APPENDIX

F

Technical Assessments

Appendix F.1

Updated Biodiversity Development Assessment Report Volume 2

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Attachment 1

BCS recommendations on BDAR

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Department of Planning and Environment

Our ref:DOC22/949104
Your ref: SSD-29508870

Javier Canon
Senior Environmental Assessment Officer
Planning and Assessment Group
Javier.Canon@planning.nsw.gov.au

Dear Javier

Birriwa Solar and Battery Project – Environmental Impact Statement

Thank you for your e-mail dated 12 October 2022 to the Biodiversity, Conservation and Science Directorate (BCS) of the Department of Planning and Environment (DPE) inviting comments on the Environmental Impact Statement (EIS) for the Birriwa Solar Farm.

BCS has reviewed the Biodiversity Development Assessment Report and Environmental Impact Statement and provides biodiversity recommendations in **Attachment A** and detailed comments are provided in **Attachment B**. Bilateral Assessment and Data Requirements have also been attached to this response in **Attachment C.**

If you require any further information regarding this matter, please do not hesitate to contact Ben Ellis, Principal Project Officer, via ben.ellis@environment.nsw.gov.au or (02) 8275 1838.

Yours sincerely

Liz Mazzer
A/Senior Team Leader Planning North West
Biodiversity, Conservation and Science Directorate

31 October 2022

Attachment A – BCS's Recommendations

Attachment B – BCS's Detailed Comments

Attachment C - Bilateral Assessment Information and Data Requirements

Attachment A

BCS's recommendations

Birriwa Solar Farm – Environmental Impact Statement

Recommendations

1.1 Clarify that all development components, which will result in loss of biodiversity values, have been included within the development footprint and are reflected in the BDAR, including asset protection zones and firefighting access requirements. 2.1 Justify the reasoning behind excluding lower quality habitat within the site as potential habitat for disturbance resilient threatened flora species. Alternatively, conduct further targeted survey within unsurveyed habitat or obtain an expert report.

3.1 The BDAR should describe and justify how non-native vegetation has been determined in the subject site.

4.1 When determining credit staging for the project, either:

a submit two separate BAM-C cases which align with each of the proposed credit retirement stages, or

b Split the vegetation zones into separate vegetation zones i.e., PCT 281_Pasture_Stage 1 and PCT_281_Pasture_Stage 2

4.2 If approved, the consent for the project should include a condition specifying the plant community types, zone and biodiversity credits to be retired for each stage of the development.

5.1 Note that additional information may be required if the project is determined to be a controlled action under the EPBC Act, and refer to the guidance document provided in Attachment C.

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Attachment B

BCS's detailed comments

Birriwa Solar Farm – Environmental Impact Statement

1. The inclusion of bushfire protection considerations should be clarified in the BDAR

BCS notes that asset protection zones (APZs) have not been included within the key components detailed within Section 1.2 of the BDAR. The Bushfire Risk Assessment prepared for the proposal identifies that a minimum ten-metre APZ will be required for all infrastructure associated with the project. It also states that access roads, internal roads and alternative egress should provide unobstructed access for a Cat 1 firefighting vehicle. It is unclear if these requirements have been accounted for in the BDAR.

Clearing for the APZ may include:

- A fuel free area to be comprised of sand, gravel etc
- Grass to be kept short and mown / maintained to a height of < 10 cm
- Removal of trees, pruning of trees, and thinning of the tree canopy

All development components which will result in loss of biodiversity values, must be accounted for in the development footprint and calculated in the total direct impact required for the project.

Recommendation:

1.1 Clarify that all development components, which will result in loss of biodiversity values, have been included within the development footprint and are reflected in the BDAR, including asset protection zones and firefighting access requirements.

2. Further justification should be provided for disturbance resilient flora species

From review of Table 5.2 of the BDAR all vegetation within the subject site has been included as potential habitat for *Dichanthium setosum*. This species' profile (EHG 2022[1]) state, in general terms, that it can occur within grassland habitat of varying disturbance.

Potential habitat for *Diuris tricolor* has been limited to "*derived native grassland and woodland areas with a predominantly native groundcover of PCT 80 and 281*". The species profile (EGH 2022[1]) states that its disturbance regimes are not known, although the species is usually recorded from disturbed habitats.

Section 5.3.3 of the BDAR states that "*Targeted flora searches were conducted in accordance with Surveying threatened plants and their habitats- NSW survey guide for the Biodiversity Assessment Method (DPIE 2020). The flora surveys were conducted in areas of high condition woodland"*.

Further explanation and justification on the reasoning behind the exclusion of habitat for the species above should be provided. Alternatively, further targeted survey within unsurveyed habitat should be conducted or an expert report should be obtained.

[1] Threatened Biodiversity Profile Search (Environment and Heritage Group 2022) - *Dichanthium setosum* (Blue Grass) and *Diuris tricolor* (Pine Donkey Orchid).

Accessed at https://www.environment.nsw.gov.au/threatenedspeciesapp on October 2022

Recommendation:

2.1 Justify the reasoning behind excluding lower quality habitat within the site as potential habitat for disturbance resilient threatened flora species. Alternatively, conduct further targeted survey within unsurveyed habitat or obtain an expert report.

3. The presence and extent of exotic vegetation should be further described and justified within the BDAR

Section 4.3.2 of the BDAR states that up to 776.66 ha of exotic grassland and 4.73 hectares of exotic trees would be impacted by the project. The method utilised to justify the presence and determine the extent of exotic vegetation has not been provided in the BDAR.

The BDAR should outline the method used to determine non-native vegetation, which may include (but not be limited to) the results from rapid assessments, photos of cultivated paddocks or aerial photography. This could be included as an additional description Table in Section 4.3.2 of the BDAR similar to that provided for the PCT identified within the subject site.

Recommendation:

3.1 The BDAR should describe and justify how non-native vegetation has been determined in the subject site.

4. Preparation of two separate BAM-C cases should be considered if the project is proposed to be staged

Section 6.7 of the BDAR states that credit retirement for the project will be staged. However, a singular BAM-C case and BAM credit report has been prepared for the project and credits have been manually prorated across the subject site.

It is BCS preference that two separate BAM-C cases are prepared which align with each of the proposed credit retirement stages, as the like-for-like credit report(s) will define the credit retirement options for each stage. In addition to this, preparing two separate BAM-C cases may assist in avoiding complexities when seeking to retire credits for the project, including:

- The credit report provides an auditable and traceable log of the credit requirements for both proponent, consent authority and assessor. As such, it would be less complex for the credit retirement process if staged offsets are mirrored by the credit reports.
- If there is the need to later modify any stages of credit retirement, only a singular stage would require modification, rather than the BAM-C for the entire subject site.
- If the proponent wishes to pay into the Biodiversity Conservation Fund for some or all of the credits required for a stage, a credit report reflecting the specific stage may be required for a credit pricing quote to be generated by the BCT.

As an alternative to the above, if the proponent wishes to keep the single BAM-C case for the project, the vegetation zones which extend across separate stages could be split into separate vegetation zones i.e., PCT 281_Pasture_Stage 1 and PCT_281_Pasture_Stage 2. This will allow the differentiation of credit obligations between proposed stages to be captured in credit reports.

The proponent should note that reopening and editing BAM-C cases has the potential to change the intrinsic credit generation for specific biodiversity values and/or capture additional candidate species credit species required to be surveyed for, if the data informing the BAM-C has been

updated in the interim. For further information the latest release notes for the BAM-C should be reviewed.
BCS also recommends that if approved, the consent includes a condition specifying the plant community types, zone and biodiversity credits to be retired for each stage of the development.

Recommendations:

4.1 When determining credit staging for the project, either:

a submit two separate BAM-C cases which align with each of the proposed credit retirement stages, or

b Split the vegetation zones into separate vegetation zones i.e., PCT 281_Pasture_Stage 1 and PCT_281_Pasture_Stage 2

4.2 If approved, the consent for the project should include a condition specifying the plant community types, zone and biodiversity credits to be retired for each stage of the development.

5. Information regarding bilateral assessment requirements has been provided for convenience

Section 7.1.2 of the BDAR states that the proponent expects to submit a referral under the EPBC Act to the Department of Climate Change, Energy the Environment and Water (DCCEEW) prior to commencing construction of the project.

If the assessment will require assessment the EPBC Act Assessment Bilateral Policy additional information may be required to inform DCCEEW that all relevant MNES have been addressed within the bilateral assessment.

The North West BCS Branch has prepared a guidance document to assist with undertaking bilateral assessments according to the BAM; this guidance document has been provided in **Attachment C**. BCS recommend this guidance document be reviewed and referenced to maximise efficiency of review by DCCEEW.

Recommendation:

5.1 Note that additional information may be required if the project is determined to be a controlled action under the EPBC Act, and refer to the guidance document provided in Attachment C.

Attachment C

Bilateral Assessment Information and Data Requirements

Assessment of EPBC Act-listed threatened species and communities for projects
Suggested information for inclusion in the advice to DPIE

1. Background & Description of Action
The Environmental Impact Statement (EIS)/ Biodiversity Development Assessment Report (BDAR) should include:

1. Descriptions and maps of the operational and construction footprints of the project with regards to Matters of National Environmental Significance (MNES).
2. Descriptions and maps of staging and timing of the action that may impact on MNES.
3. Maps of the subject land boundary showing the final proposal and disturbance footprint with regards to MNES.

Submit GIS shapefiles of all maps that relate to MNES.

2. Landscape Context of the MNES
Ensure that the 'Landscape Context' of BAM 2017 (Section 4) or 'Establishing the site context' of BAM 2020 (Section 3) have been fully met in the BDAR in relation to MNES.

3. EPBC Act Listed Threatened Species & Communities
The EIS should include the following:

1. Demonstration that field-based survey effort meets BCD survey guidelines and, where available, Commonwealth survey guideline.
2. Demonstration of access and use of supporting databases (e.g. NSW BioNet Vegetation Classification, NSW BioNet Threatened Biodiversity Data Collection, NSW BioNet Atlas, Commonwealth Species Profile and Threats Database search results)
3. Demonstration of access and use of published peer-reviewed literature
4. Demonstration of access and use of local data (if relevant)
5. Demonstration of appropriate mapping of all EPBC Act-listed threatened species and communities in accordance with the relevant Commonwealth listing advice.
6. Demonstration of consideration of important populations and critical habitat as defined in Approved Listing Advice, Approved Conservation Advice and Recovery Action Plans.
7. A list of all EPBC Act listed threatened species and communities that occur on the subject land, or in the vicinity (including species that are 'ecosystem credits' in BAM)
8. A discussion, with data and analysis where any species and communities identified by the Department of Climate Change, Energy, the Environment and Water (DCCEEW) referral documents have been ruled out as occurring on or near the subject site.

4. Avoidance, Minimisation, Mitigation & Management
The BDAR should include:

1. The demonstration of all feasible alternatives and efforts to avoid and minimise impacts on EPBC Act listed threatened species and communities (including direct, indirect and prescribed impacts) including an analysis of alternative:

a. designs and engineering solutions
b. modes or technologies
c. routes and locations of facilities
d. sites within the subject site
e. the identification of any other site constraints in determining the location and design of the proposal (such as bushfire protection requirements, flood planning levels, servicing constraints, etc).

2. A discussion and justification of all feasible impact avoidance, minimisation, and management all feasible alternatives and efforts to avoid and manage impacts (including adaptive management) Provide feasible measures to mitigate and/or manage impacts on EPBC Act listed threatened species and communities (including direct, indirect and prescribed impacts) including:

a. techniques, timing, frequency and responsibility
b. identify measures for which there is risk of failure
c. evaluate the risk and consequence of any residual impacts
d. any adaptive management strategy proposed to monitor and respond to impacts.

5. Impact Assessment

The EIS / BDAR should include the following:

1. Identification of the residual adverse impacts likely to occur to each EPBC Act listed threatened species and/or community after the proposed avoidance and mitigation measures are taken into account.
2. Justification and evidence for the predicted level of impact, with reference to the Commonwealth's Significant Impact Guideline and DPIE's 'Guidance to Assist a Decision-Maker to Determine a Serious and Irreversible Impact (SAII)'
3. Provide a summary table with the following information:

Name of EPBC Act listed entity	Nature & consequence of impact (direct & indirect)	Duration of impact (e.g. construction, operation, life of project)	Quantum of impact	Consequence of impact (local, state & national scales)	Impact requires offsetting? (significant or not)

4. Provide data and justification where any EPBC Act-listed threatened species or communities to be considered in the BDAR are considered to be at low risk of impact during the assessment.
5. For projects that DCCEEW considers that MNES have been significantly impacted by the 2019-2020 bushfires additional assessment is required. Those MNES will be identified in DCCEEW's 'Decision on referral'. The proponent must discuss in the EIS whether any

additional bushfire impacts to those MNES were significant, and also whether any other local MNES were significantly impacted by those fires.

6. Offsets

The EIS / BDAR should include the following:

1. The identification of any MNES that haven't been offset using the BAM
2. Details of how impacts requiring offset corelate to the MNES impacts
3. Details of the Plant Community Types that require offsetting and the number and type of ecosystem credits required for impacts to MNES
4. Details of threatened species requiring offset and the number of species credits required for impacts to MNES
5. A demonstration of the correct uses the BAM (and BAM calculator) to identify the number and class of biodiversity credits that need to be offset to achieve a standard of 'no net loss' of biodiversity
6. Any details of ecological rehabilitation and/or biodiversity conservation actions proposed for offsetting
7. The identification of any other offsetting approach proposed, such as land-based offsets, retiring credits by payment into the Biodiversity Conservation Fund and/or through supplementary measures

Provide a summary table with the following information:

Threatened Species / Community listed under EPBC Act	**PCTs associated with the ecosystem credit species / ecological community (if applicable)**	**Area of Impact (ha)**	**Credits Required**	**Offsetting Approach**	**Reference (EIS/BDAR)**
TOTAL					

7. Other considerations

The EIS / BDAR should include the following:

1. Consideration of all relevant Commonwealth guidelines and policy statements that are appliable to the action and listed threatened species and/or communities, including but not limited to:
    a. International environmental obligations
    b. Recovery Plans
    c. Approved Conservation Advice
    d. Threat Abatement Plans

2. An assessment for each EPBC Act listed threatened species and/or community, that has been adequately informed by applicable Commonwealth guidelines and/or policy statements. For example, the interaction between the proposed action and important

populations or critical habitat identified in policy documents and/or the interaction between the proposed action and threatening processes or recommended conservation actions outlined in Commonwealth policies and plans

Attachment 2

Vegetation integrity assessment field datasheets

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BAM Site – Field Survey Form

Plot ID:	Exotic1	**Date:**	29/06/23	**Project number:**	J210553	**Plot dimensions:**	20x20, 20x50
Datum:	GDA94	**Easting:**	739,698	**Recorders:**	LO, CL		
Zone:	55	**Northing:**	6,441,197	**IBRA region:**		**Midline bearing:**	175
Plant Community Type:				**Condition class:**		**PCT confidence:**	
Vegetation Class:				**EEC:**		**EEC confidence:**	

Record easting and northing at 0 m on midline. Dimensions (Shape) of 0.04 ha base plot.

BAM Attribute (400 m2 plot)		Sum values
Count of Native Richness	Trees:	0
	Shrubs:	0
	Grasses etc.:	2
	Forbs:	1
	Ferns:	0
	Other:	0
Sum of Cover of native vascular plants by growth form group	Trees:	0
	Shrubs:	0
	Grasses etc.:	5.5
	Forbs:	5
	Ferns:	0
	Other:	0
High Threat Weed cover:		6

BAM Attribute (1000 m2 plot) DBH			
DBH	Tree stem count	Length of logs (m) (≥10 cm diameter, >50 cm in length)	0
80 + cm:	0		
50 – 79 cm:	0		
30 – 49 cm:	0		
20 – 29 cm:	0	Tree hollow count	0
10 – 19 cm:	0		
5 – 9 cm:	0		
< 5 cm:	0		

Counts apply when no. of tree stems within a size class is ≤ 10. Estimates can be used when > 10 (eg. 10, 20, 30..., 100, 200, 300...). For multi-stemmed tree, only largest living stem is included in the count. Tree stems must be living.
For hollows, count only the presence of a stem containing hollows. For a multi-stemmed tree, only the largest stem is included in the count/estimate. Stems may be dead and may be shrubs.

BAM Attribute (1 x 1 m plots)	Litter cover (%)				
Subplot:	1	2	3	4	5
Subplot score (%):	40	45	30	10	30
Average litter cover (%):	31				

Litter cover is assessed as the average percentage ground cover of litter recorded from five 1 m x 1 m plots centred at 5, 15, 25, 35, 45 m along the plot midline. Litter cover includes leaves, seeds, twigs, branchlets and branches (less than 10 cm in diameter). Assessors may also record the cover of rock, bare ground and cryptogams.

Physiography and site features

Plot Disturbance

Currently grazed by cattle

GF Code: see Growth Form definitions in Appendix 1; N: native, E: exotic, HTE: high threat exotic; GF – circle code if 'top 3'; Cover: 0.1, 0.2, 0.3, ..., 1, 2, 3, ..., 10, 15, 20, 25, ...100% (foliage cover)
Note: 0.1% cover represents an area of approximately 63 x 63 cm or a circle about 71 cm across, 0.5% cover represents an area of approximately 1.4 x 1.4 m, and 1% = 2.0 x 2.0 m, 5% = 4 x 5 m, 25% = 10 x 10 m
Abundance: 1, 2, 3, ..., 10, 20, 30, ... 100, 200, ..., 1000, ...

Project name:	J210553				
Recorders:	LO, CL	**Plot ID:**	Exotic1	**Date:**	29/06/23

GF Code	Scientific name	Cover	Abundance	Voucher	N, E or HTE
	Trifolium repens (White Clover)	20	1000		E
	Lolium perenne (Perennial Ryegrass)	95	1000		E
	Xanthium spinosum (Bathurst Burr)	5	200		HTE
	Hypochaeris radicata (Catsear)	0.1	20		E
	Polygonum aviculare (Wireweed)	0.1	5		E
	Verbena bonariensis (Purpletop)	0.1	5		E
	Sisymbrium officinale (Hedge Mustard)	5	40		E
Grass & grasslike (GG)	*Juncus spp. (A Rush)*	0.5	8		N
	Conyza bonariensis (Flaxleaf Fleabane)	1	50		E
	Modiola caroliniana (Red-flowered Mallow)	80	1000		E
Grass & grasslike (GG)	*Sporobolus creber (Slender Rat's Tail Grass)*	5	100		N
	Paspalum dilatatum (Paspalum)	1	10		HTE
	Lepidium africanum (Common Peppercress)	0.5	10		E
Forb (FG)	*Rumex brownii (Swamp Dock)*	5	50		N

BAM Site – Field Survey Form

Plot ID:	Exotic2	**Date:**	30/06/23	**Project number:**	J210553	**Plot dimensions:**	20x50, 20x20
Datum:	GDA94	**Easting:**	735,761	**Recorders:**	LO, CL		
Zone:	55	**Northing:**	6,442,280	**IBRA region:**		**Midline bearing:**	67
Plant Community Type:				**Condition class:**		**PCT confidence:**	
Vegetation Class:				**EEC:**		**EEC confidence:**	

Record easting and northing at 0 m on midline. Dimensions (Shape) of 0.04 ha base plot.

BAM Attribute (400 m2 plot)		Sum values
Count of Native Richness	Trees:	0
	Shrubs:	0
	Grasses etc.:	2
	Forbs:	2
	Ferns:	0
	Other:	0
Sum of Cover of native vascular plants by growth form group	Trees:	0
	Shrubs:	0
	Grasses etc.:	26
	Forbs:	3.1
	Ferns:	0
	Other:	0
High Threat Weed cover:		20.5

BAM Attribute (1000 m2 plot) DBH			
DBH	Tree stem count	Length of logs (m) (≥10 cm diameter, >50 cm in length)	0
80 + cm:	0		
50 – 79 cm:	0		
30 – 49 cm:	0		
20 – 29 cm:	0	Tree hollow count	0
10 – 19 cm:	0		
5 – 9 cm:	0		
< 5 cm:	0		

Counts apply when no. of tree stems within a size class is ≤ 10. Estimates can be used when > 10 (eg. 10, 20, 30..., 100, 200, 300...). For multi-stemmed tree, only largest living stem is included in the count. Tree stems must be living.
For hollows, count only the presence of a stem containing hollows. For a multi-stemmed tree, only the largest stem is included in the count/estimate. Stems may be dead and may be shrubs.

BAM Attribute (1 x 1 m plots)	Litter cover (%)				
Subplot:	1	2	3	4	5
Subplot score (%):	5	10	5	10	5
Average litter cover (%):	7				

Litter cover is assessed as the average percentage ground cover of litter recorded from five 1 m x 1 m plots centred at 5, 15, 25, 35, 45 m along the plot midline. Litter cover includes leaves, seeds, twigs, branchlets and branches (less than 10 cm in diameter). Assessors may also record the cover of rock, bare ground and cryptogams.

Physiography and site features

Plot Disturbance

Currently grazed

GF Code: see Growth Form definitions in Appendix 1; N: native, E: exotic, HTE: high threat exotic; GF – circle code if 'top 3'; Cover: 0.1, 0.2, 0.3, ..., 1, 2, 3, ..., 10, 15, 20, 25, ...100% (foliage cover)
Note: 0.1% cover represents an area of approximately 63 x 63 cm or a circle about 71 cm across, 0.5% cover represents an area of approximately 1.4 x 1.4 m, and 1% = 2.0 x 2.0 m, 5% = 4 x 5 m, 25% = 10 x 10 m
Abundance: 1, 2, 3, ..., 10, 20, 30, ... 100, 200, ..., 1000, ...

Project name:	J210553				
Recorders:	LO, CL	**Plot ID:**	Exotic2	**Date:**	30/06/23

GF Code	Scientific name	Cover	Abundance	Voucher	N, E or HTE
	Conyza bonariensis (Flaxleaf Fleabane)	1	20		E
	Paspalum dilatatum (Paspalum)	0.5	10		HTE
	Modiola caroliniana (Red-flowered Mallow)	1	10		E
Grass & grasslike (GG)	*Eragrostis parviflora (Weeping Lovegrass)*	1	50		N
	Hypochaeris radicata (Catsear)	3	100		E
	Trifolium repens (White Clover)	20	1000		E
	Acetosella vulgaris (Sheep Sorrel)	20	500		HTE
Forb (FG)	*Euchiton sphaericus (Star Cudweed)*	3	1000		N
	Sonchus oleraceus (Common Sowthistle)	0.1	5		E
Forb (FG)	*Cotula australis (Common Cotula)*	0.1	10		N
	Lepidium africanum (Common Peppercress)	2	50		E
	Verbena bonariensis (Purpletop)	0.1	1		E
	Lolium perenne (Perennial Ryegrass)	1	100		E
	Cirsium vulgare (Spear Thistle)	0.1	10		E
Grass & grasslike (GG)	*Sporobolus creber (Slender Rat's Tail Grass)*	25	200		N

BAM Site – Field Survey Form

Plot ID:	Plot 1	**Date:**	26/10/21	**Project number:**	J210553	**Plot dimensions:**	20 x 20
Datum:	GDA94	**Easting:**	734,804	**Recorders:**	ED		
Zone:	55	**Northing:**	6,443,167	**IBRA region:**	NSW South Western Slopes (Inland Slopes)	**Midline bearing:**	165
Plant Community Type:	281: Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion			**Condition class:**	Pasture	**PCT confidence:**	high
Vegetation Class:	Western Slopes Grassy Woodlands			**EEC:**	no	**EEC confidence:**	high

Record easting and northing at 0 m on midline. Dimensions (Shape) of 0.04 ha base plot.

BAM Attribute (400 m2 plot)		Sum values
Count of Native Richness	Trees:	0
	Shrubs:	0
	Grasses etc.:	3
	Forbs:	6
	Ferns:	0
	Other:	0
Sum of Cover of native vascular plants by growth form group	Trees:	0
	Shrubs:	0
	Grasses etc.:	22.1
	Forbs:	0.7
	Ferns:	0
	Other:	0
High Threat Weed cover:		7

BAM Attribute (1000 m2 plot) DBH			
DBH	Tree stem count	Length of logs (m) (≥10 cm diameter, >50 cm in length)	0
80 + cm:	0		
50 – 79 cm:	0		
30 – 49 cm:	0		
20 – 29 cm:	0	Tree hollow count	0
10 – 19 cm:	0		
5 – 9 cm:	0		
< 5 cm:	0		

Counts apply when no. of tree stems within a size class is ≤ 10. Estimates can be used when > 10 (eg. 10, 20, 30..., 100, 200, 300...). For multi-stemmed tree, only largest living stem is included in the count. Tree stems must be living.
For hollows, count only the presence of a stem containing hollows. For a multi-stemmed tree, only the largest stem is included in the count/estimate. Stems may be dead and may be shrubs.

BAM Attribute (1 x 1 m plots)	Litter cover (%)				
Subplot:	1	2	3	4	5
Subplot score (%):	3	0	1	1	2
Average litter cover (%):	1.4				

Litter cover is assessed as the average percentage ground cover of litter recorded from five 1 m x 1 m plots centred at 5, 15, 25, 35, 45 m along the plot midline. Litter cover includes leaves, seeds, twigs, branchlets and branches (less than 10 cm in diameter). Assessors may also record the cover of rock, bare ground and cryptogams.

Physiography and site features

Flat, floodplain, grey loam

Plot Disturbance

Clearing, grazing, sowing exotic grass

GF Code: see Growth Form definitions in Appendix 1; N: native, E: exotic, HTE: high threat exotic; GF – circle code if 'top 3'; Cover: 0.1, 0.2, 0.3, ..., 1, 2, 3, ..., 10, 15, 20, 25, ...100% (foliage cover)
Note: 0.1% cover represents an area of approximately 63 x 63 cm or a circle about 71 cm across, 0.5% cover represents an area of approximately 1.4 x 1.4 m, and 1% = 2.0 x 2.0 m, 5% = 4 x 5 m, 25% = 10 x 10 m
Abundance: 1, 2, 3, ..., 10, 20, 30, ... 100, 200, ..., 1000, ...

Project name:	J210553				
Recorders:	ED	**Plot ID:**	Plot 1	**Date:**	26/10/21

GF Code	Scientific name	Cover	Abundance	Voucher	N, E or HTE
	Carthamus lanatus (Saffron Thistle)	2	100		HTE
	Verbena bonariensis (Purpletop)	1	20		E
	Gamochaeta calviceps (Cudweed)	3	200		E
Forb (FG)	*Euchiton sphaericus (Star Cudweed)*	0.1	10		N
	Trifolium repens (White Clover)	5	200		E
	Aira elegantissima (Delicate Hairgrass)	5	100		E
	Sonchus oleraceus (Common Sowthistle)	3	100		E
	Sonchus asper (Prickly Sowthistle)	0.2	30		E
Grass & grasslike (GG)	*Luzula densiflora (Woodrush)*	0.1	5		N
Forb (FG)	*Cotula australis (Common Cotula)*	0.2	30		N
	Polygonum aviculare (Wireweed)	0.1	5		E
	Petrorhagia nanteuilii (Proliferous Pink)	0.1	10		E
	Lolium perenne (Perennial Ryegrass)	40	1000		E
	Paronychia brasiliana (Chilean Whitlow Wort, Brazilian Whitlow)	1	100		E
Grass & grasslike (GG)	*Sporobolus creber (Slender Rat's Tail Grass)*	20	100		N
	Briza minor (Shivery Grass)	2	200		E
	Trifolium campestre (Hop Clover)	5	200		E
Forb (FG)	*Calotis lappulacea (Yellow Burr-daisy)*	0.1	3		N
	Briza maxima (Quaking Grass)	0.1	10		E
	Cerastium vulgare (Mouse-ear Chickweed)	0.1	10		E
	Bromus molliformis (Soft Brome)	10	500		E
	Bromus diandrus (Great Brome)	5	200		HTE
	Vulpia bromoides (Squirrel Tail Fesque)	15	500		E
Forb (FG)	*Linum marginale (Native Flax)*	0.1	15		N
Forb (FG)	*Oxalis perennans*	0.1	10		N
	Trifolium subterraneum (Subterranean Clover)	5	300		E
Grass & grasslike (GG)	*Chloris truncata (Windmill Grass)*	2	70		N
	Parentucellia latifolia (Red Bartsia)	0.2	40		E
	Avena fatua (Wild Oats)	0.5	50		E
Forb (FG)	*Rumex brownii (Swamp Dock)*	0.1	1		N

BAM Site – Field Survey Form

Plot ID:	Plot 2	**Date:**	26/10/21	**Project number:**	J210553	**Plot dimensions:**	20x20
Datum:	GDA94	**Easting:**	734,516	**Recorders:**	ED		
Zone:	55	**Northing:**	6,442,500	**IBRA region:**	NSW South Western Slopes (Inland Slopes)	**Midline bearing:**	94
Plant Community Type:		281: Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion		**Condition class:**	Pasture	**PCT confidence:**	high
Vegetation Class:		Western Slopes Grassy Woodlands		**EEC:**	no	**EEC confidence:**	high

Record easting and northing at 0 m on midline. Dimensions (Shape) of 0.04 ha base plot.

BAM Attribute (400 m2 plot)		Sum values
Count of Native Richness	Trees:	0
	Shrubs:	0
	Grasses etc.:	3
	Forbs:	7
	Ferns:	0
	Other:	0
Sum of Cover of native vascular plants by growth form group	Trees:	0
	Shrubs:	0
	Grasses etc.:	10.5
	Forbs:	3
	Ferns:	0
	Other:	0
High Threat Weed cover:		30

BAM Attribute (1000 m2 plot) DBH			
DBH	Tree stem count	Length of logs (m) (≥10 cm diameter, >50 cm in length)	0
80 + cm:	0		
50 – 79 cm:	0		
30 – 49 cm:	0		
20 – 29 cm:	0	Tree hollow count	0
10 – 19 cm:	0		
5 – 9 cm:	0		
< 5 cm:	0		

Counts apply when no. of tree stems within a size class is ≤ 10. Estimates can be used when > 10 (eg. 10, 20, 30..., 100, 200, 300...). For multi-stemmed tree, only largest living stem is included in the count. Tree stems must be living.
For hollows, count only the presence of a stem containing hollows. For a multi-stemmed tree, only the largest stem is included in the count/estimate. Stems may be dead and may be shrubs.

BAM Attribute (1 x 1 m plots)	Litter cover (%)				
Subplot:	1	2	3	4	5
Subplot score (%):	3	5	1	1	0
Average litter cover (%):	2				

Litter cover is assessed as the average percentage ground cover of litter recorded from five 1 m x 1 m plots centred at 5, 15, 25, 35, 45 m along the plot midline. Litter cover includes leaves, seeds, twigs, branchlets and branches (less than 10 cm in diameter). Assessors may also record the cover of rock, bare ground and cryptogams.

Physiography and site features

Floodplain, flat

Plot Disturbance

Grazing, sowing exotic grasses

GF Code: see Growth Form definitions in Appendix 1; N: native, E: exotic, HTE: high threat exotic; GF – circle code if 'top 3'; Cover: 0.1, 0.2, 0.3, ..., 1, 2, 3, ..., 10, 15, 20, 25, ...100% (foliage cover)
Note: 0.1% cover represents an area of approximately 63 x 63 cm or a circle about 71 cm across, 0.5% cover represents an area of approximately 1.4 x 1.4 m, and 1% = 2.0 x 2.0 m, 5% = 4 x 5 m, 25% = 10 x 10 m
Abundance: 1, 2, 3, ..., 10, 20, 30, ... 100, 200, ..., 1000, ...

Project name:	J210553				
Recorders:	ED	**Plot ID:**	Plot 2	**Date:**	26/10/21

GF Code	Scientific name	Cover	Abundance	Voucher	N, E or HTE
	Gamochaeta calviceps (Cudweed)	5	300		E
Forb (FG)	*Cotula australis (Common Cotula)*	1	100		N
Grass & grasslike (GG)	*Chloris truncata (Windmill Grass)*	10	1000		N
	Trifolium subterraneum (Subterranean Clover)	1	200		E
	Cerastium vulgare (Mouse-ear Chickweed)	1	100		E
Grass & grasslike (GG)	*Centrolepis strigosa subsp. strigosa*	0.1	2		N
	Vulpia bromoides (Squirrel Tail Fesque)	40	1000		E
	Capsella bursa-pastoris (Shepherd's Purse)	0.1	10		E
Forb (FG)	*Calotis lappulacea (Yellow Burr-daisy)*	0.5	5		N
	Arctotheca calendula (Capeweed)	0.1	6		E
	Bromus diandrus (Great Brome)	25	500		HTE
Grass & grasslike (GG)	*Juncus subsecundus (Finger Rush)*	0.4	10		N
	Lolium perenne (Perennial Ryegrass)	20	1000		E
Forb (FG)	*Oxalis perennans*	0.1	5		N
	Petrorhagia nanteuilii (Proliferous Pink)	0.1	5		E
	Avena fatua (Wild Oats)	2	50		E
Forb (FG)	*Rumex brownii (Swamp Dock)*	0.1	5		N
	Sonchus oleraceus (Common Sowthistle)	1	10		E
Forb (FG)	*Geranium solanderi (Native Geranium)*	1	10		N
	Conyza bonariensis (Flaxleaf Fleabane)	0.8	20		E
	Carthamus lanatus (Saffron Thistle)	5	20		HTE
Forb (FG)	*Linum marginale (Native Flax)*	0.1	4		N
Forb (FG)	*Euchiton involucratus (Star Cudweed)*	0.2	20		N

BAM Site – Field Survey Form

Plot ID:	Plot 3	**Date:**	27/10/21	**Project number:**	J210553	**Plot dimensions:**	20 x 20
Datum:	GDA94	**Easting:**	737,929	**Recorders:**	ED		
Zone:	55	**Northing:**	6,442,220	**IBRA region:**	NSW South Western Slopes (Inland Slopes)	**Midline bearing:**	246
Plant Community Type:	281: Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion			**Condition class:**	Pasture	**PCT confidence:**	high
Vegetation Class:	Western Slopes Grassy Woodlands			**EEC:**	no	**EEC confidence:**	high

Record easting and northing at 0 m on midline. Dimensions (Shape) of 0.04 ha base plot.

BAM Attribute (400 m2 plot)		Sum values
Count of Native Richness	Trees:	0
	Shrubs:	0
	Grasses etc.:	2
	Forbs:	7
	Ferns:	1
	Other:	0
Sum of Cover of native vascular plants by growth form group	Trees:	0
	Shrubs:	0
	Grasses etc.:	10.5
	Forbs:	1.6
	Ferns:	0.1
	Other:	0
High Threat Weed cover:		1.5

BAM Attribute (1000 m2 plot) DBH			
DBH	Tree stem count	Length of logs (m) (≥10 cm diameter, >50 cm in length)	0
80 + cm:	0		
50 – 79 cm:	0		
30 – 49 cm:	0		
20 – 29 cm:	0	Tree hollow count	0
10 – 19 cm:	0		
5 – 9 cm:	0		
< 5 cm:	0		

Counts apply when no. of tree stems within a size class is ≤ 10. Estimates can be used when > 10 (eg. 10, 20, 30..., 100, 200, 300...). For multi-stemmed tree, only largest living stem is included in the count. Tree stems must be living.
For hollows, count only the presence of a stem containing hollows. For a multi-stemmed tree, only the largest stem is included in the count/estimate. Stems may be dead and may be shrubs.

