.1	1	GG				0.1						
Goodenia heterophylla	0.1	10	FG					0.1					
Juncus usitatus	0.1	2	GG				0.1						
Eragrostis cilianensis	0.1	2	EX								0.1		
Rytidosperma caespitosum	0.1	10	GG				0.1						
Panicum effusum	0.2	10	GG				0.2						
Cymbopogon refractus	0.1	10	GG				0.1						
Styphelia triflora	0.2	2	SG			0.2							
Setaria parviflora	0.1	10	EX								0.1		
Calotis lappulacea	0.1	10	FG					0.1					
Podolepis omissa	1	500	FG					1					
Lomandra filiformis	0.1	1	GG				0.1						
Melichrus urceolatus	0.5	10	SG			0.5							
Brachyloma daphnoides	0.1	1	SG			0.1							
Bothriochloa macra	2	50	GG				2						
Conyza sp.	0.1	3	EX								0.1		
Glycine sp.	0.1	5	OG							0.1			
Schkuhria pinnata	0.1	5	EX								0.1		
Petrorhagia nanteuilii	0.1	10	EX								0.1		
Bossiaea prostrata	0.1	1	FG					0.1					
Sannantha cunninghamii	0.1	1	SG			0.1							
Acacia spectabilis	0.1	1	SG			0.1							

Easting	754702
Northing	6426912
Orientation	98
Plot size	20 X 20 X 50
Attributes 20x50m plot	
Stem classes	
80+	0
50-79	0
30-49	No
20-29	No
10-19	No
5-9	No
<5	Yes
Hollows	0
Length logs (m)	0
Attributes 1x1 plot (%)	
Litter (%)	20

Date	5/1/2023		Covers	Native	Trees	Shrubs	Grass	Forb	Fern	Other	Exotic	HighThreat
Plot Name	CWO_631		# spp	Count	Count	Count	Count	Count	Count	Count	Count	Count
PCT	1606 mod good		25	24	3	9	6	5	1	0	1	0
			Sum cover	Sum	Sum	Sum	Sum	Sum	Sum	Sum	Sum	Sum
Species	Cover	Abundance	65.2	65.1	15.1	46.3	2.6	1	0.1	0	0.1	0
Eucalyptus crebra	10	5	TG		10							
n	5	6	TG		5							
Cassinia sifton	35	100	SG			35						
Acacia spp.	2	10	SG			2						
Dodonaea viscosa	2	20	SG			2						
Cassinia quinquefaria	3	50	SG			3						
Dichelachne micrantha	0.2	10	GG				0.2					
Calotis cuneifolia	0.1	5	FG					0.1				
Eremophila debilis	0.1	1	SG			0.1						
Rytidosperma spp.	0.2	10	GG				0.2					
Solanum spp.	0.2	2	FG					0.2				
Dichondra repens	0.1	10	FG					0.1				
Euchiton sphaericus	0.1	10	FG					0.1				
Calotis lappulacea	0.5	20	FG					0.5				
Gahnia aspera	1	10	GG				1					
Eragrostis leptostachya	0.1	5	GG				0.1					
Opuntia stricta	0.1	1	EX								0.1	
Austrostipa scabra	1	30	GG				1					
Goodenia ovata	0.1	2	SG			0.1						
Cheilanthes sieberi	0.1	10	EG						0.1			
Lissanthe strigosa	0.1	2	SG			0.1						
Allocasuarina verticillata	0.1	2	TG		0.1							
Acacia spp.	2	10	SG			2						
Lomandra filiformis	0.1	5	GG				0.1					
Acacia spp.	2	10	SG			2						

Easting	774968
Northing	6414997
Orientation	350
Plot size	20 X 20 X 50
Attributes 20x50m plot	
Stem classes	
80+	1
50-79	2
30-49	0
20-29	yes
10-19	yes
5-9	yes
<5	yes
Hollows	0
Length logs (m)	14
Attributes 1x1 plo	36
Litter (%)	15
	10
	40
	55
	60

Date	5/1/2023		Covers	Native	Trees	Shrubs	Grass	Forb	Fern	Other	Exotic	HighThreat
Plot Name	CWO_632		# spp	Count	Count	Count	Count	Count	Count	Count	Count	Count
PCT	1606 - powerline		28	23	0	5	13	4	1	0	4	1
			Sum cover	Sum	Sum	Sum	Sum	Sum	Sum	Sum	Sum	Sum
Species	Cover	Abundance	77.7	69.1	0	13	55.5	0.4	0.2	0	6.6	2
Acacia spp.	2	10	SG			2						
Acacia spp.	2	10	SG			2						
Hypericum perforatum	2	20	HT									2
Dichelachne micrantha	1	20	GG				1					
Gahnia aspera	1	5	GG				1					
Dichondra repens	0.1	10	FG					0.1				
Hypochaeris radicata	0.1	10	EX								0.1	
Euphorbia drummondii	0.1	10	FG					0.1				
Cheilanthes sieberi	0.2	50	EG						0.2			
Sporobolus creber	5	100	GG				5					
Mentha satureioides	0.1	10	FG					0.1				
Chloris ventricosa	2	50	GG				2					
Aristida ramosa	15	500	GG				15					
Cassinia sifton	5	20	SG			5						
Cirsium vulgare	0.5	5	EX								0.5	
Juncus usitatus	0.1	10	GG				0.1					
Themeda triandra	1	20	GG				1					
Geranium solanderi	0.1	5	FG					0.1				
Dodonaea viscosa	2	10	SG			2						
Microlaena stipoides	10	500	GG				10					
Acacia spp.	2	10	SG			2						
Bidens subalternans	1	20	EX								1	
Lomandra filiformis	0.1	10	GG				0.1					
Setaria parviflora	5	100	EX								5	
Austrostipa verticillata	3	30	GG				3					
Eragrostis spp.	0.3	10	GG				0.3					
Austrostipa scabra	2	100	GG				2					
Aristida ramosa	15	500	GG				15					