BAM Attribute (1 x 1 m plots)	Litter cover (%)				
Subplot:	1	2	3	4	5
Subplot score (%):	0	1	0	0	0
Average litter cover (%):	0.2				

Litter cover is assessed as the average percentage ground cover of litter recorded from five 1 m x 1 m plots centred at 5, 15, 25, 35, 45 m along the plot midline. Litter cover includes leaves, seeds, twigs, branchlets and branches (less than 10 cm in diameter). Assessors may also record the cover of rock, bare ground and cryptogams.

Physiography and site features

Low slopes

Plot Disturbance

Exotic pasture, planting, grazing, clearing

GF Code: see Growth Form definitions in Appendix 1; N: native, E: exotic, HTE: high threat exotic; GF – circle code if 'top 3'; Cover: 0.1, 0.2, 0.3, ..., 1, 2, 3, ..., 10, 15, 20, 25, ...100% (foliage cover)
Note: 0.1% cover represents an area of approximately 63 x 63 cm or a circle about 71 cm across, 0.5% cover represents an area of approximately 1.4 x 1.4 m, and 1% = 2.0 x 2.0 m, 5% = 4 x 5 m, 25% = 10 x 10 m
Abundance: 1, 2, 3, ..., 10, 20, 30, ... 100, 200, ..., 1000, ...

Project name:	J210553				
Recorders:	ED	**Plot ID:**	Plot 3	**Date:**	27/10/21

GF Code	Scientific name	Cover	Abundance	Voucher	N, E or HTE
	Lolium perenne (Perennial Ryegrass)	50	1000		E
	Bromus catharticus (Praire Grass)	10	100		E
Forb (FG)	*Cotula australis (Common Cotula)*	1	50		N
	Carthamus lanatus (Saffron Thistle)	1	50		HTE
	Gamochaeta calviceps (Cudweed)	15	500		E
Grass & grasslike (GG)	*Sporobolus creber (Slender Rat's Tail Grass)*	10	300		N
Forb (FG)	*Calotis lappulacea (Yellow Burr-daisy)*	0.1	5		N
Forb (FG)	*Urtica incisa (Stinging Nettle)*	0.1	2		N
	Trifolium subterraneum (Subterranean Clover)	20	100		E
Forb (FG)	*Rumex brownii (Swamp Dock)*	0.1	8		N
Forb (FG)	*Oxalis perennans*	0.1	5		N
Forb (FG)	*Geranium solanderi (Native Geranium)*	0.1	4		N
	Taraxacum officinale (Dandelion)	0.1	5		E
	Hypochaeris radicata (Catsear)	0.1	6		E
	Vulpia bromoides (Squirrel Tail Fesque)	10	300		E
Forb (FG)	*Linum marginale (Native Flax)*	0.1	2		N
	Triticum aestivum (Wheat)	1	40		E
	Acetosella vulgaris (Sheep Sorrel)	0.5	15		HTE
Fern (EG)	*Cheilanthes sieberi (Rock Fern)*	0.1	2		N
Grass & grasslike (GG)	*Juncus subsecundus (Finger Rush)*	0.5	40		N
	Polygonum aviculare (Wireweed)	0.1	3		E
	Trifolium repens (White Clover)	5	40		E

BAM Site – Field Survey Form

Plot ID:	Plot 4	**Date:**	27/10/21	**Project number:**	J210553			**Plot dimensions:**	20 x 20
Datum:	GDA94	**Easting:**	735,459	**Recorders:**	ED				
Zone:	55	**Northing:**	6,441,870	**IBRA region:**	NSW South Western Slopes (Inland Slopes)			**Midline bearing:**	232
Plant Community Type:			281: Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion			**Condition class:**	Pasture	**PCT confidence:**	high
Vegetation Class:			Western Slopes Grassy Woodlands			**EEC:**	no	**EEC confidence:**	high

Record easting and northing at 0 m on midline. Dimensions (Shape) of 0.04 ha base plot.

BAM Attribute (400 m2 plot)		Sum values
Count of Native Richness	Trees:	0
	Shrubs:	0
	Grasses etc.:	3
	Forbs:	8
	Ferns:	0
	Other:	0
Sum of Cover of native vascular plants by growth form group	Trees:	0
	Shrubs:	0
	Grasses etc.:	46
	Forbs:	2.7
	Ferns:	0
	Other:	0
High Threat Weed cover:		0.3

BAM Attribute (1000 m2 plot) DBH			
DBH	Tree stem count	Length of logs (m) (≥10 cm diameter, >50 cm in length)	0
80 + cm:	0		
50 – 79 cm:	0		
30 – 49 cm:	0		
20 – 29 cm:	0	Tree hollow count	0
10 – 19 cm:	0		
5 – 9 cm:	0		
< 5 cm:	0		

Counts apply when no. of tree stems within a size class is ≤ 10. Estimates can be used when > 10 (eg. 10, 20, 30..., 100, 200, 300...). For multi-stemmed tree, only largest living stem is included in the count. Tree stems must be living.
For hollows, count only the presence of a stem containing hollows. For a multi-stemmed tree, only the largest stem is included in the count/estimate. Stems may be dead and may be shrubs.

BAM Attribute (1 x 1 m plots)	Litter cover (%)				
Subplot:	1	2	3	4	5
Subplot score (%):	1	0	0	1	0
Average litter cover (%):	0.4				

Litter cover is assessed as the average percentage ground cover of litter recorded from five 1 m x 1 m plots centred at 5, 15, 25, 35, 45 m along the plot midline. Litter cover includes leaves, seeds, twigs, branchlets and branches (less than 10 cm in diameter). Assessors may also record the cover of rock, bare ground and cryptogams.

Physiography and site features

Slight rise above floodplain. Very gently sloping

Plot Disturbance

Clearing, sowing grasses/cultivation. Cattle grazing

GF Code: see Growth Form definitions in Appendix 1; N: native, E: exotic, HTE: high threat exotic; GF – circle code if 'top 3'; Cover: 0.1, 0.2, 0.3, ..., 1, 2, 3, ..., 10, 15, 20, 25, ...100% (foliage cover)
Note: 0.1% cover represents an area of approximately 63 x 63 cm or a circle about 71 cm across, 0.5% cover represents an area of approximately 1.4 x 1.4 m, and 1% = 2.0 x 2.0 m, 5% = 4 x 5 m, 25% = 10 x 10 m
Abundance: 1, 2, 3, ..., 10, 20, 30, ... 100, 200, ..., 1000, ...

Project name:	J210553				
Recorders:	ED	**Plot ID:**	Plot 4	**Date:**	27/10/21

GF Code	Scientific name	Cover	Abundance	Voucher	N, E or HTE
Forb (FG)	*Cotula australis (Common Cotula)*	2	100		N
	Conyza bonariensis (Flaxleaf Fleabane)	0.1	10		E
	Gamochaeta calviceps (Cudweed)	5	200		E
	Lolium perenne (Perennial Ryegrass)	50	1000		E
Grass & grasslike (GG)	*Sporobolus creber (Slender Rat's Tail Grass)*	20	1000		N
	Parentucellia latifolia (Red Bartsia)	0.1	20		E
	Paronychia brasiliana (Chilean Whitlow Wort, Brazilian Whitlow)	0.1	30		E
Grass & grasslike (GG)	*Chloris truncata (Windmill Grass)*	25	100		N
Forb (FG)	*Chamaesyce drummondii (Caustic Weed)*	0.1	20		N
	Polygonum aviculare (Wireweed)	0.1	5		E
Grass & grasslike (GG)	*Juncus subsecundus (Finger Rush)*	1	30		N
	Conyza sumatrensis (Tall fleabane)	0.1	5		E
Forb (FG)	*Linum marginale (Native Flax)*	0.1	3		N
	Cerastium balearicum (Lesser Mouse-ear Chickweed)	0.1	3		E
	Bromus brevis	2	50		E
Forb (FG)	*Rumex brownii (Swamp Dock)*	0.1	5		N
	Acetosella vulgaris (Sheep Sorrel)	0.1	20		HTE
	Trifolium repens (White Clover)	10	300		E
	Trifolium campestre (Hop Clover)	10	200		E
Forb (FG)	*Euchiton involucratus (Star Cudweed)*	0.1	20		N
Forb (FG)	*Calotis lappulacea (Yellow Burr-daisy)*	0.1	4		N
	Vulpia bromoides (Squirrel Tail Fesque)	10	300		E
Forb (FG)	*Oxalis perennans*	0.1	5		N
Forb (FG)	*Erodium crinitum (Blue Crowfoot)*	0.1	10		N
	Capsella bursa-pastoris (Shepherd's Purse)	0.1	10		E
	Carthamus lanatus (Saffron Thistle)	0.2	10		HTE

BAM Site – Field Survey Form

Plot ID:	Plot 5	**Date:**	27/10/21	**Project number:**	J210553	**Plot dimensions:**	20 x 20
Datum:	GDA94	**Easting:**	736,043	**Recorders:**	ED		
Zone:	55	**Northing:**	6,444,223	**IBRA region:**	NSW South Western Slopes (Inland Slopes)	**Midline bearing:**	81
Plant Community Type:	281: Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion			**Condition class:**	Pasture	**PCT confidence:**	high
Vegetation Class:	Western Slopes Grassy Woodlands			**EEC:**	no	**EEC confidence:**	low

Record easting and northing at 0 m on midline. Dimensions (Shape) of 0.04 ha base plot.

BAM Attribute (400 m2 plot)		Sum values
Count of Native Richness	Trees:	0
	Shrubs:	0
	Grasses etc.:	5
	Forbs:	5
	Ferns:	0
	Other:	0
Sum of Cover of native vascular plants by growth form group	Trees:	0
	Shrubs:	0
	Grasses etc.:	32.2
	Forbs:	6.7
	Ferns:	0
	Other:	0
High Threat Weed cover:		0.4

BAM Attribute (1000 m2 plot) DBH			
DBH	Tree stem count	Length of logs (m) (≥10 cm diameter, >50 cm in length)	0
80 + cm:	0		
50 – 79 cm:	0		
30 – 49 cm:	0		
20 – 29 cm:	0	Tree hollow count	0
10 – 19 cm:	0		
5 – 9 cm:	0		
< 5 cm:	0		

Counts apply when no. of tree stems within a size class is ≤ 10. Estimates can be used when > 10 (eg. 10, 20, 30..., 100, 200, 300...). For multi-stemmed tree, only largest living stem is included in the count. Tree stems must be living.
For hollows, count only the presence of a stem containing hollows. For a multi-stemmed tree, only the largest stem is included in the count/estimate. Stems may be dead and may be shrubs.

BAM Attribute (1 x 1 m plots)	Litter cover (%)				
Subplot:	1	2	3	4	5
Subplot score (%):	5	2	1	4	1
Average litter cover (%):	2.6				

Litter cover is assessed as the average percentage ground cover of litter recorded from five 1 m x 1 m plots centred at 5, 15, 25, 35, 45 m along the plot midline. Litter cover includes leaves, seeds, twigs, branchlets and branches (less than 10 cm in diameter). Assessors may also record the cover of rock, bare ground and cryptogams.

Physiography and site features

Very slight slope, grey brown loam

Plot Disturbance

Gazing, pasture improvement

GF Code: see Growth Form definitions in Appendix 1; N: native, E: exotic, HTE: high threat exotic; GF – circle code if 'top 3'; Cover: 0.1, 0.2, 0.3, ..., 1, 2, 3, ..., 10, 15, 20, 25, ...100% (foliage cover)
Note: 0.1% cover represents an area of approximately 63 x 63 cm or a circle about 71 cm across, 0.5% cover represents an area of approximately 1.4 x 1.4 m, and 1% = 2.0 x 2.0 m, 5% = 4 x 5 m, 25% = 10 x 10 m
Abundance: 1, 2, 3, ..., 10, 20, 30, ... 100, 200, ..., 1000, ...

Project name:	J210553				
Recorders:	ED	**Plot ID:**	Plot 5	**Date:**	27/10/21

GF Code	Scientific name	Cover	Abundance	Voucher	N, E or HTE
	Cerastium glomeratum (Mouse-ear Chickweed)	0.5	50		E
	Lolium perenne (Perennial Ryegrass)	20	500		E
	Conyza bonariensis (Flaxleaf Fleabane)	5	100		E
	Gamochaeta calviceps (Cudweed)	10	400		E
	Trifolium repens (White Clover)	15	200		E
Forb (FG)	*Cotula australis (Common Cotula)*	5	500		N
Forb (FG)	*Oxalis perennans*	0.1	5		N
	Polygonum aviculare (Wireweed)	0.1	10		E
Grass & grasslike (GG)	*Chloris truncata (Windmill Grass)*	5	300		N
	Briza maxima (Quaking Grass)	2	200		E
	Capsella bursa-pastoris (Shepherd's Purse)	0.5	50		E
	Vulpia bromoides (Squirrel Tail Fesque)	5	100		E
	Sonchus oleraceus (Common Sowthistle)	3	100		E
	Rapistrum rugosum (Turnip Weed)	0.5	30		E
Grass & grasslike (GG)	*Austrostipa aristiglumis (Plains Grass)*	0.1	3		N
	Parentucellia latifolia (Red Bartsia)	0.1	10		E
	Acetosella vulgaris (Sheep Sorrel)	0.4	40		HTE
	Trifolium arvense (Haresfoot Clover)	0.6	20		E
Forb (FG)	*Erodium crinitum (Blue Crowfoot)*	0.5	15		N
	Hypochaeris radicata (Catsear)	0.1	6		E
Grass & grasslike (GG)	*Centrolepis strigosa subsp. strigosa*	0.1	5		N
	Petrorhagia nanteuilii (Proliferous Pink)	0.1	10		E
Forb (FG)	*Linum marginale (Native Flax)*	0.1	10		N
	Trifolium subterraneum (Subterranean Clover)	5	200		E
Forb (FG)	*Crassula sieberiana (Australian Stonecrop)*	1	10		N
	Sisymbrium officinale (Hedge Mustard)	5	20		E
	Verbena bonariensis (Purpletop)	5	100		E
Grass & grasslike (GG)	*Sporobolus creber (Slender Rat's Tail Grass)*	2	50		N
	Triticum aestivum (Wheat)	1	50		E
Grass & grasslike (GG)	*Panicum effusum (Hairy Panic)*	25	1000		N

BAM Site – Field Survey Form

Plot ID:	Plot 6	**Date:**	28/10/21	**Project number:**	J210553	**Plot dimensions:**	20 x 20
Datum:	GDA94	**Easting:**	736,360	**Recorders:**	ED		
Zone:	55	**Northing:**	6,444,702	**IBRA region:**	NSW South Western Slopes (Inland Slopes)	**Midline bearing:**	237
Plant Community Type:	281: Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion			**Condition class:**	Pasture	**PCT confidence:**	high
Vegetation Class:	Western Slopes Grassy Woodlands			**EEC:**	no	**EEC confidence:**	high

Record easting and northing at 0 m on midline. Dimensions (Shape) of 0.04 ha base plot.

BAM Attribute (400 m2 plot)		Sum values
Count of Native Richness	Trees:	0
	Shrubs:	0
	Grasses etc.:	2
	Forbs:	6
	Ferns:	0
	Other:	0
Sum of Cover of native vascular plants by growth form group	Trees:	0
	Shrubs:	0
	Grasses etc.:	0.2
	Forbs:	1.1
	Ferns:	0
	Other:	0
High Threat Weed cover:		40

BAM Attribute (1000 m2 plot) DBH			
DBH	Tree stem count	Length of logs (m) (≥10 cm diameter, >50 cm in length)	0
80 + cm:	0		
50 – 79 cm:	0		
30 – 49 cm:	0		
20 – 29 cm:	0	Tree hollow count	0
10 – 19 cm:	0		
5 – 9 cm:	0		
< 5 cm:	0		

Counts apply when no. of tree stems within a size class is ≤ 10. Estimates can be used when > 10 (eg. 10, 20, 30..., 100, 200, 300...). For multi-stemmed tree, only largest living stem is included in the count. Tree stems must be living.
For hollows, count only the presence of a stem containing hollows. For a multi-stemmed tree, only the largest stem is included in the count/estimate. Stems may be dead and may be shrubs.

BAM Attribute (1 x 1 m plots)	Litter cover (%)				
Subplot:	1	2	3	4	5
Subplot score (%):	1	1	1	0	2
Average litter cover (%):	1				

Litter cover is assessed as the average percentage ground cover of litter recorded from five 1 m x 1 m plots centred at 5, 15, 25, 35, 45 m along the plot midline. Litter cover includes leaves, seeds, twigs, branchlets and branches (less than 10 cm in diameter). Assessors may also record the cover of rock, bare ground and cryptogams.

Physiography and site features

Plain, grey brown loam

Plot Disturbance

Cultivation lines, grazing

GF Code: see Growth Form definitions in Appendix 1; N: native, E: exotic, HTE: high threat exotic; GF – circle code if 'top 3'; Cover: 0.1, 0.2, 0.3, ..., 1, 2, 3, ..., 10, 15, 20, 25, ...100% (foliage cover)
Note: 0.1% cover represents an area of approximately 63 x 63 cm or a circle about 71 cm across, 0.5% cover represents an area of approximately 1.4 x 1.4 m, and 1% = 2.0 x 2.0 m, 5% = 4 x 5 m, 25% = 10 x 10 m
Abundance: 1, 2, 3, ..., 10, 20, 30, ... 100, 200, ..., 1000, ...

Project name:	J210553				
Recorders:	ED	**Plot ID:**	Plot 6	**Date:**	28/10/21

GF Code	Scientific name	Cover	Abundance	Voucher	N, E or HTE
	Aira elegantissima (Delicate Hairgrass)	0.1	20		E
	Hordeum vulgare (Barley)	0.1	10		E
	Medicago lupulina (Black Medic)	10	100		E
	Gamochaeta calviceps (Cudweed)	25	1000		E
	Anthoxanthum odoratum (Sweet Vernal Grass)	0.1	15		E
	Vulpia bromoides (Squirrel Tail Fesque)	15	100		E
Forb (FG)	*Erodium crinitum (Blue Crowfoot)*	0.1	5		N
Forb (FG)	*Calotis lappulacea (Yellow Burr-daisy)*	0.5	50		N
Forb (FG)	*Cotula australis (Common Cotula)*	0.2	50		N
	Trifolium subterraneum (Subterranean Clover)	5	50		E
	Parentucellia latifolia (Red Bartsia)	0.1	5		E
Grass & grasslike (GG)	*Eragrostis leptostachya (Paddock Lovegrass)*	0.1	4		N
	Carthamus lanatus (Saffron Thistle)	10	60		HTE
	Acetosella vulgaris (Sheep Sorrel)	30	500		HTE
Grass & grasslike (GG)	*Juncus subsecundus (Finger Rush)*	0.1	10		N
Forb (FG)	*Euchiton sphaericus (Star Cudweed)*	0.1	5		N
	Lolium perenne (Perennial Ryegrass)	15	200		E
	Conyza bonariensis (Flaxleaf Fleabane)	0.5	50		E
	Cerastium glomeratum (Mouse-ear Chickweed)	0.1	10		E
Forb (FG)	*Oxalis perennans*	0.1	5		N
	Trifolium arvense (Haresfoot Clover)	0.1	10		E
	Arctotheca calendula (Capeweed)	0.1	5		E
	Bromus catharticus (Praire Grass)	0.5	30		E
	Linum trigynum (French Flax)	0.1	10		E
Forb (FG)	*Linum marginale (Native Flax)*	0.1	2		N
	Sisymbrium officinale (Hedge Mustard)	1	8		E

BAM Site – Field Survey Form

Plot ID:	Plot 7	**Date:**	15/12/21	**Project number:**	J210553	**Plot dimensions:**	20x 50m
Datum:	GDA94	**Easting:**	734,311	**Recorders:**	ED, EJ		
Zone:	55	**Northing:**	6,443,809	**IBRA region:**	NSW South Western Slopes (Inland Slopes)	**Midline bearing:**	230
Plant Community Type:	80: Western Grey Box - White Cypress Pine tall woodland on loam soil on alluvial plains of NSW South Western Slopes Bioregion and Riverina Bioregion			**Condition class:**	High	**PCT confidence:**	high
Vegetation Class:	Floodplain Transition Woodlands			**EEC:**	yes	**EEC confidence:**	high

Record easting and northing at 0 m on midline. Dimensions (Shape) of 0.04 ha base plot.

BAM Attribute (400 m2 plot)		Sum values
Count of Native Richness	Trees:	1
	Shrubs:	3
	Grasses etc.:	10
	Forbs:	15
	Ferns:	1
	Other:	2
Sum of Cover of native vascular plants by growth form group	Trees:	35
	Shrubs:	1.2
	Grasses etc.:	68.5
	Forbs:	22.3
	Ferns:	0.1
	Other:	0.6
High Threat Weed cover:		0

BAM Attribute (1000 m2 plot) DBH			
DBH	Tree stem count	Length of logs (m) (≥10 cm diameter, >50 cm in length)	4
80 + cm:	2		
50 – 79 cm:	0		
30 – 49 cm:	10		
20 – 29 cm:	8	Tree hollow count	2
10 – 19 cm:	3		
5 – 9 cm:	8		
< 5 cm:	9		

Counts apply when no. of tree stems within a size class is ≤ 10. Estimates can be used when > 10 (eg. 10, 20, 30..., 100, 200, 300...). For multi-stemmed tree, only largest living stem is included in the count. Tree stems must be living.
For hollows, count only the presence of a stem containing hollows. For a multi-stemmed tree, only the largest stem is included in the count/estimate. Stems may be dead and may be shrubs.

BAM Attribute (1 x 1 m plots)	Litter cover (%)				
Subplot:	1	2	3	4	5
Subplot score (%):	90	75	60	70	95
Average litter cover (%):	78				

Litter cover is assessed as the average percentage ground cover of litter recorded from five 1 m x 1 m plots centred at 5, 15, 25, 35, 45 m along the plot midline. Litter cover includes leaves, seeds, twigs, branchlets and branches (less than 10 cm in diameter). Assessors may also record the cover of rock, bare ground and cryptogams.

Physiography and site features

Plot Disturbance

Road maintainence, mitre drains on edge of plot

GF Code: see Growth Form definitions in Appendix 1; N: native, E: exotic, HTE: high threat exotic; GF – circle code if 'top 3'; Cover: 0.1, 0.2, 0.3, ..., 1, 2, 3, ..., 10, 15, 20, 25, ...100% (foliage cover)
Note: 0.1% cover represents an area of approximately 63 x 63 cm or a circle about 71 cm across, 0.5% cover represents an area of approximately 1.4 x 1.4 m, and 1% = 2.0 x 2.0 m, 5% = 4 x 5 m, 25% = 10 x 10 m
Abundance: 1, 2, 3, ..., 10, 20, 30, ... 100, 200, ..., 1000, ...

Project name:	J210553				
Recorders:	ED, EJ	**Plot ID:**	Plot 7	**Date:**	15/12/21

GF Code	Scientific name	Cover	Abundance	Voucher	N, E or HTE
Forb (FG)	*Oxalis perennans*	0.1	20		N
Forb (FG)	*Dichondra repens (Kidney Weed)*	0.1	10		N
Fern (EG)	*Cheilanthes sieberi (Rock Fern)*	0.1	10		N
Grass & grasslike (GG)	*Cyperus gracilis (Slender Flat-sedge)*	0.2	30		N
Forb (FG)	*Sida corrugata (Corrugated Sida)*	0.1	10		N
Forb (FG)	*Einadia nutans subsp. nutans (Climbing Saltbush)*	0.2	100		N
Forb (FG)	*Einadia hastata (Berry Saltbush)*	0.5	10		N
Forb (FG)	*Sonchus spp. (Sowthistle)*	0.1	6		N
Shrub (SG)	*Solanum cinereum (Narrawa Burr)*	0.1	5		N
Forb (FG)	*Calotis lappulacea (Yellow Burr-daisy)*	10	300		N
Grass & grasslike (GG)	*Austrostipa verticillata (Slender Bamboo Grass)*	35	500		N
Shrub (SG)	*Eremophila debilis (Amulla)*	1	50		N
Other (OG)	*Glycine clandestina (Twining glycine)*	0.5	50		N
Forb (FG)	*Calotis cuneifolia (Purple Burr-Daisy)*	10	200		N
	Lepidium africanum (Common Peppercress)	0.1	10		E
Grass & grasslike (GG)	*Eriochloa crebra (Cup Grass, Tall Cupgrass)*	0.6	30		N
Grass & grasslike (GG)	*Carex inversa (Knob Sedge)*	0.1	10		N
Forb (FG)	*Wahlenbergia communis (Tufted Bluebell)*	0.1	10		N
Grass & grasslike (GG)	*Austrostipa nodosa (A Speargrass)*	0.5	30		N
Grass & grasslike (GG)	*Themeda triandra*	20	800		N
Forb (FG)	*Chrysocephalum semipapposum (Clustered Everlasting)*	0.1	1		N
Forb (FG)	*Thelionema caespitosum (Tufted Blue-lily)*	0.2	6		N
Grass & grasslike (GG)	*Chloris truncata (Windmill Grass)*	5	100		N
Other (OG)	*Hardenbergia violacea (False Sarsaparilla)*	0.1	1		N
Forb (FG)	*Dichopogon fimbriatus (Nodding Chocolate Lily)*	0.5	50		N
	Cirsium vulgare (Spear Thistle)	0.1	1		E
	Marrubium vulgare (White Horehound)	0.2	10		E
	Fumaria capreolata subsp. capreolata (Climbing Fumitory)	0.3	15		E
	Modiola caroliniana (Red-flowered Mallow)	0.2	20		E
	Solanum chenopodioides (Whitetip Nightshade)	0.5	10		E
Forb (FG)	*Rumex brownii (Swamp Dock)*	0.1	5		N
Forb (FG)	*Hydrocotyle laxiflora (Stinking Pennywort)*	0.1	4		N
Grass & grasslike (GG)	*Juncus subsecundus (Finger Rush)*	0.1	1		N
	Verbascum virgatum (Twiggy Mullein)	0.1	4		E
Tree (TG)	*Eucalyptus microcarpa (Western Grey Box)*	35	17		N
Shrub (SG)	*Maireana microphylla (Small-leaf Bluebush)*	0.1	4		N
Grass & grasslike (GG)	*Dichelachne crinita (Longhair Plumegrass)*	2	100		N
Grass & grasslike (GG)	*Anthosachne scabra (Wheatgrass, Common Wheatgrass)*	5	200		N
Forb (FG)	*Cynoglossum australe*	0.1	5		N

BAM Site – Field Survey Form

Plot ID:	Plot 8	**Date:**	16/12/21	**Project number:**	J210553	**Plot dimensions:**	20x50
Datum:	GDA94	**Easting:**	734,481	**Recorders:**	ED, EJ		
Zone:	55	**Northing:**	6,444,171	**IBRA region:**	NSW South Western Slopes (Inland Slopes)	**Midline bearing:**	26
Plant Community Type:		281: Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion		**Condition class:**	High	**PCT confidence:**	high
Vegetation Class:		Western Slopes Grassy Woodlands		**EEC:**	yes	**EEC confidence:**	high

Record easting and northing at 0 m on midline. Dimensions (Shape) of 0.04 ha base plot.

BAM Attribute (400 m2 plot)		Sum values
Count of Native Richness	Trees:	3
	Shrubs:	3
	Grasses etc.:	8
	Forbs:	18
	Ferns:	1
	Other:	2
Sum of Cover of native vascular plants by growth form group	Trees:	35
	Shrubs:	0.8
	Grasses etc.:	38.1
	Forbs:	11.1
	Ferns:	0.1
	Other:	2.5
High Threat Weed cover:		0.1

BAM Attribute (1000 m2 plot) DBH			
DBH	Tree stem count	Length of logs (m) (≥10 cm diameter, >50 cm in length)	26
80 + cm:	1		
50 – 79 cm:	4		
30 – 49 cm:	1		
20 – 29 cm:	1	Tree hollow count	0
10 – 19 cm:	1		
5 – 9 cm:	1		
< 5 cm:	1		

Counts apply when no. of tree stems within a size class is ≤ 10. Estimates can be used when > 10 (eg. 10, 20, 30..., 100, 200, 300...). For multi-stemmed tree, only largest living stem is included in the count. Tree stems must be living.
For hollows, count only the presence of a stem containing hollows. For a multi-stemmed tree, only the largest stem is included in the count/estimate. Stems may be dead and may be shrubs.

BAM Attribute (1 x 1 m plots)	Litter cover (%)				
Subplot:	1	2	3	4	5
Subplot score (%):	95	90	90	50	50
Average litter cover (%):	75				

Litter cover is assessed as the average percentage ground cover of litter recorded from five 1 m x 1 m plots centred at 5, 15, 25, 35, 45 m along the plot midline. Litter cover includes leaves, seeds, twigs, branchlets and branches (less than 10 cm in diameter). Assessors may also record the cover of rock, bare ground and cryptogams.

Physiography and site features

Plot Disturbance

Mitre drains on road

GF Code: see Growth Form definitions in Appendix 1; N: native, E: exotic, HTE: high threat exotic; GF – circle code if 'top 3'; Cover: 0.1, 0.2, 0.3, ..., 1, 2, 3, ..., 10, 15, 20, 25, ...100% (foliage cover)
Note: 0.1% cover represents an area of approximately 63 x 63 cm or a circle about 71 cm across, 0.5% cover represents an area of approximately 1.4 x 1.4 m, and 1% = 2.0 x 2.0 m, 5% = 4 x 5 m, 25% = 10 x 10 m
Abundance: 1, 2, 3, ..., 10, 20, 30, ... 100, 200, ..., 1000, ...

Project name:	J210553				
Recorders:	ED, EJ	**Plot ID:**	Plot 8	**Date:**	16/12/21

GF Code	Scientific name	Cover	Abundance	Voucher	N, E or HTE
Forb (FG)	*Xerochrysum viscosum (Sticky Everlasting)*	0.1	2		N
Tree (TG)	*Eucalyptus melliodora (Yellow Box)*	5	1		N
Tree (TG)	*Angophora floribunda (Rough-barked Apple)*	5	3		N
Tree (TG)	*Eucalyptus blakelyi (Blakely's Red Gum)*	25	15		N
	Polygonum aviculare (Wireweed)	0.1	10		E
Forb (FG)	*Dichondra repens (Kidney Weed)*	0.1	3		N
Forb (FG)	*Chrysocephalum semipapposum (Clustered Everlasting)*	0.1	10		N
Forb (FG)	*Laxmannia gracilis (Slender Wire Lily)*	0.1	5		N
Grass & grasslike (GG)	*Luzula densiflora (Woodrush)*	0.1	1		N
	Cirsium vulgare (Spear Thistle)	0.1	1		E
Forb (FG)	*Sonchus spp. (Sowthistle)*	0.1	5		N
Forb (FG)	*Rumex brownii (Swamp Dock)*	0.1	4		N
	Solanum nigrum (Black-berry Nightshade)	0.1	1		E
Shrub (SG)	*Solanum cinereum (Narrawa Burr)*	0.1	5		N
	Marrubium vulgare (White Horehound)	0.1	3		E
	Trifolium arvense (Haresfoot Clover)	0.1	5		E
	Rapistrum spp.	0.1	1		E
Grass & grasslike (GG)	*Rytidosperma setaceum (Small-flowered Wallaby-grass)*	1	20		N
Grass & grasslike (GG)	*Eriochloa crebra (Cup Grass, Tall Cupgrass)*	1	50		N
Grass & grasslike (GG)	*Rytidosperma erianthum (Wallaby Grass)*	5	80		N
Forb (FG)	*Diuris dendrobioides*	0.1	1		N
Grass & grasslike (GG)	*Themeda triandra*	6	60		N
	Verbena bonariensis (Purpletop)	0.1	3		E
Fern (EG)	*Cheilanthes sieberi (Rock Fern)*	0.1	10		N
Other (OG)	*Glycine clandestina (Twining glycine)*	2	50		N
Forb (FG)	*Dichopogon fimbriatus (Nodding Chocolate Lily)*	0.1	20		N
Forb (FG)	*Calotis lappulacea (Yellow Burr-daisy)*	5	100		N
	Modiola caroliniana (Red-flowered Mallow)	0.1	10		E
Shrub (SG)	*Dodonaea viscosa (Sticky Hop-bush)*	0.2	1		N
Forb (FG)	*Calotis cuneifolia (Purple Burr-Daisy)*	3	100		N
Forb (FG)	*Einadia nutans subsp. linifolia (Climbing Saltbush)*	0.5	20		N
Forb (FG)	*Einadia hastata (Berry Saltbush)*	0.5	20		N
	Conyza spp. (A Fleabane)	0.1	1		E
Other (OG)	*Desmodium varians (Slender Tick-trefoil)*	0.5	30		N
	Petrorhagia nanteuilii (Proliferous Pink)	0.1	10		E
	Eleusine tristachya (Goose Grass)	0.1	5		E
Shrub (SG)	*Eremophila debilis (Amulla)*	0.5	10		N
	Setaria pumila (Pale Pigeon Grass)	0.2	10		E
Forb (FG)	*Dysphania pumilio (Small Crumbweed)*	0.1	10		N
	Bidens bipinnata (Bipinnate Beggar's Ticks)	0.1	5		HTE
	Trifolium repens (White Clover)	0.1	10		E
	Lepidium africanum (Common Peppercress)	0.1	20		E
Grass & grasslike (GG)	*Chloris truncata (Windmill Grass)*	5	100		N
Forb (FG)	*Thelionema caespitosum (Tufted Blue-lily)*	0.5	40		N
	Avena fatua (Wild Oats)	5	50		E
Forb (FG)	*Wahlenbergia communis (Tufted Bluebell)*	0.1	30		N
Forb (FG)	*Hydrocotyle laxiflora (Stinking Pennywort)*	0.1	20		N
Grass & grasslike (GG)	*Austrostipa nodosa (A Speargrass)*	10	100		N

Project name:	J210553				
Recorders:	ED, EJ	**Plot ID:**	Plot 8	**Date:**	16/12/21

GF Code	Scientific name	Cover	Abundance	Voucher	N, E or HTE
Forb (FG)	*Portulaca oleracea (Pigweed)*	0.1	20		N
	Fumaria capreolata subsp. capreolata (Climbing Fumitory)	0.1	10		E
Forb (FG)	*Thysanotus tuberosus subsp. tuberosus*	0.4	5		N
Grass & grasslike (GG)	*Microlaena stipoides (Weeping Grass)*	10	100		N

BAM Site – Field Survey Form

Plot ID:	Plot 9	**Date:**	16/12/21	**Project number:**	J210553	**Plot dimensions:**	20x 50m
Datum:	GDA94	**Easting:**	734,626	**Recorders:**	ED, EJ		
Zone:	55	**Northing:**	6,444,579	**IBRA region:**	NSW South Western Slopes (Inland Slopes)	**Midline bearing:**	72
Plant Community Type:	80: Western Grey Box - White Cypress Pine tall woodland on loam soil on alluvial plains of NSW South Western Slopes Bioregion and Riverina Bioregion			**Condition class:**	High	**PCT confidence:**	high
Vegetation Class:	Floodplain Transition Woodlands			**EEC:**	yes	**EEC confidence:**	high

Record easting and northing at 0 m on midline. Dimensions (Shape) of 0.04 ha base plot.

BAM Attribute (400 m2 plot)		Sum values
Count of Native Richness	Trees:	1
	Shrubs:	3
	Grasses etc.:	8
	Forbs:	17
	Ferns:	1
	Other:	2
Sum of Cover of native vascular plants by growth form group	Trees:	35
	Shrubs:	1.3
	Grasses etc.:	20.6
	Forbs:	64.5
	Ferns:	0.5
	Other:	1.2
High Threat Weed cover:		1

BAM Attribute (1000 m2 plot) DBH			
DBH	Tree stem count	Length of logs (m) (≥10 cm diameter, >50 cm in length)	28
80 + cm:	2		
50 – 79 cm:	1		
30 – 49 cm:	1		
20 – 29 cm:	1	Tree hollow count	2
10 – 19 cm:	1		
5 – 9 cm:	1		
< 5 cm:	1		

Counts apply when no. of tree stems within a size class is ≤ 10. Estimates can be used when > 10 (eg. 10, 20, 30..., 100, 200, 300...). For multi-stemmed tree, only largest living stem is included in the count. Tree stems must be living.
For hollows, count only the presence of a stem containing hollows. For a multi-stemmed tree, only the largest stem is included in the count/estimate. Stems may be dead and may be shrubs.

BAM Attribute (1 x 1 m plots)	Litter cover (%)				
Subplot:	1	2	3	4	5
Subplot score (%):	90	85	70	95	85
Average litter cover (%):	85				

Litter cover is assessed as the average percentage ground cover of litter recorded from five 1 m x 1 m plots centred at 5, 15, 25, 35, 45 m along the plot midline. Litter cover includes leaves, seeds, twigs, branchlets and branches (less than 10 cm in diameter). Assessors may also record the cover of rock, bare ground and cryptogams.

Physiography and site features

Plot Disturbance

Mitre drains on road

GF Code: see Growth Form definitions in Appendix 1; N: native, E: exotic, HTE: high threat exotic; GF – circle code if 'top 3'; Cover: 0.1, 0.2, 0.3, ..., 1, 2, 3, ..., 10, 15, 20, 25, ...100% (foliage cover)
Note: 0.1% cover represents an area of approximately 63 x 63 cm or a circle about 71 cm across, 0.5% cover represents an area of approximately 1.4 x 1.4 m, and 1% = 2.0 x 2.0 m, 5% = 4 x 5 m, 25% = 10 x 10 m
Abundance: 1, 2, 3, ..., 10, 20, 30, ... 100, 200, ..., 1000, ...

Project name:	J210553				
Recorders:	ED, EJ	**Plot ID:**	Plot 9	**Date:**	16/12/21

GF Code	Scientific name	Cover	Abundance	Voucher	N, E or HTE
Shrub (SG)	*Eremophila debilis (Amulla)*	0.2	20		N
Forb (FG)	*Calotis lappulacea (Yellow Burr-daisy)*	30	500		N
Forb (FG)	*Cymbonotus lawsonianus (Bear's Ear)*	0.1	10		N
Forb (FG)	*Einadia nutans (Climbing Saltbush)*	0.5	20		N
Other (OG)	*Desmodium varians (Slender Tick-trefoil)*	0.2	10		N
Forb (FG)	*Einadia hastata (Berry Saltbush)*	1	40		N
Grass & grasslike (GG)	*Austrostipa nodosa (A Speargrass)*	5	100		N
Forb (FG)	*Calotis cuneifolia (Purple Burr-Daisy)*	25	500		N
Forb (FG)	*Dichopogon fimbriatus (Nodding Chocolate Lily)*	5	500		N
	Conyza spp. (A Fleabane)	0.1	10		E
Shrub (SG)	*Cassinia laevis (Cough Bush)*	0.1	1		N
Forb (FG)	*Sida corrugata (Corrugated Sida)*	0.1	10		N
Forb (FG)	*Oxalis perennans*	0.1	10		N
Grass & grasslike (GG)	*Rytidosperma caespitosum (Ringed Wallaby Grass)*	5	100		N
Shrub (SG)	*Solanum cinereum (Narrawa Burr)*	1	40		N
Forb (FG)	*Laxmannia gracilis (Slender Wire Lily)*	0.1	10		N
	Chloris gayana (Rhodes Grass)	1	20		HTE
Grass & grasslike (GG)	*Rytidosperma setaceum (Small-flowered Wallaby-grass)*	0.5	50		N
Grass & grasslike (GG)	*Anthosachne scabra (Wheatgrass, Common Wheatgrass)*	5	50		N
Grass & grasslike (GG)	*Eriochloa crebra (Cup Grass, Tall Cupgrass)*	2	40		N
Grass & grasslike (GG)	*Panicum effusum (Hairy Panic)*	1	50		N
	Solanum nigrum (Black-berry Nightshade)	0.1	10		E
Forb (FG)	*Dichondra repens (Kidney Weed)*	0.5	20		N
Fern (EG)	*Cheilanthes sieberi (Rock Fern)*	0.5	40		N
Grass & grasslike (GG)	*Themeda triandra*	2	50		N
Grass & grasslike (GG)	*Eragrostis alveiformis*	0.1	3		N
	Fumaria capreolata subsp. capreolata (Climbing Fumitory)	0.1	10		E
Other (OG)	*Glycine clandestina (Twining glycine)*	1	50		N
Forb (FG)	*Alternanthera nana (Hairy Joyweed)*	0.1	1		N
Forb (FG)	*Chamaesyce dallachyana*	0.1	1		N
	Verbena bonariensis (Purpletop)	0.1	6		E
	Marrubium vulgare (White Horehound)	2	50		E
Forb (FG)	*Sonchus spp. (Sowthistle)*	0.1	5		N
Forb (FG)	*Cullen cinereum (Annual Verbine)*	1	10		N
Forb (FG)	*Thelionema caespitosum (Tufted Blue-lily)*	0.2	6		N
Tree (TG)	*Eucalyptus microcarpa (Western Grey Box)*	35	30		N
	Verbascum virgatum (Twiggy Mullein)	0.1	5		E
Forb (FG)	*Brachyscome ciliaris (Variable Daisy)*	0.5	50		N
Forb (FG)	*Velleia paradoxa*	0.1	5		N

BAM Site – Field Survey Form

Plot ID:	Plot 10	**Date:**	16/12/21	**Project number:**	J210553	**Plot dimensions:**	20x50m
Datum:	GDA94	**Easting:**	734,653	**Recorders:**	ED, EJ		
Zone:	55	**Northing:**	6,444,949	**IBRA region:**	NSW South Western Slopes (Inland Slopes)	**Midline bearing:**	24
Plant Community Type:	281: Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion			**Condition class:**	High	**PCT confidence:**	high
Vegetation Class:	Western Slopes Grassy Woodlands			**EEC:**	yes	**EEC confidence:**	high

Record easting and northing at 0 m on midline. Dimensions (Shape) of 0.04 ha base plot.

BAM Attribute (400 m2 plot)		Sum values
Count of Native Richness	Trees:	3
	Shrubs:	3
	Grasses etc.:	12
	Forbs:	12
	Ferns:	1
	Other:	1
Sum of Cover of native vascular plants by growth form group	Trees:	17
	Shrubs:	0.7
	Grasses etc.:	75
	Forbs:	8.2
	Ferns:	0.1
	Other:	1
High Threat Weed cover:		0.1

BAM Attribute (1000 m2 plot) DBH			
DBH	Tree stem count	Length of logs (m) (≥10 cm diameter, >50 cm in length)	78
80 + cm:	2		
50 – 79 cm:	5		
30 – 49 cm:	1		
20 – 29 cm:	1	Tree hollow count	5
10 – 19 cm:	1		
5 – 9 cm:	1		
< 5 cm:	1		

Counts apply when no. of tree stems within a size class is ≤ 10. Estimates can be used when > 10 (eg. 10, 20, 30..., 100, 200, 300...). For multi-stemmed tree, only largest living stem is included in the count. Tree stems must be living.
For hollows, count only the presence of a stem containing hollows. For a multi-stemmed tree, only the largest stem is included in the count/estimate. Stems may be dead and may be shrubs.

BAM Attribute (1 x 1 m plots)	Litter cover (%)				
Subplot:	1	2	3	4	5
Subplot score (%):	20	60	90	75	75
Average litter cover (%):	64				

Litter cover is assessed as the average percentage ground cover of litter recorded from five 1 m x 1 m plots centred at 5, 15, 25, 35, 45 m along the plot midline. Litter cover includes leaves, seeds, twigs, branchlets and branches (less than 10 cm in diameter). Assessors may also record the cover of rock, bare ground and cryptogams.

Physiography and site features

Plot Disturbance

Mitre drains on road

GF Code: see Growth Form definitions in Appendix 1; N: native, E: exotic, HTE: high threat exotic; GF – circle code if 'top 3'; Cover: 0.1, 0.2, 0.3, ..., 1, 2, 3, ..., 10, 15, 20, 25, ...100% (foliage cover)
Note: 0.1% cover represents an area of approximately 63 x 63 cm or a circle about 71 cm across, 0.5% cover represents an area of approximately 1.4 x 1.4 m, and 1% = 2.0 x 2.0 m, 5% = 4 x 5 m, 25% = 10 x 10 m
Abundance: 1, 2, 3, ..., 10, 20, 30, ... 100, 200, ..., 1000, ...

Project name:	J210553				
Recorders:	ED, EJ	**Plot ID:**	Plot 10	**Date:**	16/12/21

GF Code	Scientific name	Cover	Abundance	Voucher	N, E or HTE
Forb (FG)	*Hydrocotyle laxiflora (Stinking Pennywort)*	0.2	40		N
Other (OG)	*Desmodium varians (Slender Tick-trefoil)*	1	30		N
Forb (FG)	*Thysanotus tuberosus (Common Fringe-lily)*	0.1	5		N
Forb (FG)	*Dichopogon fimbriatus (Nodding Chocolate Lily)*	0.2	20		N
Forb (FG)	*Calotis cuneata (Mountain Burr-Daisy)*	2	20		N
Forb (FG)	*Calotis lappulacea (Yellow Burr-daisy)*	5	100		N
Grass & grasslike (GG)	*Austrostipa nodosa (A Speargrass)*	5	200		N
Grass & grasslike (GG)	*Austrostipa setacea (Corkscrew Grass)*	5	200		N
	Verbena bonariensis (Purpletop)	20	500		E
	Plantago lanceolata (Lamb's Tongues)	5	50		E
Fern (EG)	*Cheilanthes sieberi (Rock Fern)*	0.1	10		N
	Hypericum perforatum subsp. veronense (St John's Wort)	2	100		E
Forb (FG)	*Velleia paradoxa*	0.1	10		N
Grass & grasslike (GG)	*Themeda triandra*	10	20		N
Grass & grasslike (GG)	*Rytidosperma caespitosum (Ringed Wallaby Grass)*	2	50		N
Forb (FG)	*Dichondra repens (Kidney Weed)*	0.1	10		N
Shrub (SG)	*Eremophila debilis (Amulla)*	0.1	10		N
	Trifolium arvense (Haresfoot Clover)	0.1	30		E
	Tribulus terrestris (Cat-head)	0.1	2		E
	Lepidium africanum (Common Peppercress)	0.1	5		E
	Bidens bipinnata (Bipinnate Beggar's Ticks)	0.1	10		HTE
Shrub (SG)	*Solanum cinereum (Narrawa Burr)*	0.1	5		N
Grass & grasslike (GG)	*Eriochloa crebra (Cup Grass, Tall Cupgrass)*	2	50		N
Grass & grasslike (GG)	*Poa labillardierei var. labillardierei (Tussock)*	2	40		N
Forb (FG)	*Dysphania pumilio (Small Crumbweed)*	0.1	10		N
	Salvia verbenaca (Vervain)	0.1	5		E
Shrub (SG)	*Cassinia laevis (Cough Bush)*	0.5	4		N
	Trifolium campestre (Hop Clover)	0.1	10		E
	Solanum nigrum (Black-berry Nightshade)	0.1	6		E
Forb (FG)	*Oxalis perennans*	0.1	10		N
Forb (FG)	*Portulaca oleracea (Pigweed)*	0.1	5		N
	Eleusine tristachya (Goose Grass)	0.1	6		E
	Brassica nigra (Black Mustard)	0.1	5		E
Grass & grasslike (GG)	*Carex spp.*	5	50		N
Grass & grasslike (GG)	*Anthosachne scabra (Wheatgrass, Common Wheatgrass)*	5	60		N
Grass & grasslike (GG)	*Juncus subsecundus (Finger Rush)*	2	100		N
Grass & grasslike (GG)	*Carex inversa (Knob Sedge)*	10	400		N
	Phalaris aquatica (Phalaris)	0.1	5		E
Forb (FG)	*Thelionema caespitosum (Tufted Blue-lily)*	0.1	2		N
Grass & grasslike (GG)	*Sporobolus creber (Slender Rat's Tail Grass)*	2	50		N
Forb (FG)	*Brachyscome ciliaris (Variable Daisy)*	0.1	10		N
Grass & grasslike (GG)	*Eleocharis pallens (Pale Spike Sedge)*	25	30		N
Tree (TG)	*Eucalyptus blakelyi (Blakely's Red Gum)*	15	25		N
Tree (TG)	*Eucalyptus melliodora (Yellow Box)*	1	5		N
Tree (TG)	*Angophora floribunda (Rough-barked Apple)*	1	1		N

BAM Site – Field Survey Form

Plot ID:	Plot 11	**Date:**	16/12/21	**Project number:**	J210553	**Plot dimensions:**	20x 50m
Datum:	GDA94	**Easting:**	734,703	**Recorders:**	ED, EJ		
Zone:	55	**Northing:**	6,445,341	**IBRA region:**	NSW South Western Slopes (Inland Slopes)	**Midline bearing:**	7
Plant Community Type:	281: Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion			**Condition class:**	High	**PCT confidence:**	high
Vegetation Class:	Western Slopes Grassy Woodlands			**EEC:**	yes	**EEC confidence:**	high

Record easting and northing at 0 m on midline. Dimensions (Shape) of 0.04 ha base plot.

BAM Attribute (400 m2 plot)		Sum values
Count of Native Richness	Trees:	3
	Shrubs:	2
	Grasses etc.:	13
	Forbs:	11
	Ferns:	1
	Other:	2
Sum of Cover of native vascular plants by growth form group	Trees:	39
	Shrubs:	0.7
	Grasses etc.:	62.7
	Forbs:	38.4
	Ferns:	0.1
	Other:	0.4
High Threat Weed cover:		1.1

BAM Attribute (1000 m2 plot) DBH			
DBH	Tree stem count	Length of logs (m) (≥10 cm diameter, >50 cm in length)	68
80 + cm:	4		
50 – 79 cm:	1		
30 – 49 cm:	1		
20 – 29 cm:	1	Tree hollow count	3
10 – 19 cm:	1		
5 – 9 cm:	1		
< 5 cm:	1		

Counts apply when no. of tree stems within a size class is ≤ 10. Estimates can be used when > 10 (eg. 10, 20, 30..., 100, 200, 300...). For multi-stemmed tree, only largest living stem is included in the count. Tree stems must be living.
For hollows, count only the presence of a stem containing hollows. For a multi-stemmed tree, only the largest stem is included in the count/estimate. Stems may be dead and may be shrubs.

BAM Attribute (1 x 1 m plots)	Litter cover (%)				
Subplot:	1	2	3	4	5
Subplot score (%):	90	75	80	50	85
Average litter cover (%):	76				

Litter cover is assessed as the average percentage ground cover of litter recorded from five 1 m x 1 m plots centred at 5, 15, 25, 35, 45 m along the plot midline. Litter cover includes leaves, seeds, twigs, branchlets and branches (less than 10 cm in diameter). Assessors may also record the cover of rock, bare ground and cryptogams.

Physiography and site features

Plot Disturbance

Mitre drains on road

GF Code: see Growth Form definitions in Appendix 1; N: native, E: exotic, HTE: high threat exotic; GF – circle code if 'top 3'; Cover: 0.1, 0.2, 0.3, ..., 1, 2, 3, ..., 10, 15, 20, 25, ...100% (foliage cover)
Note: 0.1% cover represents an area of approximately 63 x 63 cm or a circle about 71 cm across, 0.5% cover represents an area of approximately 1.4 x 1.4 m, and 1% = 2.0 x 2.0 m, 5% = 4 x 5 m, 25% = 10 x 10 m
Abundance: 1, 2, 3, ..., 10, 20, 30, ... 100, 200, ..., 1000, ...

Project name:	J210553				
Recorders:	ED, EJ	**Plot ID:**	Plot 11	**Date:**	16/12/21

GF Code	Scientific name	Cover	Abundance	Voucher	N, E or HTE
Shrub (SG)	*Acacia ixodes (Motherumbung)*	0.2	1		N
	Sonchus oleraceus (Common Sowthistle)	0.5	20		E
Grass & grasslike (GG)	*Microlaena stipoides (Weeping Grass)*	20	1000		N
Grass & grasslike (GG)	*Poa billardierei*	5	400		N
Grass & grasslike (GG)	*Themeda triandra*	5	100		N
	Sonchus asper (Prickly Sowthistle)	0.1	10		E
Shrub (SG)	*Solanum cinereum (Narrawa Burr)*	0.5	20		N
Forb (FG)	*Thelionema caespitosum (Tufted Blue-lily)*	0.5	5		N
	Plantago lanceolata (Lamb's Tongues)	1	100		E
Forb (FG)	*Calotis lappulacea (Yellow Burr-daisy)*	20	500		N
Forb (FG)	*Oxalis perennans*	0.1	10		N
Other (OG)	*Desmodium varians (Slender Tick-trefoil)*	0.2	20		N
	Marrubium vulgare (White Horehound)	5	50		E
Grass & grasslike (GG)	*Carex inversa (Knob Sedge)*	0.1	10		N
	Fumaria capreolata subsp. capreolata (Climbing Fumitory)	0.1	5		E
Forb (FG)	*Dichondra repens (Kidney Weed)*	0.1	2		N
Other (OG)	*Glycine tabacina (Variable Glycine)*	0.2	20		N
Forb (FG)	*Einadia hastata (Berry Saltbush)*	15	500		N
Grass & grasslike (GG)	*Austrostipa nodosa (A Speargrass)*	5	60		N
	Solanum nigrum (Black-berry Nightshade)	0.1	10		E
Forb (FG)	*Calotis cuneifolia (Purple Burr-Daisy)*	2	60		N
Fern (EG)	*Cheilanthes sieberi (Rock Fern)*	0.1	5		N
	Verbena rigida var. rigida (Veined Verbena)	0.5	40		E
Forb (FG)	*Cymbonotus lawsonianus (Bear's Ear)*	0.1	5		N
Forb (FG)	*Rumex brownii (Swamp Dock)*	0.2	15		N
	Verbena bonariensis (Purpletop)	3	50		E
Grass & grasslike (GG)	*Rytidosperma caespitosum (Ringed Wallaby Grass)*	5	100		N
Grass & grasslike (GG)	*Eriochloa crebra (Cup Grass, Tall Cupgrass)*	10	200		N
	Setaria parviflora	1	50		E
Grass & grasslike (GG)	*Sporobolus creber (Slender Rat's Tail Grass)*	3	150		N
Grass & grasslike (GG)	*Chloris truncata (Windmill Grass)*	3	100		N
	Hypericum perforatum (St. Johns Wort)	1	30		HTE
Grass & grasslike (GG)	*Rytidosperma carphoides (Short Wallaby Grass)*	0.5	50		N
	Heliotropium amplexicaule (Blue Heliotrope)	0.1	30		HTE
Forb (FG)	*Chamaesyce drummondii (Caustic Weed)*	0.1	6		N
Grass & grasslike (GG)	*Juncus subsecundus (Finger Rush)*	1	10		N
Tree (TG)	*Eucalyptus blakelyi (Blakely's Red Gum)*	14	4		N
Tree (TG)	*Eucalyptus melliodora (Yellow Box)*	15	42		N
Tree (TG)	*Eucalyptus microcarpa (Western Grey Box)*	10	2		N
	Salvia verbenaca (Vervain)	0.1	15		E
Grass & grasslike (GG)	*Deyeuxia quadriseta*	0.1	5		N
Forb (FG)	*Oncinocalyx betchei*	0.1	10		N
Forb (FG)	*Vittadinia dissecta*	0.2	20		N
Grass & grasslike (GG)	*Eragrostis parviflora (Weeping Lovegrass)*	5	100		N

BAM Site – Field Survey Form

Plot ID:	Plot 12	**Date:**	16/12/21	**Project number:**	J210553	**Plot dimensions:**	20x 50m
Datum:	GDA94	**Easting:**	734,659	**Recorders:**	ED, EJ		
Zone:	55	**Northing:**	6,445,751	**IBRA region:**	NSW South Western Slopes (Inland Slopes)	**Midline bearing:**	299
Plant Community Type:	80: Western Grey Box - White Cypress Pine tall woodland on loam soil on alluvial plains of NSW South Western Slopes Bioregion and Riverina Bioregion			**Condition class:**	High	**PCT confidence:**	high
Vegetation Class:	Floodplain Transition Woodlands			**EEC:**	yes	**EEC confidence:**	high

Record easting and northing at 0 m on midline. Dimensions (Shape) of 0.04 ha base plot.

BAM Attribute (400 m2 plot)		Sum values
Count of Native Richness	Trees:	1
	Shrubs:	4
	Grasses etc.:	12
	Forbs:	12
	Ferns:	1
	Other:	2
Sum of Cover of native vascular plants by growth form group	Trees:	30
	Shrubs:	25.3
	Grasses etc.:	57.3
	Forbs:	22.9
	Ferns:	0.1
	Other:	0.6
High Threat Weed cover:		0

BAM Attribute (1000 m2 plot) DBH			
DBH	Tree stem count	Length of logs (m) (≥10 cm diameter, >50 cm in length)	58
80 + cm:	3		
50 – 79 cm:	4		
30 – 49 cm:	0		
20 – 29 cm:	1	Tree hollow count	3
10 – 19 cm:	0		
5 – 9 cm:	1		
< 5 cm:	1		

Counts apply when no. of tree stems within a size class is ≤ 10. Estimates can be used when > 10 (eg. 10, 20, 30..., 100, 200, 300...). For multi-stemmed tree, only largest living stem is included in the count. Tree stems must be living.
For hollows, count only the presence of a stem containing hollows. For a multi-stemmed tree, only the largest stem is included in the count/estimate. Stems may be dead and may be shrubs.

BAM Attribute (1 x 1 m plots)	Litter cover (%)				
Subplot:	1	2	3	4	5
Subplot score (%):	60	75	50	40	40
Average litter cover (%):	53				

Litter cover is assessed as the average percentage ground cover of litter recorded from five 1 m x 1 m plots centred at 5, 15, 25, 35, 45 m along the plot midline. Litter cover includes leaves, seeds, twigs, branchlets and branches (less than 10 cm in diameter). Assessors may also record the cover of rock, bare ground and cryptogams.

Physiography and site features

Plot Disturbance

Mitre drains on road

GF Code: see Growth Form definitions in Appendix 1; N: native, E: exotic, HTE: high threat exotic; GF – circle code if 'top 3'; Cover: 0.1, 0.2, 0.3, ..., 1, 2, 3, ..., 10, 15, 20, 25, ...100% (foliage cover)
Note: 0.1% cover represents an area of approximately 63 x 63 cm or a circle about 71 cm across, 0.5% cover represents an area of approximately 1.4 x 1.4 m, and 1% = 2.0 x 2.0 m, 5% = 4 x 5 m, 25% = 10 x 10 m
Abundance: 1, 2, 3, ..., 10, 20, 30, ... 100, 200, ..., 1000, ...

Project name:	J210553				
Recorders:	ED, EJ	**Plot ID:**	Plot 12	**Date:**	16/12/21

GF Code	Scientific name	Cover	Abundance	Voucher	N, E or HTE
	Lolium perenne (Perennial Ryegrass)	2	50		E
Shrub (SG)	*Acacia verticillata subsp. verticillata*	25	500		N
	Solanum nigrum (Black-berry Nightshade)	3	30		E
	Sonchus oleraceus (Common Sowthistle)	0.1	10		E
Forb (FG)	*Einadia hastata (Berry Saltbush)*	2	25		N
Other (OG)	*Desmodium varians (Slender Tick-trefoil)*	0.5	30		N
Shrub (SG)	*Solanum chenopodinum*	0.1	2		N
Grass & grasslike (GG)	*Poa billardierei*	1	40		N
Forb (FG)	*Oxalis perennans*	0.1	10		N
	Conyza bonariensis (Flaxleaf Fleabane)	0.1	6		E
Forb (FG)	*Calotis lappulacea (Yellow Burr-daisy)*	15	200		N
Forb (FG)	*Velleia paradoxa*	0.1	10		N
Forb (FG)	*Dichondra repens (Kidney Weed)*	0.1	5		N
	Oxalis thompsoniae	0.1	10		E
Forb (FG)	*Calotis cuneifolia (Purple Burr-Daisy)*	5	100		N
Forb (FG)	*Vittadinia dissecta*	0.1	6		N
Forb (FG)	*Dichopogon fimbriatus (Nodding Chocolate Lily)*	0.1	5		N
Grass & grasslike (GG)	*Carex inversa (Knob Sedge)*	0.5	40		N
	Verbena bonariensis (Purpletop)	0.4	15		E
Grass & grasslike (GG)	*Austrostipa nodosa (A Speargrass)*	10	100		N
Fern (EG)	*Cheilanthes sieberi (Rock Fern)*	0.1	5		N
Shrub (SG)	*Eremophila debilis (Amulla)*	0.1	2		N
Grass & grasslike (GG)	*Microlaena stipoides (Weeping Grass)*	15	300		N
Forb (FG)	*Sida corrugata (Corrugated Sida)*	0.1	5		N
Grass & grasslike (GG)	*Rytidosperma caespitosum (Ringed Wallaby Grass)*	5	200		N
Grass & grasslike (GG)	*Anthosachne scabra (Wheatgrass, Common Wheatgrass)*	5	200		N
Shrub (SG)	*Solanum cinereum (Narrawa Burr)*	0.1	6		N
Grass & grasslike (GG)	*Lomandra multiflora subsp. multiflora (Many-flowered Mat-rush)*	0.1	1		N
Forb (FG)	*Thelionema caespitosum (Tufted Blue-lily)*	0.1	1		N
	Setaria parviflora	0.5	20		E
Other (OG)	*Convolvulus angustissimus*	0.1	1		N
	Marrubium vulgare (White Horehound)	0.5	15		E
Grass & grasslike (GG)	*Rytidosperma carphoides (Short Wallaby Grass)*	10	400		N
	Lepidium africanum (Common Peppercress)	0.1	6		E
Grass & grasslike (GG)	*Themeda triandra*	5	300		N
Forb (FG)	*Wahlenbergia communis (Tufted Bluebell)*	0.1	60		N
Grass & grasslike (GG)	*Eriochloa crebra (Cup Grass, Tall Cupgrass)*	5	200		N
Forb (FG)	*Plantago varia*	0.1	6		N
Grass & grasslike (GG)	*Chloris truncata (Windmill Grass)*	0.2	30		N
	Eragrostis pilosa (Soft Lovegrass)	0.5	50		E
Grass & grasslike (GG)	*Sporobolus creber (Slender Rat's Tail Grass)*	0.5	50		N
Tree (TG)	*Eucalyptus microcarpa (Western Grey Box)*	30	40		N

BAM Site – Field Survey Form

Plot ID:	Plot 13	**Date:**	12/01/22	**Project number:**	J210553	**Plot dimensions:**	20 x 50m
Datum:	GDA94	**Easting:**	739,938	**Recorders:**	ED, EJ		
Zone:	55	**Northing:**	6,439,825	**IBRA region:**	NSW South Western Slopes (Inland Slopes)	**Midline bearing:**	130
Plant Community Type:	80: Western Grey Box - White Cypress Pine tall woodland on loam soil on alluvial plains of NSW South Western Slopes Bioregion and Riverina Bioregion			**Condition class:**	Pasture	**PCT confidence:**	high
Vegetation Class:	Floodplain Transition Woodlands			**EEC:**	yes	**EEC confidence:**	medium

Record easting and northing at 0 m on midline. Dimensions (Shape) of 0.04 ha base plot.

BAM Attribute (400 m2 plot)		Sum values
Count of Native Richness	Trees:	0
	Shrubs:	0
	Grasses etc.:	12
	Forbs:	6
	Ferns:	0
	Other:	2
Sum of Cover of native vascular plants by growth form group	Trees:	0
	Shrubs:	0
	Grasses etc.:	102.9
	Forbs:	1
	Ferns:	0
	Other:	0.2
High Threat Weed cover:		5.1

BAM Attribute (1000 m2 plot) DBH			
DBH	Tree stem count	Length of logs (m) (≥10 cm diameter, >50 cm in length)	0
80 + cm:	0		
50 – 79 cm:	0		
30 – 49 cm:	0		
20 – 29 cm:	0	Tree hollow count	0
10 – 19 cm:	0		
5 – 9 cm:	0		
< 5 cm:	0		

Counts apply when no. of tree stems within a size class is ≤ 10. Estimates can be used when > 10 (eg. 10, 20, 30..., 100, 200, 300...). For multi-stemmed tree, only largest living stem is included in the count. Tree stems must be living.
For hollows, count only the presence of a stem containing hollows. For a multi-stemmed tree, only the largest stem is included in the count/estimate. Stems may be dead and may be shrubs.

BAM Attribute (1 x 1 m plots)	Litter cover (%)				
Subplot:	1	2	3	4	5
Subplot score (%):	5	3	5	8	3
Average litter cover (%):	4.8				

Litter cover is assessed as the average percentage ground cover of litter recorded from five 1 m x 1 m plots centred at 5, 15, 25, 35, 45 m along the plot midline. Litter cover includes leaves, seeds, twigs, branchlets and branches (less than 10 cm in diameter). Assessors may also record the cover of rock, bare ground and cryptogams.

Physiography and site features

Slight slope with loam soil

Plot Disturbance

Historical clearing

GF Code: see Growth Form definitions in Appendix 1; N: native, E: exotic, HTE: high threat exotic; GF – circle code if 'top 3'; Cover: 0.1, 0.2, 0.3, ..., 1, 2, 3, ..., 10, 15, 20, 25, ...100% (foliage cover)
Note: 0.1% cover represents an area of approximately 63 x 63 cm or a circle about 71 cm across, 0.5% cover represents an area of approximately 1.4 x 1.4 m, and 1% = 2.0 x 2.0 m, 5% = 4 x 5 m, 25% = 10 x 10 m
Abundance: 1, 2, 3, ..., 10, 20, 30, ... 100, 200, ..., 1000, ...

Project name:	J210553				
Recorders:	ED, EJ	**Plot ID:**	Plot 13	**Date:**	12/01/22

GF Code	Scientific name	Cover	Abundance	Voucher	N, E or HTE
	Vulpia bromoides (Squirrel Tail Fesque)	2	100		E
Grass & grasslike (GG)	*Sporobolus creber (Slender Rat's Tail Grass)*	65	1000		N
Grass & grasslike (GG)	*Bothriochloa macra (Red Grass)*	20	1000		N
	Cyclospermum leptophyllum (Slender Celery)	2	100		E
Forb (FG)	*Einadia hastata (Berry Saltbush)*	0.1	26		N
	Verbena bonariensis (Purpletop)	0.5	20		E
Grass & grasslike (GG)	*Eragrostis brownii (Brown's Lovegrass)*	1	200		N
Forb (FG)	*Calotis lappulacea (Yellow Burr-daisy)*	0.1	5		N
Grass & grasslike (GG)	*Anthosachne scabra (Wheatgrass, Common Wheatgrass)*	0.5	50		N
Grass & grasslike (GG)	*Panicum effusum (Hairy Panic)*	5	100		N
Grass & grasslike (GG)	*Eriochloa crebra (Cup Grass, Tall Cupgrass)*	5	100		N
	Petrorhagia nanteuilii (Proliferous Pink)	0.1	20	no	E
	Conyza bonariensis (Flaxleaf Fleabane)	0.1	5		E
	Modiola caroliniana (Red-flowered Mallow)	0.1	5		E
Forb (FG)	*Euchiton sphaericus (Star Cudweed)*	0.1	30		N
Grass & grasslike (GG)	*Eragrostis alveiformis*	5	400		N
	Hypericum perforatum (St. Johns Wort)	5	300		HTE
Forb (FG)	*Oxalis perennans*	0.1	10		N
Grass & grasslike (GG)	*Rytidosperma caespitosum (Ringed Wallaby Grass)*	0.5	50		N
Grass & grasslike (GG)	*Rytidosperma erianthum (Wallaby Grass)*	0.2	50		N
Grass & grasslike (GG)	*Lachnagrostis filiformis*	0.1	10		N
	Linum trigynum (French Flax)	0.1	20		E
Other (OG)	*Glycine tabacina (Variable Glycine)*	0.1	20		N
Forb (FG)	*Rumex brownii (Swamp Dock)*	0.5	10		N
	Setaria parviflora	5	500		E
	Carthamus lanatus (Saffron Thistle)	0.1	10		HTE
	Lysimachia arvensis (Scarlet Pimpernel)	0.1	10		E
Grass & grasslike (GG)	*Paspalidium distans*	0.5	50		N
Other (OG)	*Convolvulus angustissimus*	0.1	10		N
	Eleusine tristachya (Goose Grass)	0.2	30		E
Forb (FG)	*Dichondra repens (Kidney Weed)*	0.1	5		N
	Cirsium vulgare (Spear Thistle)	0.1	1		E
Grass & grasslike (GG)	*Juncus subsecundus (Finger Rush)*	0.1	2		N
	Gamochaeta calviceps (Cudweed)	0.1	5		E

BAM Site – Field Survey Form

Plot ID:	Plot 15	**Date:**	11/04/22	**Project number:**	J210553	**Plot dimensions:**	20 x 50 m
Datum:	GDA94	**Easting:**	735,172	**Recorders:**	BS, EJ		
Zone:	55	**Northing:**	6,443,738	**IBRA region:**	NSW South Western Slopes (Inland Slopes)	**Midline bearing:**	193
Plant Community Type:	281: Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion			**Condition class:**	Poor	**PCT confidence:**	high
Vegetation Class:	Western Slopes Grassy Woodlands			**EEC:**	no	**EEC confidence:**	high

Record easting and northing at 0 m on midline. Dimensions (Shape) of 0.04 ha base plot.

BAM Attribute (400 m2 plot)		Sum values
Count of Native Richness	Trees:	3
	Shrubs:	0
	Grasses etc.:	6
	Forbs:	3
	Ferns:	0
	Other:	0
Sum of Cover of native vascular plants by growth form group	Trees:	10.1
	Shrubs:	0
	Grasses etc.:	8.8
	Forbs:	0.7
	Ferns:	0
	Other:	0
High Threat Weed cover:		0.7

BAM Attribute (1000 m2 plot) DBH			
DBH	Tree stem count	Length of logs (m) (≥10 cm diameter, >50 cm in length)	35
80 + cm:	3		
50 – 79 cm:	3		
30 – 49 cm:	10		
20 – 29 cm:	5	Tree hollow count	2
10 – 19 cm:	2		
5 – 9 cm:	0		
< 5 cm:	0		

Counts apply when no. of tree stems within a size class is ≤ 10. Estimates can be used when > 10 (eg. 10, 20, 30..., 100, 200, 300...). For multi-stemmed tree, only largest living stem is included in the count. Tree stems must be living.
For hollows, count only the presence of a stem containing hollows. For a multi-stemmed tree, only the largest stem is included in the count/estimate. Stems may be dead and may be shrubs.