Easting	774902
Northing	6414986
Orientation	155
Plot size	20 X 20 X 50
Attributes 20x50m plot	
Stem classes	
80+	0
50-79	0
30-49	0
20-29	no
10-19	no
5-9	no
<5	yes
Hollows	0
Length logs (m)	0
Attributes 1x1 plo	11
Litter (%)	5
	10
	15
	5
	20

Date	5/3/2023		Covers	Native	Trees	Shrubs	Grass	Forb	Fern	Other	Exotic	HighThreat
Plot Name	CWO_640		# spp	Count	Count	Count	Count	Count	Count	Count	Count	Count
PCT	1674_mod-good		21	19	1	6	9	2	0	1	2	0
			Sum cover	Sum	Sum	Sum	Sum	Sum	Sum	Sum	Sum	Sum
Species	Cover	Abundance	57.6	57.4	25	21	8.1	0.3	0	3	0.2	0
Eucalyptus sideroxylon	25	25	TG		25							
Cassinia sifton	5	20	SG			5						
Pultenaea foliolosa	5	40	SG			5						
Lomandra multiflora subsp. n	0.1	5	GG				0.1					
Lomandra filiformis subsp. fil	0.1	10	GG				0.1					
Aristida ramosa	3	40	GG				3					
Entolasia stricta	2	200	GG				2					
Acacia spectabilis	2	2	SG			2						
Lissanthe strigosa	5	30	SG			5						
Gonocarpus elatus	0.2	20	FG					0.2				
Laxmannia gracilis	0.1	20	FG					0.1				
Grevillea sericea	3	20	SG			3						
Rytidosperma caespitosum	0.3	30	GG				0.3					
Gahnia aspera	1	3	GG				1					
Conyza bonariensis	0.1	5	EX								0.1	
Amyema miquelii	3	3	OG							3		
Hypochaeris radicata	0.1	5	EX								0.1	
Poa sieberiana var. sieberian	1	2	GG				1					
Lomandra confertifolia subsp	0.1	5	GG				0.1					
Lepidosperma laterale	0.5	1	GG				0.5					
Melaleuca erubescens	1	1	SG			1						

Easting	751756
Northing	6424990
Orientation	250
Plot size	20 X 20 X 50
Attributes 20x50m plot	
Stem classes	
80+	0
50-79	3
30-49	5
20-29	yes
10-19	yes
5-9	yes
<5	yes
Hollows	0
Length logs (m)	6
Attributes 1x1 plo	56
Litter (%)	30
	40
	65
	85
	60

Date	5/3/2023		Covers	Native	Trees	Shrubs	Grass	Forb	Fern	Other	Exotic	HighThreat
Plot Name	CWO_641		# spp	Count	Count	Count	Count	Count	Count	Count	Count	Count
PCT	1674_DNG		20	20	1	9	6	2	1	1	0	0
			Sum cover	Sum	Sum	Sum	Sum	Sum	Sum	Sum	Sum	Sum
Species	Cover	Abundance	45.1	45.1	2	30.2	12.3	0.4	0.1	0.1	0	0
Eucalyptus sideroxylon	2	5	TG		2							
Cassinia sifton	5	50	SG			5						
Pultenaea foliolosa	5	30	SG			5						
Cassytha spp.	0.1	5	OG							0.1		
Aristida ramosa	10	100	GG				10					
Acacia hakeoides	1	20	SG			1						
Grevillea sericea	5	50	SG			5						
Lomandra multiflora subsp. n	0.1	10	GG				0.1					
Entolasia stricta	1	50	GG				1					
Cheilanthes sieberi	0.1	10	EG						0.1			
Melaleuca thymifolia	10	30	SG			10						
Laxmannia gracilis	0.3	20	FG					0.3				
Lomandra filiformis subsp. fil	0.1	5	GG				0.1					
Lissanthe strigosa	2	20	SG			2						
Gahnia aspera	1	5	GG				1					
Sannantha cunninghamii	2	30	SG			2						
Goodenia hederacea	0.1	5	FG					0.1				
Daviesia genistifolia	0.1	1	SG			0.1						
Rytidosperma spp.	0.1	10	GG				0.1					
Hakea spp.	0.1	1	SG			0.1						

Easting	751764
Northing	6425017
Orientation	250
Plot size	20 X 20 X 50
Attributes 20x50m plot	
Stem classes	
80+	0
50-79	0
30-49	0
20-29	no
10-19	no
5-9	yes
<5	yes
Hollows	0
Length logs (m)	3
Attributes 1x1 plo	9.6
Litter (%)	5
	3
	10
	20
	10

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