BAM Attribute (1 x 1 m plots)	Litter cover (%)				
Subplot:	1	2	3	4	5
Subplot score (%):	0	10	1	1	5
Average litter cover (%):	3.4				

Litter cover is assessed as the average percentage ground cover of litter recorded from five 1 m x 1 m plots centred at 5, 15, 25, 35, 45 m along the plot midline. Litter cover includes leaves, seeds, twigs, branchlets and branches (less than 10 cm in diameter). Assessors may also record the cover of rock, bare ground and cryptogams.

Physiography and site features

Along creekline

Plot Disturbance

Weedy

GF Code: see Growth Form definitions in Appendix 1; N: native, E: exotic, HTE: high threat exotic; GF – circle code if 'top 3'; Cover: 0.1, 0.2, 0.3, ..., 1, 2, 3, ..., 10, 15, 20, 25, ...100% (foliage cover)
Note: 0.1% cover represents an area of approximately 63 x 63 cm or a circle about 71 cm across, 0.5% cover represents an area of approximately 1.4 x 1.4 m, and 1% = 2.0 x 2.0 m, 5% = 4 x 5 m, 25% = 10 x 10 m
Abundance: 1, 2, 3, ..., 10, 20, 30, ... 100, 200, ..., 1000, ...

Project name:	J210553				
Recorders:	BS, EJ	**Plot ID:**	Plot 15	**Date:**	11/04/22

GF Code	Scientific name	Cover	Abundance	Voucher	N, E or HTE
Tree (TG)	*Angophora floribunda (Rough-barked Apple)*	5	8		N
Tree (TG)	*Eucalyptus blakelyi (Blakely's Red Gum)*	5	2		N
	Verbena bonariensis (Purpletop)	0.1	20		E
	Onopordum acanthium subsp. acanthium (Scotch Thistle)	0.1	20		E
	Setaria pumila (Pale Pigeon Grass)	0.1	30		E
	Sonchus oleraceus (Common Sowthistle)	0.1	20		E
	Solanum nigrum (Black-berry Nightshade)	0.5	20		E
	Plantago lanceolata (Lamb's Tongues)	0.1	20		E
	Rumex crispus (Curled Dock)	0.2	40		E
	Conyza bonariensis (Flaxleaf Fleabane)	2	500		E
	Bidens subalternans (Greater Beggar's Ticks)	0.5	100		HTE
Forb (FG)	*Persicaria subsessilis (Hairy Knotweed)*	0.5	100		N
Grass & grasslike (GG)	*Microlaena stipoides (Weeping Grass)*	0.5	50		N
Grass & grasslike (GG)	*Carex appressa (Tall Sedge)*	3	50		N
	Lepidium africanum (Common Peppercress)	0.1	20		E
Forb (FG)	*Daucus spp.*	0.1	50		N
	Polycarpon tetraphyllum (Four-leaved Allseed)	0.1	50		E
	Polygonum aviculare (Wireweed)	0.1	20		E
Forb (FG)	*Alternanthera nana (Hairy Joyweed)*	0.1	20		N
	Paspalum dilatatum (Paspalum)	0.1	50		HTE
	Gamochaeta spp.	0.1	30		E
Grass & grasslike (GG)	*Paspalum distichum (Water Couch)*	5	500		N
	Echinochloa crus-galli (Barnyard Grass)	2	100		E
	Aster subulatus (Wild Aster)	0.1	1		E
	Cyperus eragrostis (Umbrella Sedge)	0.1	40		HTE
	Medicago sativa (Lucerne)	0.1	15		E
	Lysimachia arvensis (Scarlet Pimpernel)	0.2	50		E
	Modiola caroliniana (Red-flowered Mallow)	0.1	10		E
Grass & grasslike (GG)	*Juncus continuus*	0.1	20		N
	Lolium rigidum (Wimmera Ryegrass)	0.1	20		E
Tree (TG)	*Melia azedarach (White Cedar)*	0.1	1		N
	Schinus areira (Pepper Tree)	1	1		E
Grass & grasslike (GG)	*Eragrostis brownii (Brown's Lovegrass)*	0.1	20		N
Grass & grasslike (GG)	*Bromus spp. (A Brome)*	0.1	10		N

BAM Site – Field Survey Form

Plot ID:	Plot 16	**Date:**	11/04/22	**Project number:**	J210553	**Plot dimensions:**	20 x 50 m
Datum:	GDA94	**Easting:**	735,125	**Recorders:**	BS, EJ		
Zone:	55	**Northing:**	6,443,554	**IBRA region:**	NSW South Western Slopes (Inland Slopes)	**Midline bearing:**	331
Plant Community Type:	281: Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion			**Condition class:**	Poor	**PCT confidence:**	high
Vegetation Class:	Western Slopes Grassy Woodlands			**EEC:**	no	**EEC confidence:**	high

Record easting and northing at 0 m on midline. Dimensions (Shape) of 0.04 ha base plot.

BAM Attribute (400 m2 plot)		Sum values
Count of Native Richness	Trees:	2
	Shrubs:	0
	Grasses etc.:	11
	Forbs:	3
	Ferns:	0
	Other:	1
Sum of Cover of native vascular plants by growth form group	Trees:	7
	Shrubs:	0
	Grasses etc.:	2.8
	Forbs:	0.3
	Ferns:	0
	Other:	0.1
High Threat Weed cover:		0.6

BAM Attribute (1000 m2 plot) DBH			
DBH	**Tree stem count**		
80 + cm:	2	**Length of logs (m) (≥10 cm diameter, >50 cm in length)**	25
50 – 79 cm:	3		
30 – 49 cm:	6		
20 – 29 cm:	5	**Tree hollow count**	1
10 – 19 cm:	4		
5 – 9 cm:	0		
< 5 cm:	0		

Counts apply when no. of tree stems within a size class is ≤ 10. Estimates can be used when > 10 (eg. 10, 20, 30..., 100, 200, 300...). For multi-stemmed tree, only largest living stem is included in the count. Tree stems must be living.
For hollows, count only the presence of a stem containing hollows. For a multi-stemmed tree, only the largest stem is included in the count/estimate. Stems may be dead and may be shrubs.

BAM Attribute (1 x 1 m plots)	Litter cover (%)				
Subplot:	**1**	**2**	**3**	**4**	**5**
Subplot score (%):	0	10	0	10	15
Average litter cover (%):	7				

Litter cover is assessed as the average percentage ground cover of litter recorded from five 1 m x 1 m plots centred at 5, 15, 25, 35, 45 m along the plot midline. Litter cover includes leaves, seeds, twigs, branchlets and branches (less than 10 cm in diameter). Assessors may also record the cover of rock, bare ground and cryptogams.

Physiography and site features

Creekline

Plot Disturbance

Weedy

GF Code: see Growth Form definitions in Appendix 1; N: native, E: exotic, HTE: high threat exotic; GF – circle code if 'top 3'; Cover: 0.1, 0.2, 0.3, ..., 1, 2, 3, ..., 10, 15, 20, 25, ...100% (foliage cover)
Note: 0.1% cover represents an area of approximately 63 x 63 cm or a circle about 71 cm across, 0.5% cover represents an area of approximately 1.4 x 1.4 m, and 1% = 2.0 x 2.0 m, 5% = 4 x 5 m, 25% = 10 x 10 m
Abundance: 1, 2, 3, ..., 10, 20, 30, ... 100, 200, ..., 1000, ...

Project name:	J210553				
Recorders:	BS, EJ	**Plot ID:**	Plot 16	**Date:**	11/04/22

GF Code	Scientific name	Cover	Abundance	Voucher	N, E or HTE
Tree (TG)	*Eucalyptus blakelyi (Blakely's Red Gum)*	2	3		N
Tree (TG)	*Angophora floribunda (Rough-barked Apple)*	5	4		N
	Verbena bonariensis (Purpletop)	0.1	30		E
	Bidens subalternans (Greater Beggar's Ticks)	0.1	30		HTE
	Setaria pumila (Pale Pigeon Grass)	20	500		E
	Conyza bonariensis (Flaxleaf Fleabane)	0.1	30		E
Grass & grasslike (GG)	*Carex appressa (Tall Sedge)*	0.5	15		N
Grass & grasslike (GG)	*Sporobolus creber (Slender Rat's Tail Grass)*	0.1	4		N
Grass & grasslike (GG)	*Aristida vagans (Threeawn Speargrass)*	0.2	20		N
Grass & grasslike (GG)	*Lomandra spp. (Mat-rush)*	0.1	15		N
Other (OG)	*Glycine clandestina (Twining glycine)*	0.1	5		N
Grass & grasslike (GG)	*Paspalidium aversum (Bent Summer Grass)*	0.3	150		N
	Hypochaeris radicata (Catsear)	0.1	20		E
Grass & grasslike (GG)	*Cynodon dactylon (Common Couch)*	0.5	200		N
	Bromus catharticus (Praire Grass)	0.2	100		E
	Gomphrena celosioides (Gomphrena Weed)	0.1	50		E
Grass & grasslike (GG)	*Eragrostis spp. (A Lovegrass)*	0.3	200		N
	Paspalum dilatatum (Paspalum)	0.2	100		HTE
	Echinochloa crus-galli (Barnyard Grass)	0.2	100		E
	Solanum nigrum (Black-berry Nightshade)	0.1	5		E
Forb (FG)	*Persicaria subsessilis (Hairy Knotweed)*	0.1	10		N
	Rumex crispus (Curled Dock)	0.1	10		E
Forb (FG)	*Alternanthera nana (Hairy Joyweed)*	0.1	20		N
	Silybum marianum (Variegated Thistle)	0.1	1		E
Grass & grasslike (GG)	*Microlaena stipoides (Weeping Grass)*	0.3	50		N
	Acetosa sagittata (Rambling Dock)	0.1	20		HTE
	Echium plantagineum (Patterson's Curse)	0.1	1		E
Grass & grasslike (GG)	*Enteropogon spp. (Windmill Grass)*	0.1	1		N
Forb (FG)	*Rumex brownii (Swamp Dock)*	0.1	5		N
	Xanthium spinosum (Bathurst Burr)	0.1	1		HTE
	Lysimachia arvensis (Scarlet Pimpernel)	0.2	30		E
	Sonchus oleraceus (Common Sowthistle)	0.1	1		E
	Lepidium africanum (Common Peppercress)	0.1	10		E
Grass & grasslike (GG)	*Juncus continuus*	0.3	20		N
Grass & grasslike (GG)	*Bolboschoenus spp.*	0.1	1		N
	Cyperus eragrostis (Umbrella Sedge)	0.1	15		HTE

BAM Site – Field Survey Form

Plot ID:	Plot 17	**Date:**	11/04/22	**Project number:**	J210553	**Plot dimensions:**	20 x 50 m
Datum:	GDA94	**Easting:**	735,023	**Recorders:**	BS, EJ		
Zone:	55	**Northing:**	6,442,727	**IBRA region:**	NSW South Western Slopes (Inland Slopes)	**Midline bearing:**	341
Plant Community Type:	281: Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion			**Condition class:**	Poor	**PCT confidence:**	high
Vegetation Class:	Western Slopes Grassy Woodlands			**EEC:**	no	**EEC confidence:**	high

Record easting and northing at 0 m on midline. Dimensions (Shape) of 0.04 ha base plot.

BAM Attribute (400 m2 plot)		Sum values
Count of Native Richness	Trees:	1
	Shrubs:	0
	Grasses etc.:	8
	Forbs:	0
	Ferns:	0
	Other:	0
Sum of Cover of native vascular plants by growth form group	Trees:	10
	Shrubs:	0
	Grasses etc.:	6.3
	Forbs:	0
	Ferns:	0
	Other:	0
High Threat Weed cover:		50.3

BAM Attribute (1000 m2 plot) DBH			
DBH	**Tree stem count**	**Length of logs (m) (≥10 cm diameter, >50 cm in length)**	16
80 + cm:	1		
50 – 79 cm:	4		
30 – 49 cm:	0		
20 – 29 cm:	0	**Tree hollow count**	4
10 – 19 cm:	0		
5 – 9 cm:	0		
< 5 cm:	0		

Counts apply when no. of tree stems within a size class is ≤ 10. Estimates can be used when > 10 (eg. 10, 20, 30..., 100, 200, 300...). For multi-stemmed tree, only largest living stem is included in the count. Tree stems must be living.
For hollows, count only the presence of a stem containing hollows. For a multi-stemmed tree, only the largest stem is included in the count/estimate. Stems may be dead and may be shrubs.

BAM Attribute (1 x 1 m plots)	Litter cover (%)				
Subplot:	**1**	**2**	**3**	**4**	**5**
Subplot score (%):	25	10	15	20	15
Average litter cover (%):	17				

Litter cover is assessed as the average percentage ground cover of litter recorded from five 1 m x 1 m plots centred at 5, 15, 25, 35, 45 m along the plot midline. Litter cover includes leaves, seeds, twigs, branchlets and branches (less than 10 cm in diameter). Assessors may also record the cover of rock, bare ground and cryptogams.

Physiography and site features

Parallel to creekline

Plot Disturbance

Evidence of grazing

GF Code: see Growth Form definitions in Appendix 1; N: native, E: exotic, HTE: high threat exotic; GF – circle code if 'top 3'; Cover: 0.1, 0.2, 0.3, ..., 1, 2, 3, ..., 10, 15, 20, 25, ...100% (foliage cover)
Note: 0.1% cover represents an area of approximately 63 x 63 cm or a circle about 71 cm across, 0.5% cover represents an area of approximately 1.4 x 1.4 m, and 1% = 2.0 x 2.0 m, 5% = 4 x 5 m, 25% = 10 x 10 m
Abundance: 1, 2, 3, ..., 10, 20, 30, ... 100, 200, ..., 1000, ...

Project name:	J210553				
Recorders:	BS, EJ	**Plot ID:**	Plot 17	**Date:**	11/04/22

GF Code	Scientific name	Cover	Abundance	Voucher	N, E or HTE
	Cenchrus clandestinus (Kikuyu Grass)	50	1000		HTE
	Verbena bonariensis (Purpletop)	0.1	50		E
Grass & grasslike (GG)	*Austrostipa setacea (Corkscrew Grass)*	0.1	10		N
	Conyza bonariensis (Flaxleaf Fleabane)	0.1	20		E
	Cyperus eragrostis (Umbrella Sedge)	0.1	10		HTE
	Setaria pumila (Pale Pigeon Grass)	0.2	50		E
	Lepidium africanum (Common Peppercress)	0.1	25		E
Tree (TG)	*Eucalyptus blakelyi (Blakely's Red Gum)*	10	3		N
Grass & grasslike (GG)	*Eragrostis brownii (Brown's Lovegrass)*	0.1	10		N
Grass & grasslike (GG)	*Austrostipa spp. (A Speargrass)*	0.1	5		N
	Bidens subalternans (Greater Beggar's Ticks)	0.1	10		HTE
Grass & grasslike (GG)	*Sporobolus creber (Slender Rat's Tail Grass)*	0.2	30		N
Grass & grasslike (GG)	*Carex appressa (Tall Sedge)*	0.2	20		N
Grass & grasslike (GG)	*Aristida ramosa (Purple Wiregrass)*	0.5	50		N
	Alternanthera pungens (Khaki Weed)	0.1	50		HTE
	Cirsium vulgare (Spear Thistle)	0.1	2		E
Grass & grasslike (GG)	*Cynodon dactylon (Common Couch)*	5	1000		N
	Solanum nigrum (Black-berry Nightshade)	0.1	6		E
Grass & grasslike (GG)	*Themeda triandra*	0.1	5		N

BAM Site – Field Survey Form

Plot ID:	Plot 18	**Date:**	12/04/22	**Project number:**	J210553	**Plot dimensions:**	20 x 50m
Datum:	GDA94	**Easting:**	736,284	**Recorders:**	BS, EJ		
Zone:	55	**Northing:**	6,441,872	**IBRA region:**	NSW South Western Slopes (Inland Slopes)	**Midline bearing:**	282
Plant Community Type:	281: Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion			**Condition class:**	Pasture	**PCT confidence:**	high
Vegetation Class:	Western Slopes Grassy Woodlands			**EEC:**	no	**EEC confidence:**	high

Record easting and northing at 0 m on midline. Dimensions (Shape) of 0.04 ha base plot.

BAM Attribute (400 m2 plot)		Sum values
Count of Native Richness	Trees:	0
	Shrubs:	0
	Grasses etc.:	6
	Forbs:	1
	Ferns:	0
	Other:	0
Sum of Cover of native vascular plants by growth form group	Trees:	0
	Shrubs:	0
	Grasses etc.:	71.1
	Forbs:	0.1
	Ferns:	0
	Other:	0
High Threat Weed cover:		0

BAM Attribute (1000 m2 plot) DBH			
DBH	Tree stem count	Length of logs (m) (≥10 cm diameter, >50 cm in length)	0
80 + cm:	0		
50 – 79 cm:	0		
30 – 49 cm:	0		
20 – 29 cm:	0	Tree hollow count	0
10 – 19 cm:	0		
5 – 9 cm:	0		
< 5 cm:	0		

Counts apply when no. of tree stems within a size class is ≤ 10. Estimates can be used when > 10 (eg. 10, 20, 30..., 100, 200, 300...). For multi-stemmed tree, only largest living stem is included in the count. Tree stems must be living.
For hollows, count only the presence of a stem containing hollows. For a multi-stemmed tree, only the largest stem is included in the count/estimate. Stems may be dead and may be shrubs.

BAM Attribute (1 x 1 m plots)	Litter cover (%)				
Subplot:	1	2	3	4	5
Subplot score (%):	2	4	2	2	3
Average litter cover (%):	2.6				

Litter cover is assessed as the average percentage ground cover of litter recorded from five 1 m x 1 m plots centred at 5, 15, 25, 35, 45 m along the plot midline. Litter cover includes leaves, seeds, twigs, branchlets and branches (less than 10 cm in diameter). Assessors may also record the cover of rock, bare ground and cryptogams.

Physiography and site features

Plot Disturbance

Pasture

GF Code: see Growth Form definitions in Appendix 1; N: native, E: exotic, HTE: high threat exotic; GF – circle code if 'top 3'; Cover: 0.1, 0.2, 0.3, ..., 1, 2, 3, ..., 10, 15, 20, 25, ...100% (foliage cover)
Note: 0.1% cover represents an area of approximately 63 x 63 cm or a circle about 71 cm across, 0.5% cover represents an area of approximately 1.4 x 1.4 m, and 1% = 2.0 x 2.0 m, 5% = 4 x 5 m, 25% = 10 x 10 m
Abundance: 1, 2, 3, ..., 10, 20, 30, ... 100, 200, ..., 1000, ...

Project name:	J210553				
Recorders:	BS, EJ	**Plot ID:**	Plot 18	**Date:**	12/04/22

GF Code	Scientific name	Cover	Abundance	Voucher	N, E or HTE
Grass & grasslike (GG)	*Sporobolus creber (Slender Rat's Tail Grass)*	50	1000		N
Grass & grasslike (GG)	*Bothriochloa decipiens var. decipiens (Pitted Bluegrass)*	10	500		N
Grass & grasslike (GG)	*Juncus continuus*	5	400		N
Grass & grasslike (GG)	*Eragrostis parviflora (Weeping Lovegrass)*	5	400		N
Forb (FG)	*Calotis cuneifolia (Purple Burr-Daisy)*	0.1	30		N
	Conyza bonariensis (Flaxleaf Fleabane)	0.1	50		E
Grass & grasslike (GG)	*Eragrostis brownii (Brown's Lovegrass)*	0.1	20		N
Grass & grasslike (GG)	*Cynodon dactylon (Common Couch)*	1	100		N
	Medicago sativa (Lucerne)	0.1	20		E
	Setaria pumila (Pale Pigeon Grass)	0.1	10		E

BAM Site – Field Survey Form

Plot ID:	Plot 19	**Date:**	12/04/22	**Project number:**	J210553	**Plot dimensions:**	20 x 50 m
Datum:	GDA94	**Easting:**	737,008	**Recorders:**	BS, EJ		
Zone:	55	**Northing:**	6,442,438	**IBRA region:**	NSW South Western Slopes (Inland Slopes)	**Midline bearing:**	271
Plant Community Type:	281: Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion			**Condition class:**	Planted	**PCT confidence:**	high
Vegetation Class:	Western Slopes Grassy Woodlands			**EEC:**	no	**EEC confidence:**	high

Record easting and northing at 0 m on midline. Dimensions (Shape) of 0.04 ha base plot.

BAM Attribute (400 m2 plot)		Sum values
Count of Native Richness	Trees:	2
	Shrubs:	0
	Grasses etc.:	9
	Forbs:	2
	Ferns:	0
	Other:	0
Sum of Cover of native vascular plants by growth form group	Trees:	5.5
	Shrubs:	0
	Grasses etc.:	17.6
	Forbs:	0.3
	Ferns:	0
	Other:	0
High Threat Weed cover:		0.9

BAM Attribute (1000 m2 plot) DBH			
DBH	Tree stem count	Length of logs (m) (≥10 cm diameter, >50 cm in length)	20
80 + cm:	0		
50 – 79 cm:	1		
30 – 49 cm:	5		
20 – 29 cm:	3	Tree hollow count	0
10 – 19 cm:	0		
5 – 9 cm:	0		
< 5 cm:	0		

Counts apply when no. of tree stems within a size class is ≤ 10. Estimates can be used when > 10 (eg. 10, 20, 30..., 100, 200, 300...). For multi-stemmed tree, only largest living stem is included in the count. Tree stems must be living.
For hollows, count only the presence of a stem containing hollows. For a multi-stemmed tree, only the largest stem is included in the count/estimate. Stems may be dead and may be shrubs.

BAM Attribute (1 x 1 m plots)	Litter cover (%)				
Subplot:	1	2	3	4	5
Subplot score (%):	2	5	2	2	5
Average litter cover (%):	3.2				

Litter cover is assessed as the average percentage ground cover of litter recorded from five 1 m x 1 m plots centred at 5, 15, 25, 35, 45 m along the plot midline. Litter cover includes leaves, seeds, twigs, branchlets and branches (less than 10 cm in diameter). Assessors may also record the cover of rock, bare ground and cryptogams.

Physiography and site features

Plot Disturbance

Grazed

GF Code: see Growth Form definitions in Appendix 1; N: native, E: exotic, HTE: high threat exotic; GF – circle code if 'top 3'; Cover: 0.1, 0.2, 0.3, ..., 1, 2, 3, ..., 10, 15, 20, 25, ...100% (foliage cover)
Note: 0.1% cover represents an area of approximately 63 x 63 cm or a circle about 71 cm across, 0.5% cover represents an area of approximately 1.4 x 1.4 m, and 1% = 2.0 x 2.0 m, 5% = 4 x 5 m, 25% = 10 x 10 m
Abundance: 1, 2, 3, ..., 10, 20, 30, ... 100, 200, ..., 1000, ...

Project name:	J210553				
Recorders:	BS, EJ	**Plot ID:**	Plot 19	**Date:**	12/04/22

GF Code	Scientific name	Cover	Abundance	Voucher	N, E or HTE
Tree (TG)	*Eucalyptus melliodora (Yellow Box)*	4	1		N
Tree (TG)	*Eucalyptus camaldulensis (River Red Gum)*	1.5	2		N
	Schinus areira (Pepper Tree)	1	1		E
	Solanum nigrum (Black-berry Nightshade)	0.2	30		E
	Bidens subalternans (Greater Beggar's Ticks)	0.1	10		HTE
	Xanthium spinosum (Bathurst Burr)	0.2	15		HTE
	Modiola caroliniana (Red-flowered Mallow)	0.1	20		E
Grass & grasslike (GG)	*Cynodon dactylon (Common Couch)*	10	1000		N
	Amaranthus powellii (Powell's Amaranth)	1	50		E
Grass & grasslike (GG)	*Sporobolus creber (Slender Rat's Tail Grass)*	4	100		N
	Chloris gayana (Rhodes Grass)	0.1	20		HTE
	Eragrostis cilianensis (Stinkgrass)	0.3	100		E
Grass & grasslike (GG)	*Paspalum distichum (Water Couch)*	2	500		N
	Alternanthera pungens (Khaki Weed)	0.5	50		HTE
Forb (FG)	*Portulaca oleracea (Pigweed)*	0.1	20		N
	Medicago sativa (Lucerne)	0.1	10		E
Grass & grasslike (GG)	*Enteropogon spp. (Windmill Grass)*	0.2	40		N
	Eleusine tristachya (Goose Grass)	0.1	1		E
	Setaria parviflora	0.1	10		E
	Conyza bonariensis (Flaxleaf Fleabane)	0.1	5		E
Grass & grasslike (GG)	*Eragrostis parviflora (Weeping Lovegrass)*	1	50		N
Grass & grasslike (GG)	*Juncus subsecundus (Finger Rush)*	0.1	20		N
	Polycarpon tetraphyllum (Four-leaved Allseed)	0.1	20		E
	Cucumis myriocarpus subsp. leptodermis (Paddy Melon)	0.3	40		E
	Gomphrena celosioides (Gomphrena Weed)	0.1	10		E
Grass & grasslike (GG)	*Paspalidium aversum (Bent Summer Grass)*	0.1	100		N
Forb (FG)	*Alternanthera nana (Hairy Joyweed)*	0.2	50		N
	Trifolium repens (White Clover)	0.1	10		E
	Lepidium africanum (Common Peppercress)	0.1	1		E
Grass & grasslike (GG)	*Bothriochloa decipiens var. decipiens (Pitted Bluegrass)*	0.1	10		N
Grass & grasslike (GG)	*Aristida spp. (A Wiregrass)*	0.1	3		N

BAM Site – Field Survey Form

Plot ID:	Plot 20	**Date:**	12/04/22	**Project number:**	J210553	**Plot dimensions:**	20 x 50 m
Datum:	GDA94	**Easting:**	738,863	**Recorders:**	BS, EJ		
Zone:	55	**Northing:**	6,441,803	**IBRA region:**	NSW South Western Slopes (Inland Slopes)	**Midline bearing:**	216
Plant Community Type:	281: Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion			**Condition class:**	Planted	**PCT confidence:**	high
Vegetation Class:	Western Slopes Grassy Woodlands			**EEC:**	no	**EEC confidence:**	high

Record easting and northing at 0 m on midline. Dimensions (Shape) of 0.04 ha base plot.

BAM Attribute (400 m2 plot)		Sum values
Count of Native Richness	Trees:	1
	Shrubs:	1
	Grasses etc.:	7
	Forbs:	4
	Ferns:	0
	Other:	1
Sum of Cover of native vascular plants by growth form group	Trees:	10
	Shrubs:	1
	Grasses etc.:	36.7
	Forbs:	0.5
	Ferns:	0
	Other:	0.1
High Threat Weed cover:		2.5

BAM Attribute (1000 m2 plot) DBH			
DBH	Tree stem count	Length of logs (m) (≥10 cm diameter, >50 cm in length)	15
80 + cm:	1		
50 – 79 cm:	0		
30 – 49 cm:	3		
20 – 29 cm:	6	Tree hollow count	1
10 – 19 cm:	1		
5 – 9 cm:	1		
< 5 cm:	4		

Counts apply when no. of tree stems within a size class is ≤ 10. Estimates can be used when > 10 (eg. 10, 20, 30..., 100, 200, 300...). For multi-stemmed tree, only largest living stem is included in the count. Tree stems must be living.
For hollows, count only the presence of a stem containing hollows. For a multi-stemmed tree, only the largest stem is included in the count/estimate. Stems may be dead and may be shrubs.

BAM Attribute (1 x 1 m plots)	Litter cover (%)				
Subplot:	1	2	3	4	5
Subplot score (%):	30	20	10	5	2
Average litter cover (%):	13.4				

Litter cover is assessed as the average percentage ground cover of litter recorded from five 1 m x 1 m plots centred at 5, 15, 25, 35, 45 m along the plot midline. Litter cover includes leaves, seeds, twigs, branchlets and branches (less than 10 cm in diameter). Assessors may also record the cover of rock, bare ground and cryptogams.

Physiography and site features

Plot Disturbance

Historical disturbance

GF Code: see Growth Form definitions in Appendix 1; N: native, E: exotic, HTE: high threat exotic; GF – circle code if 'top 3'; Cover: 0.1, 0.2, 0.3, ..., 1, 2, 3, ..., 10, 15, 20, 25, ...100% (foliage cover)
Note: 0.1% cover represents an area of approximately 63 x 63 cm or a circle about 71 cm across, 0.5% cover represents an area of approximately 1.4 x 1.4 m, and 1% = 2.0 x 2.0 m, 5% = 4 x 5 m, 25% = 10 x 10 m
Abundance: 1, 2, 3, ..., 10, 20, 30, ... 100, 200, ..., 1000, ...

Project name:	J210553				
Recorders:	BS, EJ	**Plot ID:**	Plot 20	**Date:**	12/04/22

GF Code	Scientific name	Cover	Abundance	Voucher	N, E or HTE
Tree (TG)	*Angophora floribunda (Rough-barked Apple)*	10	8		N
Shrub (SG)	*Acacia irrorata (Green Wattle)*	1	2		N
Forb (FG)	*Einadia trigonos (Fishweed)*	0.1	5		N
Forb (FG)	*Polycarpaea arida*	0.1	5		N
Grass & grasslike (GG)	*Juncus continuus*	0.2	40		N
	Bromus catharticus (Praire Grass)	1	100		E
	Sonchus oleraceus (Common Sowthistle)	0.1	1		E
Grass & grasslike (GG)	*Carex appressa (Tall Sedge)*	0.2	3		N
	Gomphrena celosioides (Gomphrena Weed)	0.1	20		E
	Lepidium africanum (Common Peppercress)	0.1	20		E
	Verbena bonariensis (Purpletop)	0.1	10		E
Forb (FG)	*Alternanthera nana (Hairy Joyweed)*	0.2	50		N
Grass & grasslike (GG)	*Eragrostis alveiformis*	0.2	50		N
	Onopordum acanthium subsp. acanthium (Scotch Thistle)	0.1	4		E
	Bidens subalternans (Greater Beggar's Ticks)	0.1	10		HTE
	Conyza bonariensis (Flaxleaf Fleabane)	0.1	10		E
	Alternanthera pungens (Khaki Weed)	0.2	50		HTE
	Chenopodium album (Fat Hen)	0.1	2		E
	Brassica nigra (Black Mustard)	0.1	3		E
Grass & grasslike (GG)	*Cynodon dactylon (Common Couch)*	3	100		N
Forb (FG)	*Rumex brownii (Swamp Dock)*	0.1	1		N
	Echium plantagineum (Patterson's Curse)	0.1	2		E
	Solanum nigrum (Black-berry Nightshade)	0.2	20		E
Grass & grasslike (GG)	*Sporobolus creber (Slender Rat's Tail Grass)*	30	1000		N
Grass & grasslike (GG)	*Paspalidium aversum (Bent Summer Grass)*	3	100		N
	Setaria parviflora	0.1	20		E
Other (OG)	*Glycine tabacina (Variable Glycine)*	0.1	50		N
	Xanthium spinosum (Bathurst Burr)	0.2	20		HTE
	Paspalum dilatatum (Paspalum)	2	50		HTE
Grass & grasslike (GG)	*Digitaria divaricatissima (Umbrella Grass)*	0.1	20		N

BAM Site – Field Survey Form

Plot ID:	Plot 21	**Date:**	12/04/22	**Project number:**	J210553	**Plot dimensions:**	20 x 50 m
Datum:	GDA94	**Easting:**	738,605	**Recorders:**	BS, EJ		
Zone:	55	**Northing:**	6,439,996	**IBRA region:**	NSW South Western Slopes (Inland Slopes)	**Midline bearing:**	81
Plant Community Type:	80: Western Grey Box - White Cypress Pine tall woodland on loam soil on alluvial plains of NSW South Western Slopes Bioregion and Riverina Bioregion			**Condition class:**	Poor	**PCT confidence:**	high
Vegetation Class:	Floodplain Transition Woodlands			**EEC:**	no	**EEC confidence:**	high

Record easting and northing at 0 m on midline. Dimensions (Shape) of 0.04 ha base plot.

BAM Attribute (400 m2 plot)		Sum values
Count of Native Richness	Trees:	1
	Shrubs:	1
	Grasses etc.:	3
	Forbs:	5
	Ferns:	0
	Other:	0
Sum of Cover of native vascular plants by growth form group	Trees:	20
	Shrubs:	0.1
	Grasses etc.:	2.2
	Forbs:	2.8
	Ferns:	0
	Other:	0
High Threat Weed cover:		1.3

BAM Attribute (1000 m2 plot) DBH			
DBH	Tree stem count	Length of logs (m) (≥10 cm diameter, >50 cm in length)	13
80 + cm:	1		
50 – 79 cm:	3		
30 – 49 cm:	1		
20 – 29 cm:	3	Tree hollow count	1
10 – 19 cm:	0		
5 – 9 cm:	0		
< 5 cm:	0		

Counts apply when no. of tree stems within a size class is ≤ 10. Estimates can be used when > 10 (eg. 10, 20, 30..., 100, 200, 300...). For multi-stemmed tree, only largest living stem is included in the count. Tree stems must be living.
For hollows, count only the presence of a stem containing hollows. For a multi-stemmed tree, only the largest stem is included in the count/estimate. Stems may be dead and may be shrubs.

BAM Attribute (1 x 1 m plots)	Litter cover (%)				
Subplot:	1	2	3	4	5
Subplot score (%):	5	20	2	2	1
Average litter cover (%):	6				

Litter cover is assessed as the average percentage ground cover of litter recorded from five 1 m x 1 m plots centred at 5, 15, 25, 35, 45 m along the plot midline. Litter cover includes leaves, seeds, twigs, branchlets and branches (less than 10 cm in diameter). Assessors may also record the cover of rock, bare ground and cryptogams.

Physiography and site features

Plot Disturbance

Historical grazing

GF Code: see Growth Form definitions in Appendix 1; N: native, E: exotic, HTE: high threat exotic; GF – circle code if 'top 3'; Cover: 0.1, 0.2, 0.3, ..., 1, 2, 3, ..., 10, 15, 20, 25, ...100% (foliage cover)
Note: 0.1% cover represents an area of approximately 63 x 63 cm or a circle about 71 cm across, 0.5% cover represents an area of approximately 1.4 x 1.4 m, and 1% = 2.0 x 2.0 m, 5% = 4 x 5 m, 25% = 10 x 10 m
Abundance: 1, 2, 3, ..., 10, 20, 30, ... 100, 200, ..., 1000, ...

Project name:	J210553				
Recorders:	BS, EJ	**Plot ID:**	Plot 21	**Date:**	12/04/22

GF Code	Scientific name	Cover	Abundance	Voucher	N, E or HTE
Tree (TG)	*Eucalyptus microcarpa (Western Grey Box)*	20	8		N
	Solanum nigrum (Black-berry Nightshade)	1	30		E
	Amaranthus powellii (Powell's Amaranth)	2	100		E
	Xanthium spinosum (Bathurst Burr)	1	50		HTE
	Bromus catharticus (Praire Grass)	5	200		E
	Brassica nigra (Black Mustard)	0.5	50		E
	Alternanthera pungens (Khaki Weed)	0.1	60		HTE
	Sonchus oleraceus (Common Sowthistle)	0.1	10		E
	Malva parviflora (Small-flowered Mallow)	0.3	100		E
Forb (FG)	*Dysphania pumilio (Small Crumbweed)*	0.5	100		N
Grass & grasslike (GG)	*Paspalidium aversum (Bent Summer Grass)*	1	100		N
Shrub (SG)	*Maireana microphylla (Small-leaf Bluebush)*	0.1	2		N
	Verbena bonariensis (Purpletop)	0.1	10		E
	Lepidium africanum (Common Peppercress)	0.2	100		E
	Echium plantagineum (Patterson's Curse)	0.1	5		E
	Setaria parviflora	0.1	50		E
	Bidens subalternans (Greater Beggar's Ticks)	0.1	5		HTE
	Conyza bonariensis (Flaxleaf Fleabane)	0.1	10		E
Forb (FG)	*Brachyscome spp.*	2	100		N
	Paspalum dilatatum (Paspalum)	0.1	10		HTE
Forb (FG)	*Rumex brownii (Swamp Dock)*	0.1	1		N
Grass & grasslike (GG)	*Eriochloa pseudoacrotricha (Early Spring Grass)*	1	100		N
	Polygonum aviculare (Wireweed)	0.1	50		E
	Modiola caroliniana (Red-flowered Mallow)	0.1	20		E
	Gomphrena celosioides (Gomphrena Weed)	0.1	20		E
Grass & grasslike (GG)	*Enteropogon acicularis (Curly Windmill Grass)*	0.2	100		N
Forb (FG)	*Oxalis spp.*	0.1	50		N
	Lolium rigidum (Wimmera Ryegrass)	0.1	5		E
	Trifolium repens (White Clover)	0.1	10		E
Forb (FG)	*Portulaca oleracea (Pigweed)*	0.1	1		N
	Echinochloa crus-galli (Barnyard Grass)	0.2	20		E

BAM Site – Field Survey Form

Plot ID:	Plot 22	**Date:**	12/04/22	**Project number:**	J210553	**Plot dimensions:**	100 x 10 m
Datum:	GDA94	**Easting:**	735,012	**Recorders:**	BS, EJ		
Zone:	55	**Northing:**	6,442,676	**IBRA region:**	NSW South Western Slopes (Inland Slopes)	**Midline bearing:**	343
Plant Community Type:	281: Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion			**Condition class:**	Medium	**PCT confidence:**	high
Vegetation Class:	Western Slopes Grassy Woodlands			**EEC:**	no	**EEC confidence:**	high

Record easting and northing at 0 m on midline. Dimensions (Shape) of 0.04 ha base plot.

BAM Attribute (400 m2 plot)		Sum values
Count of Native Richness	Trees:	3
	Shrubs:	2
	Grasses etc.:	7
	Forbs:	3
	Ferns:	0
	Other:	1
Sum of Cover of native vascular plants by growth form group	Trees:	17.5
	Shrubs:	3.1
	Grasses etc.:	2.5
	Forbs:	0.3
	Ferns:	0
	Other:	0.1
High Threat Weed cover:		25.3

BAM Attribute (1000 m2 plot) DBH			
DBH	Tree stem count	Length of logs (m) (≥10 cm diameter, >50 cm in length)	37
80 + cm:	3		
50 – 79 cm:	1		
30 – 49 cm:	1		
20 – 29 cm:	1	Tree hollow count	2
10 – 19 cm:	1		
5 – 9 cm:	1		
< 5 cm:	1		

Counts apply when no. of tree stems within a size class is ≤ 10. Estimates can be used when > 10 (eg. 10, 20, 30..., 100, 200, 300...). For multi-stemmed tree, only largest living stem is included in the count. Tree stems must be living.
For hollows, count only the presence of a stem containing hollows. For a multi-stemmed tree, only the largest stem is included in the count/estimate. Stems may be dead and may be shrubs.

BAM Attribute (1 x 1 m plots)	Litter cover (%)				
Subplot:	1	2	3	4	5
Subplot score (%):	20	15	30	25	10
Average litter cover (%):	20				

Litter cover is assessed as the average percentage ground cover of litter recorded from five 1 m x 1 m plots centred at 5, 15, 25, 35, 45 m along the plot midline. Litter cover includes leaves, seeds, twigs, branchlets and branches (less than 10 cm in diameter). Assessors may also record the cover of rock, bare ground and cryptogams.

Physiography and site features

Road side and creekline running through

Plot Disturbance

GF Code: see Growth Form definitions in Appendix 1; N: native, E: exotic, HTE: high threat exotic; GF – circle code if 'top 3'; Cover: 0.1, 0.2, 0.3, ..., 1, 2, 3, ..., 10, 15, 20, 25, ...100% (foliage cover)
Note: 0.1% cover represents an area of approximately 63 x 63 cm or a circle about 71 cm across, 0.5% cover represents an area of approximately 1.4 x 1.4 m, and 1% = 2.0 x 2.0 m, 5% = 4 x 5 m, 25% = 10 x 10 m
Abundance: 1, 2, 3, ..., 10, 20, 30, ... 100, 200, ..., 1000, ...

Project name:	J210553				
Recorders:	BS, EJ	**Plot ID:**	Plot 22	**Date:**	12/04/22

GF Code	Scientific name	Cover	Abundance	Voucher	N, E or HTE
Tree (TG)	*Eucalyptus blakelyi (Blakely's Red Gum)*	5	6		N
Tree (TG)	*Angophora floribunda (Rough-barked Apple)*	12	10		N
	Cenchrus clandestinus (Kikuyu Grass)	25	1000		HTE
	Conyza bonariensis (Flaxleaf Fleabane)	0.2	100		E
	Verbena bonariensis (Purpletop)	0.1	50		E
	Onopordum acanthium subsp. acanthium (Scotch Thistle)	0.1	10		E
Grass & grasslike (GG)	*Themeda triandra*	0.5	50		N
	Solanum nigrum (Black-berry Nightshade)	0.1	20		E
	Lepidium africanum (Common Peppercress)	0.1	50		E
	Bidens subalternans (Greater Beggar's Ticks)	0.1	10		HTE
Grass & grasslike (GG)	*Sporobolus creber (Slender Rat's Tail Grass)*	0.2	100		N
Other (OG)	*Glycine tabacina (Variable Glycine)*	0.1	20		N
	Setaria pumila (Pale Pigeon Grass)	0.2	40		E
Forb (FG)	*Einadia trigonos (Fishweed)*	0.1	2		N
Forb (FG)	*Calotis lappulacea (Yellow Burr-daisy)*	0.1	5		N
Forb (FG)	*Oxalis spp.*	0.1	10		N
	Hypochaeris radicata (Catsear)	0.1	20		E
Grass & grasslike (GG)	*Eragrostis alveiformis*	0.1	20		N
Shrub (SG)	*Acacia implexa (Hickory Wattle)*	3	50		N
Grass & grasslike (GG)	*Carex appressa (Tall Sedge)*	0.5	8		N
Tree (TG)	*Brachychiton populneus (Kurrajong)*	0.5	1		N
Grass & grasslike (GG)	*Microlaena stipoides (Weeping Grass)*	1	200		N
Grass & grasslike (GG)	*Austrostipa spp. (A Speargrass)*	0.1	10		N
Shrub (SG)	*Acacia elongata (Swamp Wattle)*	0.1	6		N
Grass & grasslike (GG)	*Bromus spp. (A Brome)*	0.1	20		N
	Paspalum dilatatum (Paspalum)	0.1	10		HTE
	Hyparrhenia hirta (Coolatai Grass)	0.1	20		HTE

BAM Site – Field Survey Form

Plot ID:	Plot 23	**Date:**	13/04/22	**Project number:**	J210553	**Plot dimensions:**	20 x 50 m
Datum:	GDA94	**Easting:**	734,310	**Recorders:**	BS, EJ		
Zone:	55	**Northing:**	6,442,578	**IBRA region:**	NSW South Western Slopes (Inland Slopes)	**Midline bearing:**	316
Plant Community Type:	281: Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion			**Condition class:**	High	**PCT confidence:**	high
Vegetation Class:	Western Slopes Grassy Woodlands			**EEC:**	yes	**EEC confidence:**	high

Record easting and northing at 0 m on midline. Dimensions (Shape) of 0.04 ha base plot.

BAM Attribute (400 m2 plot)		Sum values
Count of Native Richness	Trees:	2
	Shrubs:	3
	Grasses etc.:	12
	Forbs:	9
	Ferns:	1
	Other:	2
Sum of Cover of native vascular plants by growth form group	Trees:	21
	Shrubs:	0.4
	Grasses etc.:	4.2
	Forbs:	13.6
	Ferns:	0.2
	Other:	0.2
High Threat Weed cover:		0.4

BAM Attribute (1000 m2 plot) DBH			
DBH	Tree stem count	Length of logs (m) (≥10 cm diameter, >50 cm in length)	29
80 + cm:	1		
50 – 79 cm:	1		
30 – 49 cm:	1		
20 – 29 cm:	1	Tree hollow count	1
10 – 19 cm:	1		
5 – 9 cm:	1		
< 5 cm:	1		

Counts apply when no. of tree stems within a size class is ≤ 10. Estimates can be used when > 10 (eg. 10, 20, 30..., 100, 200, 300...). For multi-stemmed tree, only largest living stem is included in the count. Tree stems must be living.
For hollows, count only the presence of a stem containing hollows. For a multi-stemmed tree, only the largest stem is included in the count/estimate. Stems may be dead and may be shrubs.

BAM Attribute (1 x 1 m plots)	Litter cover (%)				
Subplot:	1	2	3	4	5
Subplot score (%):	25	50	10	25	15
Average litter cover (%):	25				

Litter cover is assessed as the average percentage ground cover of litter recorded from five 1 m x 1 m plots centred at 5, 15, 25, 35, 45 m along the plot midline. Litter cover includes leaves, seeds, twigs, branchlets and branches (less than 10 cm in diameter). Assessors may also record the cover of rock, bare ground and cryptogams.

Physiography and site features

Plot Disturbance

Minimal grazing

GF Code: see Growth Form definitions in Appendix 1; N: native, E: exotic, HTE: high threat exotic; GF – circle code if 'top 3'; Cover: 0.1, 0.2, 0.3, ..., 1, 2, 3, ..., 10, 15, 20, 25, ...100% (foliage cover)
Note: 0.1% cover represents an area of approximately 63 x 63 cm or a circle about 71 cm across, 0.5% cover represents an area of approximately 1.4 x 1.4 m, and 1% = 2.0 x 2.0 m, 5% = 4 x 5 m, 25% = 10 x 10 m
Abundance: 1, 2, 3, ..., 10, 20, 30, ... 100, 200, ..., 1000, ...

Project name:	J210553				
Recorders:	BS, EJ	**Plot ID:**	Plot 23	**Date:**	13/04/22

GF Code	Scientific name	Cover	Abundance	Voucher	N, E or HTE
Tree (TG)	*Eucalyptus blakelyi (Blakely's Red Gum)*	20	14		N
Grass & grasslike (GG)	*Sporobolus creber (Slender Rat's Tail Grass)*	2	200		N
	Verbena bonariensis (Purpletop)	0.1	15		E
Grass & grasslike (GG)	*Digitaria divaricatissima (Umbrella Grass)*	0.5	50		N
Forb (FG)	*Calotis lappulacea (Yellow Burr-daisy)*	8	200		N
Forb (FG)	*Calotis cuneifolia (Purple Burr-Daisy)*	4	100		N
Grass & grasslike (GG)	*Aristida spp. (A Wiregrass)*	0.2	100		N
Tree (TG)	*Angophora floribunda (Rough-barked Apple)*	1	2		N
Grass & grasslike (GG)	*Austrostipa verticillata (Slender Bamboo Grass)*	0.1	5		N
Grass & grasslike (GG)	*Eragrostis alveiformis*	0.1	50		N
Grass & grasslike (GG)	*Digitaria brownii (Cotton Panic Grass)*	0.1	50		N
Shrub (SG)	*Maireana microphylla (Small-leaf Bluebush)*	0.1	2		N
Other (OG)	*Glycine clandestina (Twining glycine)*	0.1	50		N
Forb (FG)	*Lepidium spp. (A Peppercress)*	0.1	100		N
Grass & grasslike (GG)	*Eragrostis brownii (Brown's Lovegrass)*	0.1	10		N
Fern (EG)	*Cheilanthes sieberi (Rock Fern)*	0.2	80		N
Forb (FG)	*Hydrocotyle laxiflora (Stinking Pennywort)*	0.1	30		N
Other (OG)	*Glycine tabacina (Variable Glycine)*	0.1	20		N
Forb (FG)	*Oxalis spp.*	0.1	20		N
Forb (FG)	*Einadia hastata (Berry Saltbush)*	1	200		N
	Conyza bonariensis (Flaxleaf Fleabane)	0.1	3		E
	Cenchrus clandestinus (Kikuyu Grass)	0.1	50		HTE
	Marrubium vulgare (White Horehound)	0.3	100		E
	Bidens subalternans (Greater Beggar's Ticks)	0.1	2		HTE
	Alternanthera pungens (Khaki Weed)	0.1	20		HTE
Shrub (SG)	*Eremophila debilis (Amulla)*	0.2	50		N
Grass & grasslike (GG)	*Microlaena stipoides (Weeping Grass)*	0.2	50		N
	Solanum nigrum (Black-berry Nightshade)	0.1	10		E
Forb (FG)	*Dichondra repens (Kidney Weed)*	0.1	30		N
Grass & grasslike (GG)	*Chloris ventricosa (Tall Chloris)*	0.5	50		N
Grass & grasslike (GG)	*Juncus subsecundus (Finger Rush)*	0.1	50		N
Forb (FG)	*Wahlenbergia communis (Tufted Bluebell)*	0.1	1		N
Forb (FG)	*Arthropodium spp.*	0.1	4		N
Grass & grasslike (GG)	*Eulalia aurea (Silky Browntop)*	0.1	20		N
	Hypericum perforatum (St. Johns Wort)	0.1	1		HTE
	Plantago lanceolata (Lamb's Tongues)	0.1	5		E
Shrub (SG)	*Cassinia sifton*	0.1	1		N
Grass & grasslike (GG)	*Themeda triandra*	0.2	10		N

BAM Site – Field Survey Form

Plot ID:	Plot 24	**Date:**	13/04/22	**Project number:**	J210553	**Plot dimensions:**	20 x 50 m
Datum:	GDA94	**Easting:**	740,537	**Recorders:**	BS, EJ		
Zone:	55	**Northing:**	6,440,500	**IBRA region:**	NSW South Western Slopes (Inland Slopes)	**Midline bearing:**	214
Plant Community Type:		80: Western Grey Box - White Cypress Pine tall woodland on loam soil on alluvial plains of NSW South Western Slopes Bioregion and Riverina Bioregion		**Condition class:**	Pasture	**PCT confidence:**	high
Vegetation Class:		Floodplain Transition Woodlands		**EEC:**	no	**EEC confidence:**	medium

Record easting and northing at 0 m on midline. Dimensions (Shape) of 0.04 ha base plot.

BAM Attribute (400 m2 plot)		Sum values
Count of Native Richness	Trees:	0
	Shrubs:	0
	Grasses etc.:	7
	Forbs:	3
	Ferns:	0
	Other:	0
Sum of Cover of native vascular plants by growth form group	Trees:	0
	Shrubs:	0
	Grasses etc.:	71
	Forbs:	0.3
	Ferns:	0
	Other:	0
High Threat Weed cover:		0

BAM Attribute (1000 m2 plot) DBH			
DBH	Tree stem count	Length of logs (m) (≥10 cm diameter, >50 cm in length)	0
80 + cm:	0		
50 – 79 cm:	0		
30 – 49 cm:	0		
20 – 29 cm:	0	Tree hollow count	0
10 – 19 cm:	0		
5 – 9 cm:	0		
< 5 cm:	0		

Counts apply when no. of tree stems within a size class is ≤ 10. Estimates can be used when > 10 (eg. 10, 20, 30..., 100, 200, 300...). For multi-stemmed tree, only largest living stem is included in the count. Tree stems must be living.
For hollows, count only the presence of a stem containing hollows. For a multi-stemmed tree, only the largest stem is included in the count/estimate. Stems may be dead and may be shrubs.

BAM Attribute (1 x 1 m plots)	Litter cover (%)				
Subplot:	1	2	3	4	5
Subplot score (%):	1	2	2	1	5
Average litter cover (%):	2.2				

Litter cover is assessed as the average percentage ground cover of litter recorded from five 1 m x 1 m plots centred at 5, 15, 25, 35, 45 m along the plot midline. Litter cover includes leaves, seeds, twigs, branchlets and branches (less than 10 cm in diameter). Assessors may also record the cover of rock, bare ground and cryptogams.

Physiography and site features

Plot Disturbance

GF Code: see Growth Form definitions in Appendix 1; N: native, E: exotic, HTE: high threat exotic; GF – circle code if 'top 3'; Cover: 0.1, 0.2, 0.3, ..., 1, 2, 3, ..., 10, 15, 20, 25, ...100% (foliage cover)
Note: 0.1% cover represents an area of approximately 63 x 63 cm or a circle about 71 cm across, 0.5% cover represents an area of approximately 1.4 x 1.4 m, and 1% = 2.0 x 2.0 m, 5% = 4 x 5 m, 25% = 10 x 10 m
Abundance: 1, 2, 3, ..., 10, 20, 30, ... 100, 200, ..., 1000, ...

Project name:	J210553				
Recorders:	BS, EJ	**Plot ID:**	Plot 24	**Date:**	13/04/22

GF Code	Scientific name	Cover	Abundance	Voucher	N, E or HTE
Grass & grasslike (GG)	*Eragrostis brownii (Brown's Lovegrass)*	0.1	50		N
	Conyza bonariensis (Flaxleaf Fleabane)	0.2	100		E
	Verbena bonariensis (Purpletop)	0.1	50		E
	Brassica nigra (Black Mustard)	0.2	50		E
Grass & grasslike (GG)	*Bothriochloa decipiens var. decipiens (Pitted Bluegrass)*	50	1000		N
	Setaria pumila (Pale Pigeon Grass)	1	100		E
	Onopordum acanthium subsp. acanthium (Scotch Thistle)	0.1	5		E
Forb (FG)	*Oxalis perennans*	0.1	50		N
	Lysimachia arvensis (Scarlet Pimpernel)	0.1	30		E
	Trifolium campestre (Hop Clover)	0.3	100		E
	Polygonum aviculare (Wireweed)	0.1	50		E
Forb (FG)	*Euchiton sphaericus (Star Cudweed)*	0.1	10		N
Grass & grasslike (GG)	*Sporobolus creber (Slender Rat's Tail Grass)*	20	1000		N
Grass & grasslike (GG)	*Paspalidium aversum (Bent Summer Grass)*	0.5	100		N
Grass & grasslike (GG)	*Digitaria divaricatissima (Umbrella Grass)*	0.2	50		N
Grass & grasslike (GG)	*Rytidosperma spp.*	0.1	50		N
Forb (FG)	*Rumex brownii (Swamp Dock)*	0.1	10		N
	Sonchus asper (Prickly Sowthistle)	0.1	1		E
Grass & grasslike (GG)	*Aristida spp. (A Wiregrass)*	0.1	10		N
	Lepidium africanum (Common Peppercress)	0.1	20		E

BAM Site – Field Survey Form

Plot ID:	Plot 25	**Date:**	13/04/22	**Project number:**	J210553	**Plot dimensions:**	20 x 50 m
Datum:	GDA94	**Easting:**	740,283	**Recorders:**	BS, EJ		
Zone:	55	**Northing:**	6,440,286	**IBRA region:**	NSW South Western Slopes (Inland Slopes)	**Midline bearing:**	179
Plant Community Type:	80: Western Grey Box - White Cypress Pine tall woodland on loam soil on alluvial plains of NSW South Western Slopes Bioregion and Riverina Bioregion			**Condition class:**	Pasture	**PCT confidence:**	high
Vegetation Class:	Floodplain Transition Woodlands			**EEC:**	no	**EEC confidence:**	medium

Record easting and northing at 0 m on midline. Dimensions (Shape) of 0.04 ha base plot.

BAM Attribute (400 m2 plot)		Sum values
Count of Native Richness	Trees:	0
	Shrubs:	0
	Grasses etc.:	4
	Forbs:	1
	Ferns:	0
	Other:	0
Sum of Cover of native vascular plants by growth form group	Trees:	0
	Shrubs:	0
	Grasses etc.:	80
	Forbs:	0.1
	Ferns:	0
	Other:	0
High Threat Weed cover:		0.3

BAM Attribute (1000 m2 plot) DBH			
DBH	Tree stem count	Length of logs (m) (≥10 cm diameter, >50 cm in length)	0
80 + cm:	0		
50 – 79 cm:	0		
30 – 49 cm:	0		
20 – 29 cm:	0	Tree hollow count	0
10 – 19 cm:	0		
5 – 9 cm:	0		
< 5 cm:	0		

Counts apply when no. of tree stems within a size class is ≤ 10. Estimates can be used when > 10 (eg. 10, 20, 30..., 100, 200, 300...). For multi-stemmed tree, only largest living stem is included in the count. Tree stems must be living.
For hollows, count only the presence of a stem containing hollows. For a multi-stemmed tree, only the largest stem is included in the count/estimate. Stems may be dead and may be shrubs.

BAM Attribute (1 x 1 m plots)	Litter cover (%)				
Subplot:	1	2	3	4	5
Subplot score (%):	5	2	3	5	2
Average litter cover (%):	3.4				

Litter cover is assessed as the average percentage ground cover of litter recorded from five 1 m x 1 m plots centred at 5, 15, 25, 35, 45 m along the plot midline. Litter cover includes leaves, seeds, twigs, branchlets and branches (less than 10 cm in diameter). Assessors may also record the cover of rock, bare ground and cryptogams.

Physiography and site features

Plot Disturbance

GF Code: see Growth Form definitions in Appendix 1; N: native, E: exotic, HTE: high threat exotic; GF – circle code if 'top 3'; Cover: 0.1, 0.2, 0.3, ..., 1, 2, 3, ..., 10, 15, 20, 25, ...100% (foliage cover)
Note: 0.1% cover represents an area of approximately 63 x 63 cm or a circle about 71 cm across, 0.5% cover represents an area of approximately 1.4 x 1.4 m, and 1% = 2.0 x 2.0 m, 5% = 4 x 5 m, 25% = 10 x 10 m
Abundance: 1, 2, 3, ..., 10, 20, 30, ... 100, 200, ..., 1000, ...

Project name:	J210553				
Recorders:	BS, EJ	**Plot ID:**	Plot 25	**Date:**	13/04/22

GF Code	Scientific name	Cover	Abundance	Voucher	N, E or HTE
Grass & grasslike (GG)	*Eragrostis alveiformis*	5	500		N
Grass & grasslike (GG)	*Bothriochloa decipiens var. decipiens (Pitted Bluegrass)*	30	1000		N
	Verbena bonariensis (Purpletop)	0.1	10		E
Grass & grasslike (GG)	*Sporobolus creber (Slender Rat's Tail Grass)*	40	1000		N
	Conyza bonariensis (Flaxleaf Fleabane)	0.1	10		E
Grass & grasslike (GG)	*Paspalidium aversum (Bent Summer Grass)*	5	500		N
	Trifolium campestre (Hop Clover)	2	100		E
	Xanthium spinosum (Bathurst Burr)	0.1	3		HTE
	Oxalis thompsoniae	1	100		E
	Modiola caroliniana (Red-flowered Mallow)	0.1	2		E
	Paspalum dilatatum (Paspalum)	0.2	20		HTE
	Sonchus oleraceus (Common Sowthistle)	0.1	1		E
Forb (FG)	*Rumex brownii (Swamp Dock)*	0.1	1		N

BAM Site – Field Survey Form

Plot ID:	Plot 26	**Date:**	13/04/22	**Project number:**	J210553	**Plot dimensions:**	20 x 50 m
Datum:	GDA94	**Easting:**	739,954	**Recorders:**	BS, EJ		
Zone:	55	**Northing:**	6,440,002	**IBRA region:**	NSW South Western Slopes (Inland Slopes)	**Midline bearing:**	209
Plant Community Type:	80: Western Grey Box - White Cypress Pine tall woodland on loam soil on alluvial plains of NSW South Western Slopes Bioregion and Riverina Bioregion			**Condition class:**	Pasture	**PCT confidence:**	high
Vegetation Class:	Floodplain Transition Woodlands			**EEC:**	no	**EEC confidence:**	medium

Record easting and northing at 0 m on midline. Dimensions (Shape) of 0.04 ha base plot.

BAM Attribute (400 m2 plot)		Sum values
Count of Native Richness	Trees:	0
	Shrubs:	0
	Grasses etc.:	5
	Forbs:	1
	Ferns:	0
	Other:	0
Sum of Cover of native vascular plants by growth form group	Trees:	0
	Shrubs:	0
	Grasses etc.:	65.5
	Forbs:	0.1
	Ferns:	0
	Other:	0
High Threat Weed cover:		0.1

BAM Attribute (1000 m2 plot) DBH			
DBH	Tree stem count	Length of logs (m) (≥10 cm diameter, >50 cm in length)	0
80 + cm:	0		
50 – 79 cm:	0		
30 – 49 cm:	0		
20 – 29 cm:	0	Tree hollow count	0
10 – 19 cm:	0		
5 – 9 cm:	0		
< 5 cm:	0		

Counts apply when no. of tree stems within a size class is ≤ 10. Estimates can be used when > 10 (eg. 10, 20, 30..., 100, 200, 300...). For multi-stemmed tree, only largest living stem is included in the count. Tree stems must be living.
For hollows, count only the presence of a stem containing hollows. For a multi-stemmed tree, only the largest stem is included in the count/estimate. Stems may be dead and may be shrubs.

BAM Attribute (1 x 1 m plots)	Litter cover (%)				
Subplot:	1	2	3	4	5
Subplot score (%):	3	5	3	5	2
Average litter cover (%):	3.6				

Litter cover is assessed as the average percentage ground cover of litter recorded from five 1 m x 1 m plots centred at 5, 15, 25, 35, 45 m along the plot midline. Litter cover includes leaves, seeds, twigs, branchlets and branches (less than 10 cm in diameter). Assessors may also record the cover of rock, bare ground and cryptogams.

Physiography and site features

Plot Disturbance

GF Code: see Growth Form definitions in Appendix 1; N: native, E: exotic, HTE: high threat exotic; GF – circle code if 'top 3'; Cover: 0.1, 0.2, 0.3, ..., 1, 2, 3, ..., 10, 15, 20, 25, ...100% (foliage cover)
Note: 0.1% cover represents an area of approximately 63 x 63 cm or a circle about 71 cm across, 0.5% cover represents an area of approximately 1.4 x 1.4 m, and 1% = 2.0 x 2.0 m, 5% = 4 x 5 m, 25% = 10 x 10 m
Abundance: 1, 2, 3, ..., 10, 20, 30, ... 100, 200, ..., 1000, ...

Project name:	J210553				
Recorders:	BS, EJ	**Plot ID:**	Plot 26	**Date:**	13/04/22

GF Code	Scientific name	Cover	Abundance	Voucher	N, E or HTE
Grass & grasslike (GG)	*Bothriochloa decipiens var. decipiens (Pitted Bluegrass)*	20	1000		N
Grass & grasslike (GG)	*Sporobolus creber (Slender Rat's Tail Grass)*	20	1000		N
Grass & grasslike (GG)	*Eragrostis alveiformis*	20	1000		N
	Conyza bonariensis (Flaxleaf Fleabane)	0.1	10		E
Grass & grasslike (GG)	*Paspalidium aversum (Bent Summer Grass)*	5	500		N
	Trifolium campestre (Hop Clover)	0.2	50		E
	Onopordum acanthium subsp. acanthium (Scotch Thistle)	0.1	20		E
	Hypericum perforatum (St. Johns Wort)	0.1	2		HTE
Grass & grasslike (GG)	*Eriochloa pseudoacrotricha (Early Spring Grass)*	0.5	100		N
	Juncus effusus	0.1	20		E
	Eragrostis cilianensis (Stinkgrass)	0.1	1		E
Forb (FG)	*Calotis lappulacea (Yellow Burr-daisy)*	0.1	20		N
	Verbena bonariensis (Purpletop)	0.1	1		E

BAM Site – Field Survey Form

Plot ID:	Plot 27	**Date:**	13/04/22	**Project number:**	J210553	**Plot dimensions:**	20 x 50 m
Datum:	GDA94	**Easting:**	739,668	**Recorders:**	BS, EJ		
Zone:	55	**Northing:**	6,440,271	**IBRA region:**	NSW South Western Slopes (Inland Slopes)	**Midline bearing:**	242
Plant Community Type:	80: Western Grey Box - White Cypress Pine tall woodland on loam soil on alluvial plains of NSW South Western Slopes Bioregion and Riverina Bioregion			**Condition class:**	Pasture	**PCT confidence:**	high
Vegetation Class:	Floodplain Transition Woodlands			**EEC:**	no	**EEC confidence:**	medium

Record easting and northing at 0 m on midline. Dimensions (Shape) of 0.04 ha base plot.

BAM Attribute (400 m2 plot)		Sum values
Count of Native Richness	Trees:	0
	Shrubs:	0
	Grasses etc.:	7
	Forbs:	1
	Ferns:	0
	Other:	1
Sum of Cover of native vascular plants by growth form group	Trees:	0
	Shrubs:	0
	Grasses etc.:	26.2
	Forbs:	0.1
	Ferns:	0
	Other:	0.2
High Threat Weed cover:		25.2

BAM Attribute (1000 m2 plot) DBH			
DBH	Tree stem count	Length of logs (m) (≥10 cm diameter, >50 cm in length)	0
80 + cm:	0		
50 – 79 cm:	0		
30 – 49 cm:	0		
20 – 29 cm:	0	Tree hollow count	0
10 – 19 cm:	0		
5 – 9 cm:	0		
< 5 cm:	0		

Counts apply when no. of tree stems within a size class is ≤ 10. Estimates can be used when > 10 (eg. 10, 20, 30..., 100, 200, 300...). For multi-stemmed tree, only largest living stem is included in the count. Tree stems must be living.
For hollows, count only the presence of a stem containing hollows. For a multi-stemmed tree, only the largest stem is included in the count/estimate. Stems may be dead and may be shrubs.

BAM Attribute (1 x 1 m plots)	Litter cover (%)				
Subplot:	1	2	3	4	5
Subplot score (%):	5	8	10	5	8
Average litter cover (%):	7.2				

Litter cover is assessed as the average percentage ground cover of litter recorded from five 1 m x 1 m plots centred at 5, 15, 25, 35, 45 m along the plot midline. Litter cover includes leaves, seeds, twigs, branchlets and branches (less than 10 cm in diameter). Assessors may also record the cover of rock, bare ground and cryptogams.

Physiography and site features

Plot Disturbance

GF Code: see Growth Form definitions in Appendix 1; N: native, E: exotic, HTE: high threat exotic; GF – circle code if 'top 3'; Cover: 0.1, 0.2, 0.3, ..., 1, 2, 3, ..., 10, 15, 20, 25, ...100% (foliage cover)
Note: 0.1% cover represents an area of approximately 63 x 63 cm or a circle about 71 cm across, 0.5% cover represents an area of approximately 1.4 x 1.4 m, and 1% = 2.0 x 2.0 m, 5% = 4 x 5 m, 25% = 10 x 10 m
Abundance: 1, 2, 3, ..., 10, 20, 30, ... 100, 200, ..., 1000, ...

Project name:	J210553				
Recorders:	BS, EJ	**Plot ID:**	Plot 27	**Date:**	13/04/22

GF Code	Scientific name	Cover	Abundance	Voucher	N, E or HTE
Grass & grasslike (GG)	*Sporobolus creber (Slender Rat's Tail Grass)*	10	500		N
	Verbena bonariensis (Purpletop)	2	200		E
Other (OG)	*Glycine clandestina (Twining glycine)*	0.2	50		N
Grass & grasslike (GG)	*Aristida ramosa (Purple Wiregrass)*	3	200		N
	Hypericum perforatum (St. Johns Wort)	25	300		HTE
Grass & grasslike (GG)	*Eragrostis alveiformis*	1	50		N
	Conyza bonariensis (Flaxleaf Fleabane)	0.1	10		E
Grass & grasslike (GG)	*Digitaria divaricatissima (Umbrella Grass)*	1	50		N
Grass & grasslike (GG)	*Bothriochloa decipiens var. decipiens (Pitted Bluegrass)*	1	50		N
	Rumex crispus (Curled Dock)	0.1	5		E
Grass & grasslike (GG)	*Paspalidium aversum (Bent Summer Grass)*	10	500		N
Grass & grasslike (GG)	*Cynodon dactylon (Common Couch)*	0.2	50		N
	Onopordum acanthium subsp. acanthium (Scotch Thistle)	0.1	10		E
	Paspalum dilatatum (Paspalum)	0.2	50		HTE
	Modiola caroliniana (Red-flowered Mallow)	0.1	20		E
Forb (FG)	*Calotis lappulacea (Yellow Burr-daisy)*	0.1	1		N

BAM Site – Field Survey Form

Plot ID:	WC01	**Date:**	15/06/23	**Project number:**	J210553	**Plot dimensions:**	20x50
Datum:	GDA94	**Easting:**	740,400	**Recorders:**	Bianca Seal, Nicole Damag		
Zone:	55	**Northing:**	6,440,076	**IBRA region:**	NSW South Western Slopes (Inland Slopes)	**Midline bearing:**	332
Plant Community Type:		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		**Condition class:**	DNG	**PCT confidence:**	high
Vegetation Class:		Western Slopes Dry Sclerophyll Forests		**EEC:**	no	**EEC confidence:**	high

Record easting and northing at 0 m on midline. Dimensions (Shape) of 0.04 ha base plot.

BAM Attribute (400 m2 plot)		Sum values
Count of Native Richness	Trees:	0
	Shrubs:	0
	Grasses etc.:	10
	Forbs:	1
	Ferns:	0
	Other:	0
Sum of Cover of native vascular plants by growth form group	Trees:	0
	Shrubs:	0
	Grasses etc.:	58.2
	Forbs:	0.1
	Ferns:	0
	Other:	0
High Threat Weed cover:		0.1

BAM Attribute (1000 m2 plot) DBH			
DBH	Tree stem count	Length of logs (m) (≥10 cm diameter, >50 cm in length)	0
80 + cm:	0		
50 – 79 cm:	0		
30 – 49 cm:	0		
20 – 29 cm:	0	Tree hollow count	0
10 – 19 cm:	0		
5 – 9 cm:	0		
< 5 cm:	0		

Counts apply when no. of tree stems within a size class is ≤ 10. Estimates can be used when > 10 (eg. 10, 20, 30..., 100, 200, 300...). For multi-stemmed tree, only largest living stem is included in the count. Tree stems must be living.
For hollows, count only the presence of a stem containing hollows. For a multi-stemmed tree, only the largest stem is included in the count/estimate. Stems may be dead and may be shrubs.

BAM Attribute (1 x 1 m plots)	Litter cover (%)				
Subplot:	1	2	3	4	5
Subplot score (%):	60	40	40	40	20
Average litter cover (%):	40				

Litter cover is assessed as the average percentage ground cover of litter recorded from five 1 m x 1 m plots centred at 5, 15, 25, 35, 45 m along the plot midline. Litter cover includes leaves, seeds, twigs, branchlets and branches (less than 10 cm in diameter). Assessors may also record the cover of rock, bare ground and cryptogams.

Physiography and site features

Plot Disturbance

GF Code: see Growth Form definitions in Appendix 1; N: native, E: exotic, HTE: high threat exotic; GF – circle code if 'top 3'; Cover: 0.1, 0.2, 0.3, ..., 1, 2, 3, ..., 10, 15, 20, 25, ...100% (foliage cover)
Note: 0.1% cover represents an area of approximately 63 x 63 cm or a circle about 71 cm across, 0.5% cover represents an area of approximately 1.4 x 1.4 m, and 1% = 2.0 x 2.0 m, 5% = 4 x 5 m, 25% = 10 x 10 m
Abundance: 1, 2, 3, ..., 10, 20, 30, ... 100, 200, ..., 1000, ...

Project name:	J210553				
Recorders:	Bianca Seal, Nicole Damag	**Plot ID:**	WC01	**Date:**	15/06/23

GF Code	Scientific name	Cover	Abundance	Voucher	N, E or HTE
Grass & grasslike (GG)	*Sporobolus creber (Slender Rat's Tail Grass)*	45	200		N
	Juncus effusus	2	50		E
	Medicago spp. (A Medic)	0.1	20		E
Grass & grasslike (GG)	*Bothriochloa decipiens var. decipiens (Pitted Bluegrass)*	3	500		N
Grass & grasslike (GG)	*Eragrostis leptostachya (Paddock Lovegrass)*	2	40		N
Grass & grasslike (GG)	*Anthosachne scabra (Wheatgrass, Common Wheatgrass)*	0.2	10		N
Grass & grasslike (GG)	*Rytidosperma setaceum (Small-flowered Wallaby-grass)*	0.1	2		N
	Verbena bonariensis (Purpletop)	0.1	3		E
Grass & grasslike (GG)	*Bothriochloa macra (Red Grass)*	7	1000		N
Grass & grasslike (GG)	*Cyperus gracilis (Slender Flat-sedge)*	0.3	50		N
Grass & grasslike (GG)	*Paspalum spp.*	0.3	50		N
	Hypericum perforatum (St. Johns Wort)	0.1	20		HTE
	Cirsium vulgare (Spear Thistle)	0.1	3		E
	Taraxacum officinale (Dandelion)	0.1	1		E
Grass & grasslike (GG)	*Aristida spp. (A Wiregrass)*	0.1	2		N
Grass & grasslike (GG)	*Juncus sarophorus*	0.2	4		N
	Trifolium spp. (A Clover)	0.1	1		E
Forb (FG)	*Rumex spp. (Dock)*	0.1	1		N

BAM Site – Field Survey Form

Plot ID:	WC02	**Date:**	15/06/23	**Project number:**	J210553	**Plot dimensions:**	20x50
Datum:	GDA94	**Easting:**	740,935	**Recorders:**	Bianca Seal		
Zone:	55	**Northing:**	6,439,742	**IBRA region:**	NSW South Western Slopes (Inland Slopes)	**Midline bearing:**	120
Plant Community Type:	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			**Condition class:**	DNG	**PCT confidence:**	high
Vegetation Class:	Western Slopes Dry Sclerophyll Forests			**EEC:**	no	**EEC confidence:**	high

Record easting and northing at 0 m on midline. Dimensions (Shape) of 0.04 ha base plot.

BAM Attribute (400 m2 plot)		Sum values
Count of Native Richness	Trees:	0
	Shrubs:	0
	Grasses etc.:	10
	Forbs:	0
	Ferns:	0
	Other:	0
Sum of Cover of native vascular plants by growth form group	Trees:	0
	Shrubs:	0
	Grasses etc.:	76.5
	Forbs:	0
	Ferns:	0
	Other:	0
High Threat Weed cover:		0.2

BAM Attribute (1000 m2 plot) DBH			
DBH	Tree stem count	Length of logs (m) (≥10 cm diameter, >50 cm in length)	0
80 + cm:	0		
50 – 79 cm:	0		
30 – 49 cm:	0		
20 – 29 cm:	0	Tree hollow count	0
10 – 19 cm:	0		
5 – 9 cm:	0		
< 5 cm:	0		

Counts apply when no. of tree stems within a size class is ≤ 10. Estimates can be used when > 10 (eg. 10, 20, 30..., 100, 200, 300...). For multi-stemmed tree, only largest living stem is included in the count. Tree stems must be living.
For hollows, count only the presence of a stem containing hollows. For a multi-stemmed tree, only the largest stem is included in the count/estimate. Stems may be dead and may be shrubs.

BAM Attribute (1 x 1 m plots)	Litter cover (%)				
Subplot:	1	2	3	4	5
Subplot score (%):	50	60	25	20	40
Average litter cover (%):	39				

Litter cover is assessed as the average percentage ground cover of litter recorded from five 1 m x 1 m plots centred at 5, 15, 25, 35, 45 m along the plot midline. Litter cover includes leaves, seeds, twigs, branchlets and branches (less than 10 cm in diameter). Assessors may also record the cover of rock, bare ground and cryptogams.

Physiography and site features

Plot Disturbance

GF Code: see Growth Form definitions in Appendix 1; N: native, E: exotic, HTE: high threat exotic; GF – circle code if 'top 3'; Cover: 0.1, 0.2, 0.3, ..., 1, 2, 3, ..., 10, 15, 20, 25, ...100% (foliage cover)
Note: 0.1% cover represents an area of approximately 63 x 63 cm or a circle about 71 cm across, 0.5% cover represents an area of approximately 1.4 x 1.4 m, and 1% = 2.0 x 2.0 m, 5% = 4 x 5 m, 25% = 10 x 10 m
Abundance: 1, 2, 3, ..., 10, 20, 30, ... 100, 200, ..., 1000, ...

Project name:	J210553				
Recorders:	Bianca Seal	**Plot ID:**	WC02	**Date:**	15/06/23

GF Code	Scientific name	Cover	Abundance	Voucher	N, E or HTE
Grass & grasslike (GG)	*Sporobolus creber (Slender Rat's Tail Grass)*	50	1000		N
Grass & grasslike (GG)	*Dichelachne spp. (A Plumegrass)*	2	30		N
Grass & grasslike (GG)	*Aristida vagans (Threeawn Speargrass)*	10	500		N
	Juncus effusus	5	200		E
	Hypericum perforatum (St. Johns Wort)	0.2	50		HTE
	Taraxacum officinale (Dandelion)	0.5	100		E
Grass & grasslike (GG)	*Eragrostis leptostachya (Paddock Lovegrass)*	3	400		N
Grass & grasslike (GG)	*Anthosachne scabra (Wheatgrass, Common Wheatgrass)*	0.1	10		N
Grass & grasslike (GG)	*Bothriochloa decipiens var. decipiens (Pitted Bluegrass)*	10	500		N
Grass & grasslike (GG)	*Digitaria spp. (A Finger Grass)*	1	30		N
Grass & grasslike (GG)	*Paspalidium albovillosum*	0.1	1		N
Grass & grasslike (GG)	*Eragrostis brownii (Brown's Lovegrass)*	0.2	10		N
Grass & grasslike (GG)	*Aristida spp. (A Wiregrass)*	0.1	1		N

BAM Site – Field Survey Form

Plot ID:	WC03	**Date:**	15/06/23	**Project number:**	J210553	**Plot dimensions:**	50×20
Datum:	GDA94	**Easting:**	741,557	**Recorders:**	Bianca Seal, Nicole Damag		
Zone:	55	**Northing:**	6,439,232	**IBRA region:**	NSW South Western Slopes (Inland Slopes)	**Midline bearing:**	213
Plant Community Type:		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		**Condition class:**	DNG	**PCT confidence:**	high
Vegetation Class:		Western Slopes Dry Sclerophyll Forests		**EEC:**	no	**EEC confidence:**	high

Record easting and northing at 0 m on midline. Dimensions (Shape) of 0.04 ha base plot.

BAM Attribute (400 m2 plot)		Sum values
Count of Native Richness	Trees:	0
	Shrubs:	0
	Grasses etc.:	10
	Forbs:	1
	Ferns:	0
	Other:	0
Sum of Cover of native vascular plants by growth form group	Trees:	0
	Shrubs:	0
	Grasses etc.:	56.4
	Forbs:	0.1
	Ferns:	0
	Other:	0
High Threat Weed cover:		0.2

BAM Attribute (1000 m2 plot) DBH			
DBH	Tree stem count	Length of logs (m) (≥10 cm diameter, >50 cm in length)	0
80 + cm:	0		
50 – 79 cm:	0		
30 – 49 cm:	0		
20 – 29 cm:	0	Tree hollow count	0
10 – 19 cm:	0		
5 – 9 cm:	0		
< 5 cm:	0		

Counts apply when no. of tree stems within a size class is ≤ 10. Estimates can be used when > 10 (eg. 10, 20, 30..., 100, 200, 300...). For multi-stemmed tree, only largest living stem is included in the count. Tree stems must be living.
For hollows, count only the presence of a stem containing hollows. For a multi-stemmed tree, only the largest stem is included in the count/estimate. Stems may be dead and may be shrubs.

BAM Attribute (1 x 1 m plots)	Litter cover (%)				
Subplot:	1	2	3	4	5
Subplot score (%):	45	15	20	15	10
Average litter cover (%):	21				

Litter cover is assessed as the average percentage ground cover of litter recorded from five 1 m x 1 m plots centred at 5, 15, 25, 35, 45 m along the plot midline. Litter cover includes leaves, seeds, twigs, branchlets and branches (less than 10 cm in diameter). Assessors may also record the cover of rock, bare ground and cryptogams.

Physiography and site features

Plot Disturbance

GF Code: see Growth Form definitions in Appendix 1; N: native, E: exotic, HTE: high threat exotic; GF – circle code if 'top 3'; Cover: 0.1, 0.2, 0.3, ..., 1, 2, 3, ..., 10, 15, 20, 25, ...100% (foliage cover)
Note: 0.1% cover represents an area of approximately 63 x 63 cm or a circle about 71 cm across, 0.5% cover represents an area of approximately 1.4 x 1.4 m, and 1% = 2.0 x 2.0 m, 5% = 4 x 5 m, 25% = 10 x 10 m
Abundance: 1, 2, 3, ..., 10, 20, 30, ... 100, 200, ..., 1000, ...

Project name:	J210553				
Recorders:	Bianca Seal, Nicole Damag	**Plot ID:**	WC03	**Date:**	15/06/23

GF Code	Scientific name	Cover	Abundance	Voucher	N, E or HTE
Grass & grasslike (GG)	*Sporobolus creber (Slender Rat's Tail Grass)*	40	1000		N
Grass & grasslike (GG)	*Bothriochloa decipiens var. decipiens (Pitted Bluegrass)*	10	500		N
	Cirsium vulgare (Spear Thistle)	0.3	50		E
	Juncus effusus	15	500		E
	Setaria parviflora	0.1	1		E
	Hypericum perforatum (St. Johns Wort)	0.2	10		HTE
Grass & grasslike (GG)	*Eragrostis leptostachya (Paddock Lovegrass)*	1	50		N
Grass & grasslike (GG)	*Rytidosperma spp.*	0.1	20		N
Grass & grasslike (GG)	*Cynodon dactylon (Common Couch)*	1	50		N
Grass & grasslike (GG)	*Eragrostis brownii (Brown's Lovegrass)*	1	30		N
Grass & grasslike (GG)	*Aristida vagans (Threeawn Speargrass)*	2	100		N
Grass & grasslike (GG)	*Cyperus spp.*	0.1	2		N
	Taraxacum officinale (Dandelion)	0.1	20		E
Grass & grasslike (GG)	*Anthosachne scabra (Wheatgrass, Common Wheatgrass)*	0.2	20		N
Forb (FG)	*Rumex spp. (Dock)*	0.1	1		N
Grass & grasslike (GG)	*Carex appressa (Tall Sedge)*	1	4		N
	Medicago spp. (A Medic)	0.1	1		E

BAM Site – Field Survey Form

Plot ID:	WC04	**Date:**	15/06/23	**Project number:**	J210553	**Plot dimensions:**	20×50
Datum:	GDA94	**Easting:**	741,357	**Recorders:**	Bianca Seal, Nicole Damag		
Zone:	55	**Northing:**	6,439,073	**IBRA region:**	NSW South Western Slopes (Inland Slopes)	**Midline bearing:**	219
Plant Community Type:		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		**Condition class:**	DNG	**PCT confidence:**	high
Vegetation Class:		Western Slopes Dry Sclerophyll Forests		**EEC:**	no	**EEC confidence:**	high

Record easting and northing at 0 m on midline. Dimensions (Shape) of 0.04 ha base plot.

BAM Attribute (400 m2 plot)		Sum values
Count of Native Richness	Trees:	0
	Shrubs:	0
	Grasses etc.:	8
	Forbs:	2
	Ferns:	0
	Other:	0
Sum of Cover of native vascular plants by growth form group	Trees:	0
	Shrubs:	0
	Grasses etc.:	73.2
	Forbs:	0.2
	Ferns:	0
	Other:	0
High Threat Weed cover:		0

BAM Attribute (1000 m2 plot) DBH			
DBH	Tree stem count	Length of logs (m) (≥10 cm diameter, >50 cm in length)	0
80 + cm:	0		
50 – 79 cm:	0		
30 – 49 cm:	0		
20 – 29 cm:	0	Tree hollow count	0
10 – 19 cm:	0		
5 – 9 cm:	0		
< 5 cm:	0		

Counts apply when no. of tree stems within a size class is ≤ 10. Estimates can be used when > 10 (eg. 10, 20, 30..., 100, 200, 300...). For multi-stemmed tree, only largest living stem is included in the count. Tree stems must be living.
For hollows, count only the presence of a stem containing hollows. For a multi-stemmed tree, only the largest stem is included in the count/estimate. Stems may be dead and may be shrubs.

BAM Attribute (1 x 1 m plots)	Litter cover (%)				
Subplot:	1	2	3	4	5
Subplot score (%):	15	10	10	20	0
Average litter cover (%):	11				

Litter cover is assessed as the average percentage ground cover of litter recorded from five 1 m x 1 m plots centred at 5, 15, 25, 35, 45 m along the plot midline. Litter cover includes leaves, seeds, twigs, branchlets and branches (less than 10 cm in diameter). Assessors may also record the cover of rock, bare ground and cryptogams.

Physiography and site features

Plot Disturbance

GF Code: see Growth Form definitions in Appendix 1; N: native, E: exotic, HTE: high threat exotic; GF – circle code if 'top 3'; Cover: 0.1, 0.2, 0.3, ..., 1, 2, 3, ..., 10, 15, 20, 25, ...100% (foliage cover)
Note: 0.1% cover represents an area of approximately 63 x 63 cm or a circle about 71 cm across, 0.5% cover represents an area of approximately 1.4 x 1.4 m, and 1% = 2.0 x 2.0 m, 5% = 4 x 5 m, 25% = 10 x 10 m
Abundance: 1, 2, 3, ..., 10, 20, 30, ... 100, 200, ..., 1000, ...

Project name:	J210553				
Recorders:	Bianca Seal, Nicole Damag	**Plot ID:**	WC04	**Date:**	15/06/23

GF Code	Scientific name	Cover	Abundance	Voucher	N, E or HTE
Grass & grasslike (GG)	*Sporobolus creber (Slender Rat's Tail Grass)*	50	1000		N
	Juncus effusus	15	200		E
Grass & grasslike (GG)	*Aristida vagans (Threeawn Speargrass)*	2	200		N
Grass & grasslike (GG)	*Carex appressa (Tall Sedge)*	0.2	2		N
Grass & grasslike (GG)	*Cynodon dactylon (Common Couch)*	10	1000		N
Forb (FG)	*Rumex spp. (Dock)*	0.1	10		N
	Verbena bonariensis (Purpletop)	0.1	2		E
Grass & grasslike (GG)	*Eragrostis leptostachya (Paddock Lovegrass)*	3	50		N
Grass & grasslike (GG)	*Rytidosperma setaceum (Small-flowered Wallaby-grass)*	1	20		N
Grass & grasslike (GG)	*Anthosachne scabra (Wheatgrass, Common Wheatgrass)*	2	50		N
Grass & grasslike (GG)	*Bothriochloa decipiens var. decipiens (Pitted Bluegrass)*	5	100		N
Forb (FG)	*Plantago spp. (Plantain)*	0.1	1		N

BAM Site – Field Survey Form

Plot ID:	WC05	**Date:**	16/06/23	**Project number:**	J210553	**Plot dimensions:**	20×50
Datum:	GDA94	**Easting:**	741,515	**Recorders:**	ND, BS		
Zone:	55	**Northing:**	6,438,117	**IBRA region:**	NSW South Western Slopes (Inland Slopes)	**Midline bearing:**	266
Plant Community Type:		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		**Condition class:**	Moderate	**PCT confidence:**	high
Vegetation Class:		Western Slopes Dry Sclerophyll Forests		**EEC:**	no	**EEC confidence:**	high

Record easting and northing at 0 m on midline. Dimensions (Shape) of 0.04 ha base plot.

BAM Attribute (400 m2 plot)		Sum values
Count of Native Richness	Trees:	1
	Shrubs:	1
	Grasses etc.:	11
	Forbs:	0
	Ferns:	0
	Other:	0
Sum of Cover of native vascular plants by growth form group	Trees:	8
	Shrubs:	2
	Grasses etc.:	43
	Forbs:	0
	Ferns:	0
	Other:	0
High Threat Weed cover:		0

BAM Attribute (1000 m2 plot) DBH			
DBH	Tree stem count	Length of logs (m) (≥10 cm diameter, >50 cm in length)	18
80 + cm:	1		
50 – 79 cm:	2		
30 – 49 cm:	0		
20 – 29 cm:	0	Tree hollow count	0
10 – 19 cm:	0		
5 – 9 cm:	0		
< 5 cm:	0		

Counts apply when no. of tree stems within a size class is ≤ 10. Estimates can be used when > 10 (eg. 10, 20, 30..., 100, 200, 300...). For multi-stemmed tree, only largest living stem is included in the count. Tree stems must be living.
For hollows, count only the presence of a stem containing hollows. For a multi-stemmed tree, only the largest stem is included in the count/estimate. Stems may be dead and may be shrubs.

BAM Attribute (1 x 1 m plots)	Litter cover (%)				
Subplot:	1	2	3	4	5
Subplot score (%):	40	5	5	10	10
Average litter cover (%):	14				

Litter cover is assessed as the average percentage ground cover of litter recorded from five 1 m x 1 m plots centred at 5, 15, 25, 35, 45 m along the plot midline. Litter cover includes leaves, seeds, twigs, branchlets and branches (less than 10 cm in diameter). Assessors may also record the cover of rock, bare ground and cryptogams.

Physiography and site features

Plot Disturbance

GF Code: see Growth Form definitions in Appendix 1; N: native, E: exotic, HTE: high threat exotic; GF – circle code if 'top 3'; Cover: 0.1, 0.2, 0.3, ..., 1, 2, 3, ..., 10, 15, 20, 25, ...100% (foliage cover)
Note: 0.1% cover represents an area of approximately 63 x 63 cm or a circle about 71 cm across, 0.5% cover represents an area of approximately 1.4 x 1.4 m, and 1% = 2.0 x 2.0 m, 5% = 4 x 5 m, 25% = 10 x 10 m
Abundance: 1, 2, 3, ..., 10, 20, 30, ... 100, 200, ..., 1000, ...

Project name:	J210553				
Recorders:	ND, BS	**Plot ID:**	WC05	**Date:**	16/06/23

GF Code	Scientific name	Cover	Abundance	Voucher	N, E or HTE
Tree (TG)	*Eucalyptus sideroxylon (Mugga Ironbark)*	8	2		N
Grass & grasslike (GG)	*Sporobolus creber (Slender Rat's Tail Grass)*	5	200		N
Grass & grasslike (GG)	*Rytidosperma setaceum (Small-flowered Wallaby-grass)*	1	50		N
Shrub (SG)	*Maireana microphylla (Small-leaf Bluebush)*	2	11		N
	Cirsium vulgare (Spear Thistle)	0.2	5		E
Grass & grasslike (GG)	*Eragrostis leptostachya (Paddock Lovegrass)*	2	100		N
Grass & grasslike (GG)	*Aristida vagans (Threeawn Speargrass)*	20	1000		N
Grass & grasslike (GG)	*Bothriochloa decipiens var. decipiens (Pitted Bluegrass)*	1	50		N
Grass & grasslike (GG)	*Cynodon dactylon (Common Couch)*	10	1000		N
	Juncus effusus	5	80		E
Grass & grasslike (GG)	*Anthosachne scabra (Wheatgrass, Common Wheatgrass)*	0.8	40		N
	Taraxacum officinale (Dandelion)	0.1	20		E
Grass & grasslike (GG)	*Austrostipa spp. (A Speargrass)*	2	100		N
Grass & grasslike (GG)	*Dichelachne spp. (A Plumegrass)*	1	40		N
Grass & grasslike (GG)	*Panicum effusum (Hairy Panic)*	0.1	10		N
	Gamochaeta spp.	0.1	20		E
Grass & grasslike (GG)	*Cyperus spp.*	0.1	5		N

BAM Site – Field Survey Form

Plot ID:	WC06	**Date:**	16/06/23	**Project number:**	J210553	**Plot dimensions:**	20×50
Datum:	GDA94	**Easting:**	741,648	**Recorders:**	Bianca Seal, Nicole Damag		
Zone:	55	**Northing:**	6,439,009	**IBRA region:**	NSW South Western Slopes (Inland Slopes)	**Midline bearing:**	129
Plant Community Type:		281: Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion		**Condition class:**	Pasture	**PCT confidence:**	high
Vegetation Class:		Western Slopes Grassy Woodlands		**EEC:**	no	**EEC confidence:**	high

Record easting and northing at 0 m on midline. Dimensions (Shape) of 0.04 ha base plot.

BAM Attribute (400 m2 plot)		Sum values
Count of Native Richness	Trees:	0
	Shrubs:	0
	Grasses etc.:	9
	Forbs:	0
	Ferns:	0
	Other:	0
Sum of Cover of native vascular plants by growth form group	Trees:	0
	Shrubs:	0
	Grasses etc.:	65.3
	Forbs:	0
	Ferns:	0
	Other:	0
High Threat Weed cover:		0

BAM Attribute (1000 m2 plot) DBH			
DBH	Tree stem count	Length of logs (m) (≥10 cm diameter, >50 cm in length)	0
80 + cm:	0		
50 – 79 cm:	0		
30 – 49 cm:	0		
20 – 29 cm:	0	Tree hollow count	0
10 – 19 cm:	0		
5 – 9 cm:	0		
< 5 cm:	0		

Counts apply when no. of tree stems within a size class is ≤ 10. Estimates can be used when > 10 (eg. 10, 20, 30..., 100, 200, 300...). For multi-stemmed tree, only largest living stem is included in the count. Tree stems must be living.
For hollows, count only the presence of a stem containing hollows. For a multi-stemmed tree, only the largest stem is included in the count/estimate. Stems may be dead and may be shrubs.

BAM Attribute (1 x 1 m plots)	Litter cover (%)				
Subplot:	1	2	3	4	5
Subplot score (%):	5	10	5	5	5
Average litter cover (%):	6				

Litter cover is assessed as the average percentage ground cover of litter recorded from five 1 m x 1 m plots centred at 5, 15, 25, 35, 45 m along the plot midline. Litter cover includes leaves, seeds, twigs, branchlets and branches (less than 10 cm in diameter). Assessors may also record the cover of rock, bare ground and cryptogams.

Physiography and site features

Plot Disturbance

GF Code: see Growth Form definitions in Appendix 1; N: native, E: exotic, HTE: high threat exotic; GF – circle code if 'top 3'; Cover: 0.1, 0.2, 0.3, ..., 1, 2, 3, ..., 10, 15, 20, 25, ...100% (foliage cover)
Note: 0.1% cover represents an area of approximately 63 x 63 cm or a circle about 71 cm across, 0.5% cover represents an area of approximately 1.4 x 1.4 m, and 1% = 2.0 x 2.0 m, 5% = 4 x 5 m, 25% = 10 x 10 m
Abundance: 1, 2, 3, ..., 10, 20, 30, ... 100, 200, ..., 1000, ...

Project name:	J210553				
Recorders:	Bianca Seal, Nicole Damag	**Plot ID:**	WC06	**Date:**	16/06/23

GF Code	Scientific name	Cover	Abundance	Voucher	N, E or HTE
Grass & grasslike (GG)	*Sporobolus creber (Slender Rat's Tail Grass)*	50	1000		N
	Cirsium vulgare (Spear Thistle)	0.2	20		E
Grass & grasslike (GG)	*Juncus sarophorus*	0.2	5		N
Grass & grasslike (GG)	*Eragrostis leptostachya (Paddock Lovegrass)*	3	1000		N
Grass & grasslike (GG)	*Cynodon dactylon (Common Couch)*	2	1000		N
Grass & grasslike (GG)	*Bothriochloa decipiens var. decipiens (Pitted Bluegrass)*	5	500		N
Grass & grasslike (GG)	*Carex appressa (Tall Sedge)*	3	15		N
Grass & grasslike (GG)	*Anthosachne scabra (Wheatgrass, Common Wheatgrass)*	1	100		N
	Verbena bonariensis (Purpletop)	0.1	1		E
Grass & grasslike (GG)	*Chloris truncata (Windmill Grass)*	0.1	1		N
Grass & grasslike (GG)	*Aristida spp. (A Wiregrass)*	1	100		N
	Taraxacum officinale (Dandelion)	0.1	10		E
	Medicago spp. (A Medic)	0.1	1		E
	Juncus effusus	5	1000		E

Attachment 3

Vegetation integrity plot data

EMM
creating opportunities

plot	pct	area	patchsize	conditionclass	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
Plot 12	80	1.00	100	High	55	734659	6445751	299	1	4	12	12	1	2	30.0	25.3	57.3	22.9	0.1	0.6	7	3	53.0	58.0	1	0	1	0	1	1	0.0
Plot 7	80	1.00	100	High	55	734311	6443809	230	1	3	10	15	1	2	35.0	1.2	68.5	22.3	0.1	0.6	2	2	78.0	4.0	1	1	1	1	0	1	0.0
Plot 9	80	1.00	100	High	55	734626	6444579	72	1	3	8	17	1	2	35.0	1.3	20.6	64.5	0.5	1.2	3	2	85.0	28.0	1	1	1	1	1	1	1.0
Plot 13	80	1.00	100	Pasture	55	739938	6439825	130	0	0	12	6	0	2	0.0	0.0	102.9	1.0	0.0	0.2	0	0	4.8	0.0	0	0	0	0	0	0	5.1
Plot 24	80	1.00	100	Pasture	55	740537	6440500	214	0	0	7	3	0	0	0.0	0.0	71.0	0.3	0.0	0.0	0	0	2.2	0.0	0	0	0	0	0	0	0.0
Plot 25	80	1.00	100	Pasture	55	740283	6440286	179	0	0	4	1	0	0	0.0	0.0	80.0	0.1	0.0	0.0	0	0	3.4	0.0	0	0	0	0	0	0	0.3
Plot 26	80	1.00	100	Pasture	55	739954	6440002	209	0	0	5	1	0	0	0.0	0.0	65.5	0.1	0.0	0.0	0	0	3.6	0.0	0	0	0	0	0	0	0.1
Plot 27	80	1.00	100	Pasture	55	739668	6440271	242	0	0	7	1	0	1	0.0	0.0	26.2	0.1	0.0	0.2	0	0	7.2	0.0	0	0	0	0	0	0	25.2
Plot 21	80	1.00	100	Poor	55	738605	6439996	81	1	1	3	5	0	0	20.0	0.1	2.2	2.8	0.0	0.0	4	1	6.0	13.0	0	0	1	1	1	0	1.3
Plot 10	281	1.00	100	High	55	734653	6444949	24	3	3	12	12	1	1	17.0	0.7	75.0	8.2	0.1	1.0	7	5	64.0	78.0	1	1	1	1	1	1	0.1
Plot 11	281	1.00	100	High	55	734703	6445341	7	3	2	13	11	1	2	39.0	0.7	62.7	38.4	0.1	0.4	5	3	76.0	68.0	1	1	1	1	1	1	1.1
Plot 23	281	1.00	100	High	55	734310	6442578	316	2	3	12	9	1	2	21.0	0.4	4.2	13.6	0.2	0.2	2	1	25.0	29.0	1	1	1	1	1	1	0.4
Plot 8	281	1.00	100	High	55	734481	6444171	26	3	3	8	18	1	2	35.0	0.8	38.1	11.1	0.1	2.5	5	0	75.0	26.0	1	1	1	1	1	1	0.1
Plot 22	281	1.00	100	Medium	55	735012	6442676	343	3	2	7	3	0	1	17.5	3.1	2.5	0.3	0.0	0.1	4	2	20.0	37.0	1	1	1	1	1	1	25.3
Plot 1	281	1.00	100	Pasture	55	734804	6443167	165	0	0	3	6	0	0	0.0	0.0	22.1	0.7	0.0	0.0	0	0	1.4	0.0	0	0	0	0	0	0	7.0
Plot 18	281	1.00	100	Pasture	55	736284	6441872	282	0	0	6	1	0	0	0.0	0.0	71.1	0.1	0.0	0.0	0	0	2.6	0.0	0	0	0	0	0	0	0.0
Plot 2	281	1.00	100	Pasture	55	734516	6442500	94	0	0	3	7	0	0	0.0	0.0	10.5	3.0	0.0	0.0	0	0	2.0	0.0	0	0	0	0	0	0	30.0
Plot 3	281	1.00	100	Pasture	55	737929	6442220	246	0	0	2	7	1	0	0.0	0.0	10.5	1.6	0.1	0.0	0	0	0.2	0.0	0	0	0	0	0	0	1.5
Plot 4	281	1.00	100	Pasture	55	735459	6441870	232	0	0	3	8	0	0	0.0	0.0	46.0	2.7	0.0	0.0	0	0	0.4	0.0	0	0	0	0	0	0	0.3
Plot 5	281	1.00	100	Pasture	55	736043	6444223	81	0	0	5	5	0	0	0.0	0.0	32.2	6.7	0.0	0.0	0	0	2.6	0.0	0	0	0	0	0	0	0.4
Plot 6	281	1.00	100	Pasture	55	736360	6444702	237	0	0	2	6	0	0	0.0	0.0	0.2	1.1	0.0	0.0	0	0	1.0	0.0	0	0	0	0	0	0	40.0
Plot 1	281	1.00	100	Pasture	55	734804	6443167	165	0	0	3	6	0	0	0.0	0.0	22.1	0.7	0.0	0.0	0	0	1.4	0.0	0	0	0	0	0	0	7.0
Plot 20	281	1.00	100	Planted	55	738863	6441803	216	1	1	7	4	0	1	10.0	1.0	36.7	0.5	0.0	0.1	1	1	13.4	15.0	1	1	1	1	0	1	2.5
Plot 19	281	1.00	100	Planted	55	737008	6442438	271	2	0	9	2	0	0	5.5	0.0	17.6	0.3	0.0	0.0	1	0	3.2	20.0	0	0	1	1	1	0	0.9
Plot 15	281	1.00	100	Poor	55	735172	6443738	193	3	0	6	3	0	0	10.1	0.0	8.8	0.7	0.0	0.0	6	2	3.4	35.0	0	1	1	1	1	0	0.7
Plot 16	281	1.00	100	Poor	55	735125	6443554	331	2	0	11	3	0	1	7.0	0.0	2.8	0.3	0.0	0.1	5	1	7.0	25.0	0	1	1	1	1	0	0.6
Plot 17	281	1.00	100	Poor	55	735023	6442727	341	1	0	8	0	0	0	10.0	0.0	6.3	0.0	0.0	0.0	5	4	17.0	16.0	0	0	0	0	1	0	50.3
WC01	479	1.00	100	DNG	55	740400	6440076	332	0	0	10	1	0	0	0.0	0.0	58.2	0.1	0.0	0.0	0	0	40.0	0.0	0	0	0	0	0	0	0.1
WC02	479	1.00	100	DNG	55	740935	6439742	120	0	0	10	0	0	0	0.0	0.0	76.5	0.0	0.0	0.0	0	0	39.0	0.0	0	0	0	0	0	0	0.2

plot	pct	area	patchsize	conditionclass	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
Plot 12	80	1.00	100	High	55	734659	6445751	299	1	4	12	12	1	2	30.0	25.3	57.3	22.9	0.1	0.6	7	3	53.0	58.0	1	0	1	0	1	1	0.0
WC03	479	1.00	100	DNG	55	741557	6439232	213	0	0	10	1	0	0	0.0	0.0	56.4	0.1	0.0	0.0	0	0	21.0	0.0	0	0	0	0	0	0	0.2
WC04	479	1.00	100	DNG	55	741357	6439073	219	0	0	8	2	0	0	0.0	0.0	73.2	0.2	0.0	0.0	0	0	11.0	0.0	0	0	0	0	0	0	0.0
E01	0	1.00	100	Exotic	55	739,698	6,441,197	175	0	0	2	1	0	0	0.0	0.0	5.5	5.0	0.0	0.0		0	31.0	0.0	0	0	0	0	0	0	6.0
E02	0	1.00	100	Exotic	55	735,761	6,442,280	67	0	0	2	2	0	0	0.0	0.0	26.0	3.1	0.0	0.0		0	7.0	0.0	0	0	0	0	0	0	20.5

Attachment 4

Rapid vegetation assessment – exotic grassland

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4.1 Rapid vegetation assessment – exotic grassland

Table A4.1 Rapid vegetation assessment – exotic grassland

RVA ID	RVA description	Photo
39	*Lolium* sp. dominated. *Sporobolus creber* present.	
40	*Lolium* sp. prevalent. *Sporobolus creber* dominated.	

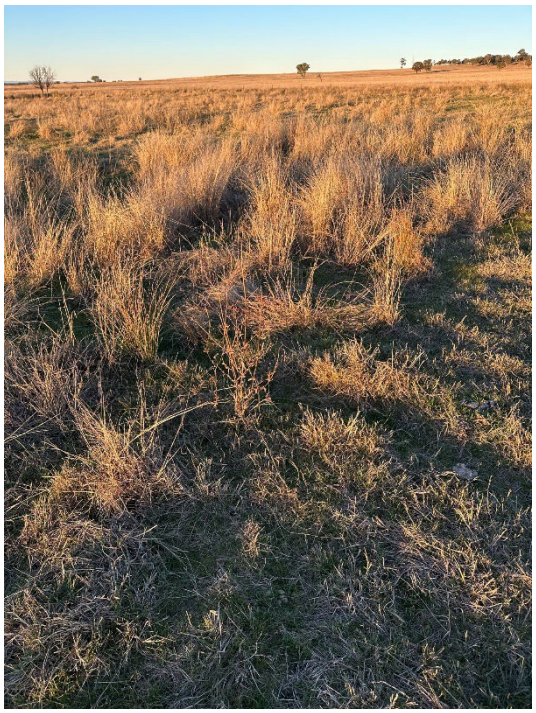
Table A4.1 Rapid vegetation assessment – exotic grassland

RVA ID	RVA description	Photo
41	*Lolium* sp. prevalent. *Sporobolus creber* dominated. *Juncus* sp. in drainage lines.	
42	*Juncus* sp. dominated. *Trifolium* sp. and *Lolium* also present.	
43	*Sporobolus creber*, *Lolium* sp. and *Trifolium* sp. *Juncus* sp. in drainage lines	

Table A4.1 Rapid vegetation assessment – exotic grassland

RVA ID	RVA description	Photo
44	*Sporobolus creber* dominant. *Lolium* sp. and *Juncus* sp. also prevalent	
45	*Trifolium* sp. and *Lolium* sp. dominant. *Sporobolus creber* present.	
46	*Lolium* sp., *Sporobolus creber, and Juncus* sp.	

Table A4.1 Rapid vegetation assessment – exotic grassland

RVA ID	RVA description	Photo
47	*Lolium* sp. and *Sporobolus creber* present. Sparse presence of *Verbena* sp. and *Conyza* sp. Sparse presence of *Juncus* sp. in lower areas and drainage lines.	
48	*Juncus* sp. in low lying area.	
49	*Sporobolus creber* and *Lolium* sp.	

Attachment 5

Correspondence with BCD (owl surveys)

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Erin Lowe

Subject: FW: Birriwa Solar Farm (SSD-29508870) - Owl survey methods

From: Candice Larkin <candice.larkin@environment.nsw.gov.au>
Sent: Wednesday, 28 June 2023 8:46 AM
To: Luke O'Brien <lobrien@emmconsulting.com.au>
Subject: RE: Birriwa Solar Farm (SSD-29508870) - Owl survey methods

Hi Luke,

Thanks for reaching out yesterday to discuss survey methods for threatened owls at Birriwa Solar Farm.

NW Planning team are unable to provide 'endorsement' of a survey method/effort without the full detail contained within the BDAR, to provide necessary context. However, we are happy to provide in-principal support of the method detailed below and discussed in the meeting held between BCS and EMM on 27/06/23. We will conduct a full review of the survey effort and survey outcomes as part of our standard process when reviewing the BDAR for the project.

Please note, the survey effort discussed and detailed below applies to the Birriwa Solar Farm should not be considered a BCS supported method which can be applied to all sites and contexts. We are happy to discuss survey approaches for different projects if you wish to seek further guidance in the future.

Many thanks
Candice Larkin
A/Senior Conservation Planning Officer - Planning North West

Biodiversity, Conservation and Science Directorate | Department of Planning and Environment
T 02 8217 2065| **E** Candice.Larkin@environment.nsw.gov.au
845 Hunter Street, Newcastle NSW 2300
www.dpie.nsw.gov.au

NSW GOVERNMENT

The Department of Planning and Environment acknowledges that it stands on Aboriginal land.
We acknowledge the traditional custodians of the land and we show our respect for elders past, present and emerging through thoughtful and collaborative approaches to our work, seeking to demonstrate our ongoing commitment to providing places in which Aboriginal people are included socially, culturally and economically.

From: Luke O'Brien <lobrien@emmconsulting.com.au>
Sent: Tuesday, 27 June 2023 3:25 PM
To: Candice Larkin <candice.larkin@environment.nsw.gov.au>; Erin Lowe <elowe@emmconsulting.com.au>
Subject: Birriwa Solar Farm (SSD-29508870) - Owl survey methods

Hi Candance,

Thank you for meeting with Erin and I today.

I'm emailing to kindly request your endorsement of our targeted owl survey methods for the Birriwa Solar Farm (SSD-29508870).

As discussed in the meeting, our survey approach includes the following activities:

- Inspections around the base of each suitable Hollow-bearing tree (HBT) (in accordance with the habitat constraint listed in the BioNet Threatened Biodiversity Data Collection (TBDC) for each owl species) to search for owl signs, such as regurgitated pellets, whitewash, and discarded prey items.
- Conducting a number of Call playback surveys for Powerful Owl, Masked Owl, and Barking Owl. These surveys will help us gather information for indirect impact assessment in case an owl is detected, but no breeding sites are observed within the study area (thank you for the information on the recent records of both Barking Owl and Powerful Owl in the forested areas of Barneys Reef, south of our subject land).
- If owl sign is present at the base of a suitable HBT, stag watching will be conducted on two separate nights: 30 minutes before dusk and one hour after dusk. If no owl sign is observed at the base of suitable HBTs, we will prioritise stag-watching HBTs with hollows that appear most preferable for owls.

We will undertake two weeks of survey separated by two weeks. This will total 10 nights of survey.

Kind regards,

Luke O'Brien
Ecologist
EMM creating opportunities
T 02 4907 4800
M 0448 864 508
D 02 4907 4856
Connect with us
NEWCASTLE | Level 3, 175 Scott Street, Newcastle NSW 2300

Climate Active Carbon Neutral ORGANISATION

Attachment 6

Hollow bearing tree data

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Table A.6.1 Hollow bearing trees within or adjacent to the subject land

Tree species	DBH (cm)	Number of small hollows (<5 cm)	Number of medium hollows (5–20 cm)	Number of large hollows (>20 cm)	Notes	Within subject land?
Angophora floribunda	110	1	1	0		0
Stag	130	1	1	0		0
Angophora floribunda	0	1	1	0		0
Angophora floribunda	0	0	1	0		0
Stag	0	0	1	0		0
Angophora floribunda	0	0	1	0		0
Stag	0	3	2	0		0
-	0	1	2	0		0
Eucalyptus blakelyi	100	1	1	0		0
Eucalyptus blakelyi	0	2	1	0		0
Eucalyptus blakelyi	0	3	2	1		0
Eucalyptus blakelyi	105	3	1	0		0
-	0	0	1	0		0
Stag	0	3	0	0		0
Angophora floribunda	0	1	1	0		0
Angophora floribunda	0	0	1	0		0
Eucalyptus blakelyi	0	0	1	0		0
Stag	0	1	2	0		0
Eucalyptus melliodora	0	1	1	0		0
Eucalyptus melliodora	50	0	1	0		0
Eucalyptus melliodora	70	0	1	0		0
Eucalyptus melliodora	0	0	1	0		0
Eucalyptus melliodora	0	1	1	0		0
Eucalyptus melliodora	115	3	0	1		0
Angophora floribunda	90	4	2	0		0
Eucalyptus melliodora	0	1	2	2		0
Eucalyptus melliodora	120	4	2	1		0
Angophora floribunda	75	0	1	0		0
Eucalyptus melliodora	130	1	1	0		0
Eucalyptus crebra	70	0	1	0	10 m high	0

Table A.6.1 Hollow bearing trees within or adjacent to the subject land

Tree species	DBH (cm)	Number of small hollows (<5 cm)	Number of medium hollows (5–20 cm)	Number of large hollows (>20 cm)	Notes	Within subject land?
Stag	50	0	1	0	10 m high. Chimney hollow	0
Stag	50	0	2	1	10 m high. Chimney hollow from base	0
Eucalyptus blakelyi	80	1	1	0	5 m high	0
Eucalyptus macrorhyncha	70	0	1	0	5 m high	0
Angophora floribunda	80	3	2	0	8 m high	0
Angophora floribunda	80	0	1	1	8 m high	0
Eucalyptus blakelyi	80	0	1	0	8 m high	0
Stag	75	0	0	1	Chimney hollow from top - not an owl hollow	0
Eucalyptus crebra	40	0	0	1	Chimney hollow open on top	0
Eucalyptus crebra	40	0	0	1	Chimney hollow open on top at 6 m above ground	0
Eucalyptus crebra	85	0	0	0	Chimney hollow open on top at 6 m above ground	0
Eucalyptus crebra	40	0	0	1	Chimney hollow open on top.	0
Stag	60	4	0	1	Chimney hollow- not suitable for owls	0
Stag	75	1	2	1	5 m above ground	0
Eucalyptus blakelyi	85	1	1	1	Hollow >20 cm is at 3 m above ground; 5-20 cm is at 6 m	0
Eucalyptus macrorhyncha	112	3	0	0	Hollow >40 cm at about 6–7 m above ground	0
Eucalyptus blakelyi	81	1	1	0	Hollow 5–20 cm at 8 m above ground	0
Eucalyptus crebra	80	1	1	0	Hollow 5–20 cm at 9–10 m above ground	0
Eucalyptus crebra	72	1	1	0	Hollow 5–20 cm: at about 15 m above ground	0
Eucalyptus polyanthemos	69	2	1	0	Hollow 5–20 cm at 8 m above ground	0
Eucalyptus crebra	56	0	1	0	Hollow at 5 m above ground	0

Table A.6.1 Hollow bearing trees within or adjacent to the subject land

Tree species	DBH (cm)	Number of small hollows (<5 cm)	Number of medium hollows (5–20 cm)	Number of large hollows (>20 cm)	Notes	Within subject land?
Eucalyptus blakelyi	115	0	1	0	Hollow at 5 m above ground	0
Eucalyptus macrorhyncha	71	0	0	1	Hollow at 5–6 m above ground	0
Eucalyptus blakelyi	71	0	1	0	Hollow at 6 m above ground	0
Eucalyptus crebra	62	0	0	1	Hollow at 6 m above ground	0
Angophora floribunda	132	0	1	0	Hollow at 8 m height	0
Eucalyptus crebra	43	0	1	0	Hollow at about 5–6 m above ground	0
Eucalyptus crebra	107	0	1	0	Hollow at about 8 m above ground	0
Eucalyptus crebra	70	0	2	0	Hollow height 5–6 m above ground	0
Eucalyptus blakelyi	67	0	2	0	Hollows 5 m above ground, Galah in hollow at the time of inspection	0
Eucalyptus sideroxylon	85	1	2	0	Hollows 5–20 cm at 6–8 m above ground.	0
Stag	170	1	7	0	Hollows 5–20 cm: highest 16 m above ground, lowest 7 m above ground (chimney hollow open on top). DBH is just an estimate because could not be measured.	0
Eucalyptus crebra	89	1	3	0	Hollows 5–20 cm: lowest at 11 m above ground, highest at 15 m above ground.	0
Stag	89	3	4	0	Hollows 5–20 cm: lowest at 9 m and highest at 17 m above ground; Hollow >40 cm: chimney hollow open on top.	0
Eucalyptus crebra	59	3	2	0	Hollows 5–20: one at 5 m above ground, one (chimney hollow open on top) at 11 m above ground.	0

Table A.6.1 Hollow bearing trees within or adjacent to the subject land

Tree species	DBH (cm)	Number of small hollows (<5 cm)	Number of medium hollows (5–20 cm)	Number of large hollows (>20 cm)	Notes	Within subject land?
Eucalyptus crebra	87	1	3	0	Hollows 5–20: one is a chimney hollow open on top, the lowest is at 9 m above ground, the highest is at 11m above ground. Used by Galahs at the time of inspection.	0
Stag	41	0	2	1	Hollows all connected. Bigger hollow is a chimney hollow open on top.	0
Eucalyptus sideroxylon	101	0	3	0	Hollows at 11–13 m above ground. One hollow possible >20 cm but entrance cannot be seen clearly from the ground.	0
Eucalyptus sideroxylon	50	0	2	0	Hollows at 8 m above ground	0
Eucalyptus crebra	80	0	1	0	-	0
Angophora floribunda	95	0	3	1	Potential owl hollow	0
Eucalyptus blakelyi	90	0	0	1	Potential owl hollow. Brushtail possum exited during stag watching.	0
Eucalyptus crebra	80	0	2	0	Two hollows connected one at 3 m, one at 6 m above ground.	0
Eucalyptus melliodora	100	1	0	1	Upright hollow, possibly a bit low for owls. 5 m high	0
Eucalyptus macrorhyncha	81	0	1	0	12 m off ground	0
Eucalyptus melliodora	81	0	1	0	Approx. 20 cm, 10 m off ground	0
Stag	80	0	0	1	Chimney hollow. 15 m high	0
Angophora floribunda	90	0	1	0	Galah nesting	0
Eucalyptus blakelyi	93	2	3	1	Hollow >20 cm at about 5 m above ground; hollows 5-20 cm 5 m above ground lowest, 7 m above ground highest	0

Table A.6.1 Hollow bearing trees within or adjacent to the subject land

Tree species	DBH (cm)	Number of small hollows (<5 cm)	Number of medium hollows (5–20 cm)	Number of large hollows (>20 cm)	Notes	Within subject land?
Stag	99	3	3	0	Hollows 5–20 cm: highest at 17 m above ground, lowest 10 m above ground.	0
Eucalyptus blakelyi	200	2	2	1	Large hollow, low crevice, not suitable for owls	0
Eucalyptus sideroxylon	70	3	0	0	Lowest hollow 3 m above ground, highest 7 m above ground	0
Stag	45	1	0	0	-	0
Eucalyptus blakelyi	120	1	2	0	Not suitable for GB cockatoo or owls	0
Eucalyptus blakelyi	110	1	1	1	Potential for owl nesting	0
-	0	1	0	0	Potential for superb	0
Eucalyptus blakelyi	0	0	0	1	Potential owl hollow	0
Eucalyptus blakelyi	0	0	0	1	Potential owl hollow	0
Eucalyptus blakelyi	100	0	0	1	Potential owl hollow	0
Eucalyptus blakelyi	90	0	0	1	Potential owl hollow	0
Eucalyptus melliodora	0	0	1	1	Potential owl hollow about 20 cm, 8 m up	0
Eucalyptus blakelyi	125	2	1	1	Potential owl hollow present	0
Eucalyptus blakelyi	80	0	0	1	Potential owl sized hollow 30 cm. High up.	0
Eucalyptus blakelyi	90	0	1	0	Potential owl. Suboptimal at approx. 20 cm	0
Angophora floribunda	0	0	1	1	Suboptimal owl sized 20 cm hollow. 5 m high.	0
Stag	70	0	1	0	Suitable for owls	0

Attachment 7

Protected Matters Search Results

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Australian Government
Department of Agriculture, Water and the Environment

EPBC Act Protected Matters Report

This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected. Please see the caveat for interpretation of information provided here.

Report created: 25-May-2022

Summary

Matters of National Environment Significance

This part of the report summarises the matters of national environmental significance that may occur in, or may relate to, the area you nominated. Further information is available in the detail part of the report, which can be accessed by scrolling or following the links below. If you are proposing to undertake an activity that may have a significant impact on one or more matters of national environmental significance then you should consider the Administrative Guidelines on Significance.

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Importance (Ramsar	5
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	7
Listed Threatened Species:	39
Listed Migratory Species:	11

Other Matters Protected by the EPBC Act

This part of the report summarises other matters protected under the Act that may relate to the area you nominated. Approval may be required for a proposed activity that significantly affects the environment on Commonwealth land, when the action is outside the Commonwealth land, or the environment anywhere when the action is taken on Commonwealth land. Approval may also be required for the Commonwealth or Commonwealth agencies proposing to take an action that is likely to have a significant impact on the

The EPBC Act protects the environment on Commonwealth land, the environment from the actions taken on Commonwealth land, and the environment from actions taken by Commonwealth agencies. As heritage values of a place are part of the 'environment', these aspects of the EPBC Act protect the Commonwealth Heritage values of a Commonwealth Heritage place. Information on the new heritage laws can be found at http://www.environment.gov.au/heritage

A permit may be required for activities in or on a Commonwealth area that may affect a member of a listed threatened species or ecological community, a member of a listed migratory species, whales and other cetaceans, or a member of a listed marine species.

Commonwealth Lands:	4
Commonwealth Heritage Places:	None
Listed Marine Species:	18
Whales and Other Cetaceans:	None
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Australian Marine Parks:	None
Habitat Critical to the Survival of Marine Turtles:	None

Extra Information

This part of the report provides information that may also be relevant to the area you have

State and Territory Reserves:	2
Regional Forest Agreements:	None
Nationally Important Wetlands:	None
EPBC Act Referrals:	13
Key Ecological Features (Marine):	None
Biologically Important Areas:	None
Bioregional Assessments:	2
Geological and Bioregional Assessments:	None

Details

Matters of National Environmental Significance

Wetlands of International Importance (Ramsar Wetlands)		[Resource Information]
Ramsar Site Name	Proximity	Buffer Status
Banrock station wetland complex	800 - 900km upstream from Ramsar site	In feature area
Hunter estuary wetlands	150 - 200km upstream from Ramsar site	In buffer area only
Riverland	700 - 800km upstream from Ramsar site	In feature area
The coorong, and lakes alexandrina and albert wetland	900 - 1000km upstream from Ramsar site	In feature area
The macquarie marshes	150 - 200km upstream from Ramsar site	In feature area

Listed Threatened Ecological Communities			[Resource Information]

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.
Status of Vulnerable, Disallowed and Ineligible are not MNES under the EPBC Act.

Community Name	Threatened Category	Presence Text	Buffer Status
Central Hunter Valley eucalypt forest and woodland	Critically Endangered	Community may occur within area	In buffer area only
Coolibah - Black Box Woodlands of the Darling Riverine Plains and the Brigalow Belt South Bioregions	Endangered	Community may occur within area	In buffer area only
Grey Box (Eucalyptus microcarpa) Grassy Woodlands and Derived Native Grasslands of South-eastern Australia	Endangered	Community likely to occur within area	In feature area
Natural grasslands on basalt and fine-textured alluvial plains of northern New South Wales and southern Queensland	Critically Endangered	Community may occur within area	In buffer area only
Poplar Box Grassy Woodland on Alluvial Plains	Endangered	Community may occur within area	In buffer area only

Community Name	Threatened Category	Presence Text	Buffer Status
Weeping Myall Woodlands	Endangered	Community may occur within area	In feature area
White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland	Critically Endangered	Community likely to occur within area	In feature area

Listed Threatened Species [Resource Information]

Status of Conservation Dependent and Extinct are not MNES under the EPBC Act.
Number is the current name ID.

Scientific Name	Threatened Category	Presence Text	Buffer Status
BIRD			
Anthochaera phrygia Regent Honeyeater [82338]	Critically Endangered	Species or species habitat known to occur within area	In feature area
Botaurus poiciloptilus Australasian Bittern [1001]	Endangered	Species or species habitat may occur within area	In feature area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area	In feature area
Callocephalon fimbriatum Gang-gang Cockatoo [768]	Endangered	Species or species habitat known to occur within area	In feature area
Falco hypoleucos Grey Falcon [929]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Grantiella picta Painted Honeyeater [470]	Vulnerable	Species or species habitat known to occur within area	In feature area
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area	In feature area
Lathamus discolor Swift Parrot [744]	Critically Endangered	Species or species habitat known to occur within area	In feature area
Leipoa ocellata Malleefowl [934]	Vulnerable	Species or species habitat known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
[Numenius madagascariensis](#)			
Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area	In feature area
[Polytelis swainsonii](#)			
Superb Parrot [738]	Vulnerable	Species or species habitat known to occur within area	In feature area
[Pycnoptilus floccosus](#)			
Pilotbird [525]	Vulnerable	Species or species habitat known to occur within area	In feature area
[Rostratula australis](#)			
Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur within area	In feature area
FISH			
[Galaxias rostratus](#)			
Flathead Galaxias, Beaked Minnow, Flat-headed Galaxias, Flat-headed Jollytail, Flat-headed Minnow [84745]	Critically Endangered	Species or species habitat may occur within area	In feature area
[Maccullochella macquariensis](#)			
Trout Cod [26171]	Endangered	Species or species habitat may occur within area	In buffer area only
[Maccullochella peelii](#)			
Murray Cod [66633]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
[Macquaria australasica](#)			
Macquarie Perch [66632]	Endangered	Species or species habitat may occur within area	In feature area
MAMMAL			
[Chalinolobus dwyeri](#)			
Large-eared Pied Bat, Large Pied Bat [183]	Vulnerable	Species or species habitat known to occur within area	In feature area
[Dasyurus maculatus maculatus (SE mainland population)](#)			
Spot-tailed Quoll, Spotted-tail Quoll, Tiger Quoll (southeastern mainland population) [75184]	Endangered	Species or species habitat likely to occur within area	In feature area
[Nyctophilus corbeni](#)			
Corben's Long-eared Bat, South-eastern Long-eared Bat [83395]	Vulnerable	Species or species habitat likely to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Petauroides volans			
Greater Glider [254]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Petrogale penicillata			
Brush-tailed Rock-wallaby [225]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Phascolarctos cinereus (combined populations of Qld, NSW and the ACT)			
Koala (combined populations of Queensland, New South Wales and the Australian Capital Territory) [85104]	Endangered	Species or species habitat known to occur within area	In feature area
Pseudomys novaehollandiae			
New Holland Mouse, Pookila [96]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
Pteropus poliocephalus			
Grey-headed Flying-fox [186]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
PLANT			
Androcalva procumbens			
[87153]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
Dichanthium setosum			
bluegrass [14159]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Euphrasia arguta			
[4325]	Critically Endangered	Species or species habitat may occur within area	In feature area
Homoranthus darwinioides			
[12974]	Vulnerable	Species or species habitat known to occur within area	In buffer area only
Lepidium aschersonii			
Spiny Pepper-cress [10976]	Vulnerable	Species or species habitat may occur within area	In feature area
Lepidium monoplocoides			
Winged Pepper-cress [9190]	Endangered	Species or species habitat may occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Prasophyllum petilum			
Tarengo Leek Orchid [55144]	Endangered	Species or species habitat may occur within area	In feature area
Prasophyllum sp. Wybong (C.Phelps ORG 5269)			
a leek-orchid [81964]	Critically Endangered	Species or species habitat may occur within area	In feature area
Swainsona recta			
Small Purple-pea, Mountain Swainson-pea, Small Purple Pea [7580]	Endangered	Species or species habitat may occur within area	In feature area
Thesium australe			
Austral Toadflax, Toadflax [15202]	Vulnerable	Species or species habitat may occur within area	In feature area
Vincetoxicum forsteri listed as Tylophora linearis			
[92384]	Endangered	Species or species habitat likely to occur within area	In feature area
Zieria ingramii			
Ingram's Zieria [56734]	Endangered	Species or species habitat known to occur within area	In buffer area only
REPTILE			
Aprasia parapulchella			
Pink-tailed Worm-lizard, Pink-tailed Legless Lizard [1665]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Delma impar			
Striped Legless Lizard, Striped Snake-lizard [1649]	Vulnerable	Species or species habitat likely to occur within area	In feature area

Listed Migratory Species			[Resource Information]
Scientific Name	Threatened Category	Presence Text	Buffer Status
Migratory Marine Birds			
Apus pacificus			
Fork-tailed Swift [678]		Species or species habitat likely to occur within area	In feature area
Migratory Terrestrial Species			
Hirundapus caudacutus			
White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Motacilla flava Yellow Wagtail [644]		Species or species habitat may occur within area	In feature area
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat likely to occur within area	In feature area
Rhipidura rufifrons Rufous Fantail [592]		Species or species habitat known to occur within area	In feature area
Migratory Wetlands Species			
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat may occur within area	In feature area
Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat may occur within area	In feature area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area	In feature area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area	In feature area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Species or species habitat known to occur within area	In feature area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area	In feature area

Other Matters Protected by the EPBC Act

Commonwealth Lands [Resource Information]

The Commonwealth area listed below may indicate the presence of Commonwealth land in this vicinity. Due to the unreliability of the data source, all proposals should be checked as to whether it impacts on a Commonwealth area, before making a definitive decision. Contact the State or Territory government land department for further information.

Commonwealth Land Name	State	Buffer Status
Commonwealth Trading Bank of Australia		

Commonwealth Land Name	State	Buffer Status
Commonwealth Land - Commonwealth Trading Bank of Australia [13274]	NSW	In buffer area only
Communications, Information Technology and the Arts - Telstra Corporation Limited		
Commonwealth Land - Australian Telecommunications Commission [13260]	NSW	In buffer area only
Commonwealth Land - Telstra Corporation Limited [14491]	NSW	In buffer area only
Commonwealth Land - Telstra Corporation Limited [14490]	NSW	In buffer area only

Listed Marine Species [Resource Information]

Scientific Name	Threatened Category	Presence Text	Buffer Status
Bird			
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat may occur within area	In feature area
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area overfly marine area	In feature area
Bubulcus ibis as Ardea ibis Cattle Egret [66521]		Species or species habitat may occur within area overfly marine area	In feature area
Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat may occur within area	In feature area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area overfly marine area	In feature area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area overfly marine area	In feature area
Chalcites osculans as Chrysococcyx osculans Black-eared Cuckoo [83425]		Species or species habitat known to occur within area overfly marine area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Species or species habitat known to occur within area overfly marine area	In feature area
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat likely to occur within area	In feature area
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area overfly marine area	In feature area
Lathamus discolor Swift Parrot [744]	Critically Endangered	Species or species habitat known to occur within area overfly marine area	In feature area
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area overfly marine area	In feature area
Motacilla flava Yellow Wagtail [644]		Species or species habitat may occur within area overfly marine area	In feature area
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat likely to occur within area overfly marine area	In feature area
Neophema chrysostoma Blue-winged Parrot [726]		Species or species habitat may occur within area overfly marine area	In feature area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area	In feature area
Rhipidura rufifrons Rufous Fantail [592]		Species or species habitat known to occur within area overfly marine area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Rostratula australis as Rostratula benghalensis (sensu lato)			
Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur within area overfly marine area	In feature area

Extra Information

State and Territory Reserves			[Resource Information]
Protected Area Name	Reserve Type	State	Buffer Status
Goodiman	CCA Zone 3 State Conservation Area	NSW	In buffer area only
Yarrobil	CCA Zone 1 National Park	NSW	In buffer area only

EPBC Act Referrals				[Resource Information]
Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Controlled action				
Continued Mining Operations and Construction of Associated Infrastructure	2009/5252	Controlled Action	Post-Approval	In buffer area only
Moolarben Coal Mine Project	2007/3297	Controlled Action	Post-Approval	In buffer area only
Narrabri to Wellington gas transmission pipeline	2011/5913	Controlled Action	Completed	In feature area
Open cut coal mine & associated infrastructure	2011/6158	Controlled Action	Post-Approval	In buffer area only
Ulan West Extension, Near Mudgee NSW	2015/7511	Controlled Action	Post-Approval	In buffer area only
Valley of the Winds wind farm	2020/8668	Controlled Action	Assessment Approach	In feature area
Wollar to Wellington 330kV Transmission Line Project	2005/2202	Controlled Action	Post-Approval	In buffer area only
Not controlled action				
Dubbo - Tamworth Natural Gas Pipeline	2000/32	Not Controlled Action	Completed	In buffer area only
Improving rabbit biocontrol: releasing another strain of RHDV, sthrn two thirds of Australia	2015/7522	Not Controlled Action	Completed	In feature area

Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Not controlled action				
Modification 4 Longwall Optimisation Project	2018/8337	Not Controlled Action	Completed	In buffer area only
Not controlled action (particular manner)				
Aerial baiting for wild dog control	2006/2713	Not Controlled Action (Particular Manner)	Post-Approval	In buffer area only
Referral decision				
Proposed large-scale solar farm project	2022/9171	Referral Decision	Referral Publication	In buffer area only
Stubbo Solar Farm	2022/9180	Referral Decision	Referral Publication	In buffer area only

Bioregional Assessments

SubRegion	BioRegion	Website	Buffer Status
Central West	Northern Inland Catchments	BA website	In feature area
Hunter	Northern Sydney Basin	BA website	In buffer area only

Caveat

1 PURPOSE

This report is designed to assist in identifying the location of matters of national environmental significance (MNES) and other matters protected by the Environment Protection and Biodiversity Conservation Act 1999 (Cth) (EPBC Act) which may be relevant in determining obligations and requirements under the EPBC Act.

The report contains the mapped locations of:

- World and National Heritage properties;
- Wetlands of International and National Importance;
- Commonwealth and State/Territory reserves;
- distribution of listed threatened, migratory and marine species;
- listed threatened ecological communities; and
- other information that may be useful as an indicator of potential habitat value.

2 DISCLAIMER

This report is not intended to be exhaustive and should only be relied upon as a general guide as mapped data is not available for all species or ecological communities listed under the EPBC Act (see below). Persons seeking to use the information contained in this report to inform the referral of a proposed action under the EPBC Act should consider the limitations noted below and whether additional information is required to determine the existence and location of MNES and other protected matters.

Where data are available to inform the mapping of protected species, the presence type (e.g. known, likely or may occur) that can be determined from the data is indicated in general terms. It is the responsibility of any person using or relying on the information in this report to ensure that it is suitable for the circumstances of any proposed use. The Commonwealth cannot accept responsibility for the consequences of any use of the report or any part thereof. To the maximum extent allowed under governing law, the Commonwealth will not be liable for any loss or damage that may be occasioned directly or indirectly through the use of, or reliance

3 DATA SOURCES

Threatened ecological communities

For threatened ecological communities where the distribution is well known, maps are generated based on information contained in recovery plans, State vegetation maps and remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

Threatened, migratory and marine species

Threatened, migratory and marine species distributions have been discerned through a variety of methods. Where distributions are well known and if time permits, distributions are inferred from either thematic spatial data (i.e. vegetation, soils, geology, elevation, aspect, terrain, etc.) together with point locations and described habitat; or modelled (MAXENT or BIOCLIM habitat modelling) using

Where little information is available for a species or large number of maps are required in a short time-frame, maps are derived either from 0.04 or 0.02 decimal degree cells; by an automated process using polygon capture techniques (static two kilometre grid cells, alpha-hull and convex hull); or captured manually or by using topographic features (national park boundaries, islands, etc.).

In the early stages of the distribution mapping process (1999-early 2000s) distributions were defined by degree blocks, 100K or 250K map sheets to rapidly create distribution maps. More detailed distribution mapping methods are used to update these distributions

4 LIMITATIONS

The following species and ecological communities have not been mapped and do not appear in this report:

- threatened species listed as extinct or considered vagrants;
- some recently listed species and ecological communities;
- some listed migratory and listed marine species, which are not listed as threatened species; and
- migratory species that are very widespread, vagrant, or only occur in Australia in small numbers.

The following groups have been mapped, but may not cover the complete distribution of the species:

- listed migratory and/or listed marine seabirds, which are not listed as threatened, have only been mapped for recorded
- seals which have only been mapped for breeding sites near the Australian continent

The breeding sites may be important for the protection of the Commonwealth Marine environment.

Refer to the metadata for the feature group (using the Resource Information link) for the currency of the information.

Acknowledgements

This database has been compiled from a range of data sources. The department acknowledges the following custodians who have contributed valuable data and advice:

-Office of Environment and Heritage, New South Wales
-Department of Environment and Primary Industries, Victoria
-Department of Primary Industries, Parks, Water and Environment, Tasmania
-Department of Environment, Water and Natural Resources, South Australia
-Department of Land and Resource Management, Northern Territory
-Department of Environmental and Heritage Protection, Queensland
-Department of Parks and Wildlife, Western Australia
-Environment and Planning Directorate, ACT
-Birdlife Australia
-Australian Bird and Bat Banding Scheme
-Australian National Wildlife Collection
-Natural history museums of Australia
-Museum Victoria
-Australian Museum
-South Australian Museum
-Queensland Museum
-Online Zoological Collections of Australian Museums
-Queensland Herbarium
-National Herbarium of NSW
-Royal Botanic Gardens and National Herbarium of Victoria
-Tasmanian Herbarium
-State Herbarium of South Australia
-Northern Territory Herbarium
-Western Australian Herbarium
-Australian National Herbarium, Canberra
-University of New England
-Ocean Biogeographic Information System
-Australian Government, Department of Defence
Forestry Corporation, NSW
-Geoscience Australia
-CSIRO
-Australian Tropical Herbarium, Cairns
-eBird Australia
-Australian Government – Australian Antarctic Data Centre
-Museum and Art Gallery of the Northern Territory
-Australian Government National Environmental Science Program
-Australian Institute of Marine Science
-Reef Life Survey Australia
-American Museum of Natural History
-Queen Victoria Museum and Art Gallery, Inveresk, Tasmania
-Tasmanian Museum and Art Gallery, Hobart, Tasmania
-Other groups and individuals

The Department is extremely grateful to the many organisations and individuals who provided expert advice and information on numerous draft distributions.

Please feel free to provide feedback via the Contact Us page.

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Attachment 8

Likelihood of occurrence table

EMM
creating opportunities

Family	Scientific name	Common name	BC Act status	EPBC Act status	FM Act	Habitat association	BCS 2022	DAWE 2022	DPI 2022	TBCD 2022	Number of records	Most recent record	Likelihood of occurrence	Justification
Actinopterygii	Galaxias rostratus	Flathead Galaxias	-	CE	CE	Flathead Galaxias is known from the southern part of the Murray Darling Basin. They have been recorded in the Macquarie, Lachlan, Murrumbidgee and Murray Rivers in NSW. Flathead Galaxias are found in still or slow moving water bodies such as wetlands and lowland streams. The species has been recorded forming shoals. They have been associated with a range of habitats including rock and sandy bottoms and aquatic vegetation.		Y					Negligible	The streams within the subject land are highly disturbed and lack aquatic and riparian vegetation. The streams occur as ephemeral waterways in periods of high rainfall. No suitable habitat occurs within the subject land. No previous records within the locality.
Actinopterygii	Maccullochella macquariensis	Trout Cod	-	E	E	The single naturally occurring population is restricted to a small (approximately 120 km) stretch of the Murray River from below Yarrawonga Weir to Strathmerton (Douglas et al. 1994; NSW Fisheries 2001; Rimmer 1987), but is occasionally taken downstream as far as the Barmah State Forest (McKinnon 1993) and further downstream to Gunbower (Douglas et al. 2012). Unconfirmed records have also been made further downstream from near Murrabit, Swan Hill and near Tooleybuc. Trout Cod occupy stream positions characterised by a high abundance of large woody debris (or 'snags') in water that is comparatively deep and close to riverbanks. However, midstream snags are also an important habitat component		Y					Low	The waterways within the subject land occur upstream of the Murray River and do not provide suitable habitat such as deep pools or an abundance of overhanging riparian vegetation.
Actinopterygii	Maccullochella peelii	Murray Cod	-	V	-	The Murray Cod was historically distributed throughout the Murray-Darling Basin. The Murray Cod utilises a diverse range of habitats from clear rocky streams, such as those found in the upper western slopes of NSW (including the ACT), to slow-flowing, turbid lowland rivers and billabongs (McDowall 1996). Murray Cod are frequently found in the main channels of rivers and larger tributaries. The species is, therefore, considered a main-channel specialist. Murray Cod tend to occur in floodplain channels and anabranches when they are inundated (Koehn 1997, 2006; Koehn & Harrington 2005 cited in National Murray Cod Recovery Team 2010), but the species' use of these floodplain habitats appears limited. Preferred microhabitat consists of complex structural features in streams such as large rocks, snags (pieces of large submerged woody debris), overhanging stream banks and vegetation, tree stumps, logs, branches and other woody structures. Such structures reduce or influence stream flows and provide Murray Cod with shelter from fast-flowing water		Y					Low	The waterways within the subject land do not provide suitable microclimates for the species to occur. No submerged rocks or an abundance of woody debris and snags occurs. The waterways within the subjbect are shallow and slow-flowing and occurs approximately 4.5km from the Talbragar River. As the species is a main channel specialist, the species is unlikely to occur within the subject land.
Actinopterygii	Macquaria australasica	Macquarie Perch	-	E	E	The species is now restricted to a small number of fragmented populations mostly in cool, rocky, fast flowing streams in relatively undisturbed upland catchments.		Y					Negligible	The streams within the subject land are highly disturbed. The streams occur as ephemeral waterways in periods of high rainfall. No suitable habitat occurs within the subject land. No previous records within the locality.
Aves	Actitis hypoleucos	Common Sandpiper	-	Mi	-	Found along all coastlines of Australia and in many areas inland, the Common Sandpiper is widespread in small numbers. The population when in Australia is concentrated in northern and western Australia. The species utilises a wide range of coastal wetlands and some inland wetlands, with varying levels of salinity, and is mostly found around muddy margins or rocky shores and rarely on mudflats. The Common Sandpiper has been recorded in estuaries and deltas of streams, as well as on banks farther upstream; around lakes, pools, billabongs, reservoirs, dams and claypans, and occasionally piers and jetties. The muddy margins utilised by the species are often narrow, and may be steep. The species is often associated with mangroves, and sometimes found in areas of mud littered with rocks or snags. Generally the species forages in shallow water and on bare soft mud at the edges of wetlands; often where obstacles project from substrate, e.g. rocks or mangrove roots. Birds sometimes venture into grassy areas adjoining wetlands. Roost sites are typically on rocks or in roots or branches of vegetation, especially mangroves. The species is known to perch on posts, jetties, moored boats and other artificial structures, and to sometimes rest on mud or 'loaf' on rocks.		Y					Low	There is no wetland or estuarine habitat within the subject land. No previous records within the locality.
Aves	Anthochaera phrygia	Regent Honeyeater	CE	CE	-	The Regent Honeyeater mainly inhabits temperate woodlands and open forests of the inland slopes of south-east Australia. The species inhabits dry open forest and woodland, particularly Box-Ironbark woodland, and riparian forests of River Sheoak.These birds are also found in drier coastal woodlands and forests in some years. Every few years non-breeding flocks are seen foraging in flowering coastal Swamp Mahogany (Eucalyptus robusta) and Spotted Gum (Corymbia maculata) forests, particularly on the central coast and occasionally on the upper north coast. Birds are occasionally seen on the south coast.	Y	Y		Y	2	2012	Moderate	Subject land occurs in known range and provides suitable habitat for foraging. Low number of previous records within the locality and is associated with the PCT within the subject land, however no mistletoe was recorded within the subject land.
Aves	Apus pacificus	Fork-tailed Swift	-	Mi	-	In NSW, the Fork-tailed Swift is recorded in all regions. Many records occur east of the Great Divide, however, a few populations have been found west of the Great Divide. These are widespread but scattered further west of the line joining Bourke and Dareton. Sightings have been recorded at Milparinka, the Bulloo River and Thurloo Downs. The Fork-tailed Swift is almost exclusively aerial, flying from less then 1 m to at least 300 m above ground and probably much higher. In Australia, they mostly occur over inland plains but sometimes above foothills or in coastal areas. They often occur over cliffs and beaches and also over islands and sometimes well out to sea. They also occur over settled areas, including towns, urban areas and cities. They mostly occur over dry or open habitats, including riparian woodland and tea-tree swamps, low scrub, heathland or saltmarsh. They are also found at treeless grassland and sandplains covered with spinifex, open farmland and inland and coastal sand-dunes. They sometimes occur above rainforests, wet sclerophyll forest or open forest or plantations of pines. They forage aerially, up to hundreds of metres above ground, but also less then 1 m above open areas or over water. They often occur in areas of updraughts, especially around cliffs.		Y					Low	Species is greatly associated with coastal landscapes and vegetation. Within this locality, the species may occur as a vagrant to forage over the native pasture within the subject land.
Aves	Botaurus poiciloptilus	Australasian Bittern	E	E	-	The Australasian Bittern is widespread and found over most of NSW except for far north-west. Preferred habitat is comprised of wetlands with tall dense vegetation, where it forages in still, shallow water up to 0.3 m deep, often at the edges of pools or waterways, or from platforms or mats of vegetation over deep water. It favours permanent and seasonal freshwater habitats, particularly those dominated by sedges, rushes and reeds or cutting grass (Gahnia sp.) growing over a muddy or peaty substrate (OEH 2018).		Y					Low	There is no wetland habitat within the subject land. No previous records within the locality.
Aves	Calidris acuminata	Sharp-tailed Sandpiper	-	Mi	-	The Sharp-tailed Sandpiper spends the non-breeding season in Australia with small numbers occurring regularly in New Zealand. Most of the population migrates to Australia, mostly to the south-east and are widespread in both inland and coastal locations and in both freshwater and saline habitats. Many inland records are of birds on passage. In Australasia, the Sharp-tailed Sandpiper prefers muddy edges of shallow fresh or brackish wetlands, with inundated or emergent sedges, grass, saltmarsh or other low vegetation. This includes lagoons, swamps, lakes and pools near the coast, and dams, waterholes, soaks, bore drains and bore swamps, saltpans and hypersaline saltlakes inland. They also occur in saltworks and sewage farms. They use flooded paddocks, sedgelands and other ephemeral wetlands, but leave when they dry. They use intertidal mudflats in sheltered bays, inlets, estuaries or seashores, and also swamps and creeks lined with mangroves.	Y	Y			1	2011	Low	There is no wetland habitat within the subject land. Only one previous record within the locality.
Aves	Calidris ferruginea	Curlew Sandpiper	E	CE, Mi	-	Mainly occur on intertidal mudflats in sheltered coastal areas, such as estuaries, bays, inlets and lagoons, and also around non-tidal swamps, lakes and lagoons near the coast, and ponds in saltworks and sewage farms. They are also recorded inland, though less often, including around ephemeral and permanent lakes, dams, waterholes and bore drains, usually with bare edges of mud or sand. They occur in both fresh and brackish waters. Occasionally they are recorded around floodwaters.		Y					Low	There is no wetland habitat within the subject land. No previous records within the locality.
Aves	Calidris melanotos	Pectoral Sandpiper	-	Mi	-	In New South Wales (NSW), the Pectoral Sandpiper is widespread, but scattered. Records exist east of the Great Divide, from Casino and Ballina, south to Ulladulla. West of the Great Divide, the species is widespread in the Riverina and Lower Western regions. In Australasia, the Pectoral Sandpiper prefers shallow fresh to saline wetlands. The species is found at coastal lagoons, estuaries, bays, swamps, lakes, inundated grasslands, saltmarshes, river pools, creeks, floodplains and artificial wetlands. The species is usually found in coastal or near coastal habitat but occasionally found further inland. It prefers wetlands that have open fringing mudflats and low, emergent or fringing vegetation, such as grass or samphire. The species has also been recorded in swamp overgrown with lignum. They forage in shallow water or soft mud at the edge of wetlands.		Y					Low	There is no wetland or estuarine habitat within the subject land. No previous records within the locality.
Aves	Callocephalon fimbriatum	Gang-gang Cockatoo	V	E	-	In summer, the Gang-gang Cockatoo is generally found in tall mountain forests and woodlands, particularly in heavily timbered and mature wet sclerophyll forests. In winter, they may occur at lower altitudes in drier more open eucalypt forests and woodlands, and often found in urban areas.		Y		Y			Moderate	Suitable habitat and hollows within the subject land. Subject land is located on edge of species range. Suitable for foraging and roosting habitat only. Species breeds in higher altitudes associated with tall mountain forests.
Aves	Falco hypoleucos	Grey Falcon	E	V	-	The Grey Falcon is sparsely distributed in NSW, chiefly throughout the Murray-Darling Basin, with the occasional vagrant east of the Great Dividing Range. The species is usually restricted to shrubland, grassland and wooded watercourses of arid and semi-arid regions, although it is occasionally found in open woodlands near the coast. Also occurs near wetlands where surface water attracts prey (OEH 2018).		Y					Low	Habitat within the subject land does not contain substantial watercourses for the species to occur. Species may be associated with the Talbragar River north of the subject land where it is more likely to forage. No previous records within the locality. No nests observed during site surveys.
Aves	Gallinago hardwickii	Latham's Snipe	-	Mi	-	Latham's Snipe is a non-breeding visitor to south-eastern Australia, and is a passage migrant through northern Australia. The range extends inland over the eastern tablelands in south-eastern Queensland (and occasionally from Rockhampton in the north), and to west of the Great Dividing Range in New South Wales. In Australia, Latham's Snipe occurs in permanent and ephemeral wetlands up to 2000 m above sea-level. They usually inhabit open, freshwater wetlands with low, dense vegetation (e.g. swamps, flooded grasslands or heathlands, around bogs and other water bodies). However, they can also occur in habitats with saline or brackish water, in modified or artificial habitats, and in habitats located close to humans or human activity		Y					Low	There is no wetland or estuarine habitat within the subject land. No previous records within the locality.
Aves	Grantiella picta	Painted Honeyeater	V	V	-	The species is sparsely distributed from south-eastern Australia to north-western Queensland, with its greatest concentrations and breeding locations occurring on the inland slopes of the Great Dividing Range in NSW. It inhabits mistletoes in eucalypt forests/woodlands, riparian woodlands of Black Box (E. largiflorens) and River Red Gum (E. camaldulensis), Box-Ironbark-Yellow Gum woodlands, Acacia-dominated woodlands, Paperbarks, Casuarina, 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 (OEH 2018).	Y	Y		Y	37	2020	Moderate	The subject land contain suitable Box- Yellow Gum woodland, however it occurs as fragmented pockets as opposed to the preferred wider patches of woodland. Mistletoe was not observed during surveys.
Aves	Hirundapus caudacutus	White-throated Needletail	-	V; Mi	-	The White-throated Needletail is widespread in eastern and south-eastern Australia. In NSW this species extends inland to the western slopes of the Great Divide and occasionally onto the adjacent inland plains. In Australia, the White-throated Needletail is almost exclusively aerial, 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 (DoEE 2018).	Y	Y		Y	3	2018	Moderate	The species may utilise the subject land to forage. Low number of records within the locality. The species is associated with the PCTs within the subject land.
Aves	Lathamus discolor	Swift Parrot	E	CE	-	This species migrates in the autumn and winter months to south-eastern Australia. In NSW, it mostly occurs on the coast and south-west slopes in areas where eucalypts are flowering profusely or where there are abundant lerp (from sap-sucking bugs) infestations (OEH 2018). Favoured feed trees include winter flowering species such as Swamp Mahogany, Spotted Gum, Red Bloodwood (C. gummifera), Mugga Ironbark and White Box. Commonly used lerp infested trees include Inland Grey Box, Grey Box (E. moluccana) and Blackbutt (E. pilularis).	Y	Y		Y	4	2007	Low	The subject land does not contain the described associated winter flowering species. Inland Grey Box does occur, however this is not a winter flowering species. The species may occur as a vagrant.
Aves	Leipoa ocellata	Malleefowl	E	V	-	Malleefowl predominantly inhabit mallee communities, preferring the tall, dense and floristically-rich mallee found in higher rainfall (300 – 450 mm mean annual rainfall) areas. The species utilises mallee with a spinifex understorey, but usually at lower densities than in areas with a shrub understorey. The species is less frequently found in other eucalypt woodlands, such as Inland Grey Box, Ironbark or Bimble Box Woodlands with thick understorey. Prefers areas of light sandy to sandy loam soils and habitats with a dense but discontinuous canopy and dense and diverse shrub and herb layers (OEH 2018).		Y					Negligible	The subject land does not contain suitable mallee habitat for the species to occur.
Aves	Motacilla flava	Yellow Wagtail	-	Mi	-	This species occupies a range of damp or wet habitats with low dense vegetation, from damp meadows, marshes, waterside pastures, sewage farms and bogs to damp steppe and grassy tundra (Birdlife International 2017). Imporant habitat is considered to be mostly wellwatered open grasslands and the fringes of wetlands. Roosts in mangroves and other dense vegetation.		Y					Low	The subject land contains ephemeral creeks and dams, however these lack dense riparian vegeation preferred by the species and do not provide permanent, reliable habitat for the species. Mangroves do not occur in the subject land or locality. No previous records within the locality.
Aves	Myiagra cyanoleuca	Satin Flycatcher	-	Mi	-	The Satin Flycatcher is widespread in eastern Australia and vagrant to New Zealand (Blakers et al. 1984; Coates 1990). Satin Flycatchers inhabit heavily vegetated gullies in eucalypt-dominated forests and taller woodlands, and on migration, occur in coastal forests, woodlands, mangroves and drier woodlands and open forests.		Y					Negligible	No heavily vegetated forest or gullies within the subject land. No previous records within locality.
Aves	Numenius madagascariensis	Eastern Curlew	-	CE; Mi	-	During non-breeding this species is most commonly associated with sheltered coasts, especially estuaries, bays, harbours, inlets and coastal lagoons, with large intertidal mudflats or sandflats, often with beds of seagrass Occasionally, the species occurs on ocean beaches (often near estuaries), and coral reefs, rock platforms, or rocky islets. The birds are often recorded among saltmarsh and on mudflats fringed by mangroves, and sometimes within the mangroves. The birds are also found in coastal saltworks and sewage farms.		Y					Low	There is no wetland or estuarine habitat within the subject land. No previous records within the locality.

Aves	Polytelis swainsonii	Superb Parrot	V	V	-	The Superb Parrot is found throughout eastern inland NSW. This species inhabits forests and woodlands dominated by eucalypts, especially River Red Gums and box eucalypts such as Yellow Box or Inland Grey Box. Superb Parrots breed in either River Red Gum forests and woodlands or box woodlands (DoEE 2018).		Y		Y			Low	Small areas of foraging habitat occurs within high condition woodland. Targeted surveys of these high condition woodlands did not find the species within the subject land. No previous records within the locality. This species has been assumed as present (under the BAM) in some areas of the subject land that were unable to be surveyed for breeding activity (in woodland adjacent to (but not within) the proposed accommodation facility) . There will be no direct impact to any potential breeding hollows, and there is a low likelihood of this species foraging within the DNG within the subject land.
Aves	Pycnoptilus floccosus	Pilotbird	-	V	-	Pilotbirds are endemic to south-east Australia. Upland Pilotbirds occur above 600 m in the Brindabella Ranges in the Australian Capital Territory, and in the Snowy Mountains in New South Wales and north-east Victoria (Higgins & Peter 2002; Loyn et al. 2021). Lowland Pilotbirds occur in forests from the Blue Mountains west of Newcastle, around the wetter forests of eastern Australia, to Dandenong near Melbourne (Higgins & Peter 2002; Loyn et al. 2021). Pilotbirds are strictly terrestrial, living on the ground in dense forests with heavy undergrowth (Higgins & Peter 2002).		Y					Negligible	The subject land lacks the dense vegetation structure required for the species. The closest record of the species was approximately 15km west of the site in 2003 (ALA).
Aves	Rhipidura rufifrons	Rufous Fantail	-	Mi	-	In east and south-east Australia, the Rufous Fantail mainly inhabits wet sclerophyll forests, often in gullies dominated by eucalypts such as Tallow-wood (Eucalyptus microcorys), Mountain Grey Gum (E. cypellocarpa), Narrow-leaved Peppermint (E. radiata), Mountain Ash (E. regnans), Alpine Ash (E. delegatensis), Blackbutt (E. pilularis) or Red Mahogany (E. resinifera); usually with a dense shrubby understorey often including ferns.		Y					Negligible	No wet sclerophyll forest or gullies within the subject land. No previous records within locality.
Aves	Rostratula australis	Australian Painted Snipe	E	E	-	The Australian Painted Snipe generally inhabits shallow terrestrial freshwater (occasionally brackish) wetlands, including temporary and permanent lakes, swamps and claypans. The species also uses inundated or waterlogged grassland or saltmarsh, dams, rice crops, sewage farms and bore drains (OEH 2018).		Y					Low	There is no wetland or estuarine habitat within the subject land. No previous records within the locality.
Flora	Androcalva procumbens	-	V	V	-	This species is endemic to NSW and mainly confined to the Dubbo-Mendooran-Gilgandra region, but also in the Pilliga and Nymagee areas. The species grows in sandy sites, often along roadsides. It has been recorded in Eucalyptus dealbata and Eucalyptus sideroxylon communities, Broombush (Melaleuca uncinata) scrub, under mallee eucalypts with a Calytrix tetragona understorey, and in a recently burnt Ironbark and Callitris area. Other associated species include Acacia triptera, Callitris endlicheri, Yellow Box, Allocasuarina diminuta, Philotheca salsolifolia, Xanthorrhoea species, Exocarpos cupressiformis, Leptospermum parvifolium and Kunzea parvifolia (OEH 2018).		Y					Low	The subject land occurs outside of the species mapped range. No associated species occur within the subject land. No previous records within the locality. The PCTs within the subject land are not associated with this species.
Flora	Dichanthium setosum	Bluegrass	V	V	-	Bluegrass 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. Associated with heavy basaltic black soils and red-brown loams with clay subsoil. Often found in moderately disturbed areas such as cleared woodland, grassy roadside remnants and highly disturbed pasture. Associated species include Eucalyptus albens, Eucalyptus melanophloia, Eucalyptus melliodora, Eucalyptus viminalis, Myoporum debile, Aristida ramosa, Themeda triandra, Poa sieberiana, Bothriochloa ambigua, Medicago minima, Leptorhynchos squamatus, Lomandra aff. longifolia, Ajuga australis, Calotis hispidula and Austrodanthonia, Dichopogon, Brachyscome, Vittadinia, Wahlenbergia and Psoralea species.		Y		Y			Low	Suitable habitat within the subject land is limited to intact roadside vegetation in high condition. The grassland within the subject land is subject to historical and continual disturbance for grazing and is considered too degraded for the species to occur. Targeted surveys in high condition vegetation did not find the species. No previous records within the locality.
Flora	Euphrasia arguta	-	CE	CE	-	Euphrasia arguta was rediscovered in the Nundle area of the NSW north western slopes and tablelands in 2008. Prior to this, it had not been collected for 100 years. Historically, Euphrasia arguta has only been recorded from relatively few places within an area extending from Sydney to Bathurst and north to Walcha. The Royal Botanic Gardens Specimen Register records an additional location reported and vouchered in 2002 from near the Hastings River; and Euphrasia arguta was also recorded from the Barrington Tops in 2012. Historic records of the species noted the following habitats: 'in the open forest country around Bathurst in sub humid places', 'on the grassy country near Bathurst', and 'in meadows near rivers'. Plants from the Nundle area have been reported from eucalypt forest with a mixed grass and shrub understorey; here, plants were most dense in an open disturbed area and along the roadside, indicating the species had regenerated following disturbance.		Y		Y			Low	Targeted surveys did not find the species within the subject land. No previous records within the locality.
Flora	Homoranthus darwinioides	Fairy Bells	V	V	-	Rare in the central tablelands and western slopes of NSW, occurring from Putty to the Dubbo district. 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. Grows in various woodland habitats with shrubby understoreys, usually in gravely sandy soils. Landforms the species has been recorded growing on include flat sunny ridge tops with scrubby woodland, sloping ridges, gentle south-facing slopes, and a slight depression on a roadside with loamy sand. Associated species include Callitris endlicheri, Eucalyptus crebra, E. fibrosa, C. trachyphloia, E. beyeri subsp. illaquens, E. dwyeri, E. rossii, Leptospermum divaricatum, Melaleuca uncinata, Calytrix tetragona, Allocasuarina spp. and Micromyrtus spp.	Y	Y			1	1996	Low	No associated species or suitable habitat occurs within the subject land. Subject land is highly disturbed.
Flora	Lepidium aschersonii	Spiny Peppercress	V	V	-	Not widespread, occurring in the marginal central-western slopes and north-western plains regions of NSW (and potentially the south western plains). In the north of the State recent surveys have recorded a number of new sites including Brigalow Nature Reserve, Brigalow State Conservation Area, Leard State Conservation Area and Bobbiwaa State Conservation Area. Also known from the West Wyalong in the south of the State. Records from Barmedman and Temora areas are likely to be no longer present. Approximately 50% of the total Lepidium aschersonii recorded for Australia occurs in NSW. Found on ridges of gilgai clays dominated by Brigalow (Acacia harpophylla), Belah (Casuarina cristata), Buloke (Allocasuarina luehmanii) and Grey Box (Eucalyptus microcarpa). In the south has been recorded growing in Bull Mallee (Eucalyptus behriana). Often the understorey is dominated by introduced plants. The species grows as a a component of the ground flora, in grey loamy clays. Vegetation structure varies from open to dense, with sparse grassy understorey and occasional heavy litter.		Y					Low	The subject land does not contain suitable microhabitats for the species to occur. The subject land lacks ridges or gilgai clays, in addition to lacking most associated species- with the exception of Grey Box.
Flora	Lepidium monoplocoides	Winged Peppercress	E	E	-	Widespread in the semi-arid western plains regions of NSW. Collected from widely scattered localities, with large numbers of historical records but few recent collections. There is a single collection from Broken Hill and only two collections since 1915, the most recent being 1950. Also previously recorded from Bourke, Cobar, Urana, Lake Cargelligo, Balranald, Wanganella and Deniliquin. Recorded more recently from the Hay Plain, south-eastern Riverina, and from near Pooncarie. Occurs on seasonally moist to waterlogged sites, on heavy fertile soils, with a mean annual rainfall of around 300-500 mm. Predominant vegetation is usually an open woodland dominated by Allocasuarina luehmannii (Bulloak) and/or eucalypts, particularly Eucalyptus largiflorens (Black Box) or Eucalyptus populnea (Poplar Box). The field layer of the surrounding woodland is dominated by tussock grasses. Recorded in a wetland-grassland community comprising Eragrostis australasicus, Agrostis avenacea, Austrodanthonia duttoniana, Homopholis proluta, Myriophyllum crispatum, Utricularia dichotoma and Pycnosorus globosus, on waterlogged grey-brown clay. Also recorded from a Maireana pyramidata shrubland.		Y					Negligible	Subject land is not located within the species known are predicted range. No previous records within the locality. No associated species occur within the subject land.
Flora	Prasophyllum petilum	Tarengo Leek Orchid	E	E	-	Natural populations are known from a total of five sites in NSW. These are near Boorowa, Queanbeyan area, Ilford, Delegate and a newly recognised population c.10 km west of Muswellbrook. It also occurs at Hall in the Australian Capital Territory. This species has also been recorded at Bowning Cemetery where it was experimentally introduced, though it is not known whether this population has persisted. Grows in open sites within Natural Temperate Grassland at the Boorowa and Delegate sites. Also grows in grassy woodland in association with River Tussock (Poa labillardieri), Black Gum (Eucalyptus aggregata) and tea-trees Leptospermum spp. near Queanbeyan and within the grassy ground layer dominated by Kangaroo Grass under Box-Gum Woodland at Ilford (and Hall, ACT). Apparently highly susceptible to grazing, being retained only at little-grazed travelling stock reserves (Boorowa & Delegate) and in cemeteries (near Queanbeyan, Ilford and Hall).		Y		Y			Low	Suitable habitat for this species occurs in high condition vegetation zones and along roadsides. The grassland within the subject land is subject to historical and continual disturbance for grazing and is considered too degraded for the species to occur. Targeted surveys within the high condition vegetation did not find the species within the subject land. No previous records within the locality.
Flora	Prasophyllum sp. Wybong	-	-	CE	-	Endemic to NSW, it is known from near Ilford, Premer, Muswellbrook, Wybong, Yeoval, Inverell, Tenterfield, Currabubula and the Pilliga area. Most populations are small, although the Wybong population contains by far the largest number of individuals. A perennial orchid, appearing as a single leaf over winter and spring. Flowers in spring and dies back to a dormant tuber over summer and autumn. Known to occur in open eucalypt woodland and grassland.		Y		Y			Low	Suitable habitat for this species occurs in high condition vegetation zones and along roadsides. The grassland within the subject land is subject to historical and continual disturbance for grazing and is considered too degraded for the species to occur. Targeted surveys within the high condition vegetation did not find the species within the subject land. No previous records within the locality.
Flora	Swainsona recta	Small Purple-pea	E	E	-	Small Purple-pea 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. 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), Candlebark Gum (E. rubida) and Long-leaf Box (E. goniocalyx). Grows in association with understorey dominants that include Kangaroo Grass (Themeda australis), poa tussocks Poa spp. and spear-grasses Austrostipa spp.		Y					Low	Suitable habitat for this species occurs in high condition vegetation zones. The grassland within the subject land is subject to historical and continual disturbance for grazing and is considered too degraded for the species to occur. Targeted surveys did not find the species within the subject land. No previous records within the locality.
Flora	Swainsona sericea	Silky Swainson-pea	V	-	-	The Silky Swainson-pea is a prostrate or erect perennial, growing to 10 cm tall. Silky Swainson-pea has been recorded from the Northern Tablelands to the Southern Tablelands and further inland on the slopes and plains. Found in Natural Temperate Grassland and Snow Gum Eucalyptus pauciflora Woodland on the Monaro. The species is found in Box-Gum Woodland in the Southern Tablelands and South West Slopes. Sometimes it is found in association with cypress-pines Callitris spp. Its habitat on plains unknown. The species regenerates from seed after fire.		Y		Y				
Flora	Thesium australe	Austral Toadflax	V	V	-	Occurs on the coast, tablelands and western slopes in shrubland, grassland or woodland, often on damp sites.		Y					Low	Suitable habitat for this species occurs in high condition vegetation zones. The grassland within the subject land is subject to historical and continual disturbance for grazing and is considered too degraded for the species to occur. Targeted surveys did not find the species within the subject land. No previous records within the locality.
Flora	Tylophora linearis	-	V	E	-	Occurs from southern Queensland into central NSW, as far south near Temora with the majority of records occurring in the central western region. Records from Goonoo, Pillaga West, Pillaga East, Bibblewindi, Cumbil and Eura State Forests, Coolbaggie NR, Goobang NP and Beni SCA. Also has been recorded Hiawatha State Forest near West Wyalong in the south and there are old records as far north as Crow Mountain near Barraba and near Glenmorgan in the western Darling Downs. Grows in dry scrub and open forest. Recorded from low-altitude sedimentary flats in dry woodlands of Eucalyptus fibrosa, Eucalyptus sideroxylon, Eucalyptus albens, Callitris endlicheri, Callitris glaucophylla and Allocasuarina luehmannii. Also grows in association with Acacia hakeoides, Acacia lineata, Melaleuca uncinata, Myoporum species and Casuarina species.		Y					Low	No associated species or suitable habitat occurs within the subject land. Subject land is highly disturbed.
Flora	Zieria ingramii	Keith's Zieria	E	E	-	Known predominately from Goonoo and Cobbora SCA, about 40 km north-east of Dubbo. Also known to occur west of Tuckland State Forest. An old record exists from a locality east of Mogriguy on the Mendooran Road, however searches of the area have not relocated the species. One record also occurs within Kings Plains National Park, 48 km south of Inverell. Grows in dry sclerophyll forest on light sandy soils. All known populations have been recorded in Eucalyptus-Callitris woodland or open forest with a shrubby to heathy understorey. Eucalyptus dwyeri appears to be a key predictor of Z. ingramii distribution. Mostly from gentle slopes in red-brown and yellow-brown sandy loams, often with a rocky surface. Associated and understorey species include Eucalyptus crebra, E. fibrosa, E. dwyeri, E. beyeriana, E. microcarpa, Callitris endlicheri, Allocasuarina diminuta and more.	Y	Y			2	2010	Low	No associated species or suitable habitat occurs within the subject land.

Mammalia	Chalinolobus dwyeri	Large-eared Pied Bat	V	V	-	In NSW this species has been recorded from a large range of vegetation types including: dry and wet sclerophyll forest; Cyprus Pine (Callitris glauca) dominated forest; tall open eucalypt forest with a rainforest sub-canopy; sub-alpine woodland; and sandstone outcrop country. The species requires a combination of sandstone cliff/escarpment to provide roosting habitat that is adjacent to higher fertility sites, particularly box gum woodlands or river/rainforest corridors which are used for foraging. Roosting has also been observed in disused mine shafts, caves, overhangs and disused Fairy Martin (Hirundo ariel) nests.	Y	Y		Y	62	2020	Moderate	The subject land does not support caves, cliffs or rocky overhangs, however the locality does provide breeding habitat, particularly to the south of the subject land. The species may utilise the wooded vegetation within the subject land as foraging habitat.
Mammalia	Dasyurus maculatus	Spotted-tailed Quoll	V	E	-	This species has been recorded from a wide range of habitats, including: coastal heathlands, open and closed eucalypt woodlands, wet sclerophyll and lowland forests (OEH 2018). Unlogged forest or forest that has been less disturbed by timber harvesting is preferable. Habitat requirements include suitable den sites such as hollow logs, tree hollows, rock outcrops or caves. Individuals require an abundance of food, such as birds and small mammals, and large areas of relatively intact vegetation through which to forage. Home ranges are estimated to be 620–2,560 ha for males and 90–650 ha for females (DoEE 2018).		Y		Y			Low	The subject land contains highly fragmented vegetation and is unlikely to support the species. No previous records within the locality.
Mammalia	Nyctophilus corbeni	Corben's Long-eared Bat	-	V	-	Inhabits a variety of vegetation types, including mallee, Bull Oak and box eucalypt dominated communities, but it is distinctly more common in box/ironbark/cypress-pine vegetation that occurs in a north-south belt along the western slopes and plains of NSW and southern Queensland. Overall, the distribution of the south eastern form coincides approximately with the Murray Darling Basin with the Pilliga Scrub region being the distinct stronghold for this species. Roosts in tree hollows, crevices, and under loose bark. A slow flying agile bat, utilising the understorey to hunt non-flying prey - especially caterpillars and beetles - and will even hunt on the ground (OEH 2018). The species is more abundant in extensive stands of vegetation in comparison to smaller woodland patches (Turbill and Ellis 2006 in TSSC 2015), suggesting its home range is probably large (Lumsden et al., 2008 in TSSC 2015). The species has also been found to be much more abundant in habitats that have a distinct tree canopy and a dense, cluttered understorey layer (Turbill and Ellis 2006 in TSSC 2015).		Y		Y			Low	The subject land and study area contains a number of hollows potentially suitable for the species. These occur within a fragmented landscape however with sparse canopy cover and a lack of mid- and ground-stratum vegetation. No previous records within the locality.
Mammalia	Petauroides volans	Greater Glider	-	V	-	Largely restricted to eucalypt forests and woodlands. It is primarily folivorous, with a diet mostly comprising eucalypt leaves, and occasionally flowers. It is typically found in highest abundance in taller, montane, moist eucalypt forests with relatively old trees and abundant hollows. The greater glider favours forests with a diversity of eucalypt species, due to seasonal variation in its preferred tree species.		Y					Negligible	Vegetation within the subject land is typical of woodland landforms as opposed to tall forest trees. The vegetation also does not occur as wet sclerophyll forests. No previous records within the locality.
Mammalia	Petrogale penicillata	Brush-tailed Rock-wallaby	E	V	-	In NSW the Brush-tailed Rock Wallaby occurs from the Queensland border in the north to the Shoalhaven in the south, with the population in the Warrumbungle Ranges being the western limit. This species occupies rocky escarpments, outcrops and cliffs with a preference for complex structures with fissures, caves and ledges, often facing north. The Brush-tailed Rock Wallaby browse on vegetation in and adjacent to rocky areas eating grasses and forbs as well as the foliage and fruits of shrubs and trees.		Y		Y			Negligible	The subject land does not contain rocky escarpments, outcrops or cliffs.
Mammalia	Phascolarctos cinereus	Koala	E	E	-	The Koala inhabits eucalypt woodlands and forests and feeds on the foliage of more than 70 eucalypt species and 30 non-eucalypt species, but in any one area will select preferred browse species (OEH 2018). Large populations of koalas occur on the western slopes and plains, in particular the Pilliga region (Kavanagh and Barrott 2001) and in Gunnedah (Smith 1992) and Walgett LGAs (J. Callaghan, Australian Koala Foundation, pers. comm.). Primary feed trees within the Western Slopes and Plains Koala Management Area (KMA) are River Red Gum (E. camalduensis) and Coolabah (E. coolabah).	Y	Y		Y	3	2014	Known	Scats recorded during within subject land targeted surveys
Mammalia	Pseudomys novaehollandiae	New Holland Mouse	-	V	-	Found from coastal areas and up to100 km inland on sandstone country. Known to inhabit a range of habitats including open heathland, open woodland with a heathland understory and vegetated sand dunes. Soil type may be an important indicator of suitability of habitat with deeper top soils and softer substrates being preferred for digging burrows. Other factors such as slope, geology and the amount of sun received in an area may also influence site selection.		Y					Negligible	Birriwa is located 230 km from the coast and is on the edge of the species range. Despite being potential suitable sandy substrate, species is unlikely to occur based on its range. No previous records within the locality.
Mammalia	Pteropus poliocephalus	Grey-headed Flying-fox	V	V	-	Grey-headed Flying foxes occur in subtropical and temperate rainforests, tall sclerophyll forests and woodlands, heaths and swamps as well as urban gardens and cultivated fruit crops. Roosting camps are generally located within 20 km of a regular food source and are commonly found in gullies, close to water, in vegetation with a dense canopy.	Y	Y		Y	1	2022	Low	No camps were observed within the subject land. The closest camp is located in Wellington, approxiamtley 60km south-west. Only one previous record in the locality.
Reptilia	Aprasia parapulchella	Pink-tailed Legless Lizard	V	V	-	The Pink-tailed Legless Lizard is only known from the Central and Southern Tablelands, and the South Western Slopes. The species inhabits sloping, open woodland areas with predominantly native grassy ground layers, particularly those dominated by Kangaroo Grass (Themeda australis). The species occurs in woodland with sandstone outcrops preferring ridges, buffs and slopes with a north west aspect. Thermally suitable microhabitat may be a limiting resource for the species (DoEE 2018). Sites are typically well-drained, with rocky sandstone outcrops or scattered, partially-buried rocks. The species is commonly found beneath small, partially-embedded rocks and appear to spend considerable time in burrows below these rocks; the burrows have been constructed by and are often still inhabited by small black ants and termites (OEH 2018). The species has not been recorded within the locality.		Y		Y			Low	Subject land does not contain suitable rocky habitat. No previous records in locality.
Reptilia	Delma impar	Striped Legless Lizard	V	V	-	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. Also occurs in the ACT, Victoria and south-eastern South Australia. 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 such as Kangaroo Grass (Themeda australis), spear-grasses (Austrostipa spp.) and poa tussocks (Poa spp.), and occasionally wallaby grasses (Austrodanthonia spp.). Sometimes present in modified grasslands with a significant content of exotic grasses. Sometimes found in grasslands with significant amounts of surface rocks, which are used for shelter. Sometimes utilises dried cowpats for shelter.		Y					Low	The subject land is out of the range of natural temperate grasslands. No previous records in locality.
Threatened ecological community	Central Hunter Valley eucalypt forest and woodland	Central Hunter Valley eucalypt forest and woodland	E	CE	-	The ecological community occurs in the Hunter Valley region (primarily in the Central Hunter). The Hunter Valley region is mostly in the north east of the Sydney Basin IBRA1 Bioregion (SYB). The Hunter Valley region and the ecological community both continue to the north east, into the NSW North Coast IBRA Bioregion. 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).		Y					Negligible	Subject land has undergone vegetation mapping. This TEC does not occur within the subject land.
Threatened ecological community	Coolibah - Black Box Woodlands of the Darling Riverine Plains and the Brigalow Belt South Bioregions	Coolibah - Black Box Woodlands of the Darling Riverine Plains and the Brigalow Belt South Bioregions	E	E	-	Coolibah – Black Box Woodland in the Darling Riverine Plains, Brigalow Belt South, Cobar Peneplain and Mulga Lands Bioregions. Eucalyptus coolabah (Coolibah) is typically the dominant or subdominant tree species. and it may occur with or without Acacia stenophylla (River Cooba), Acacia salicina (Cooba), Casuarina cristata (Belah), Eremophila bignoniiflora (Eurah), Eucalyptus largiflorens (Black Box), Eucalyptus camaldulensis (River Red Gum) and Eucalyptus populnea subsp. bimbil (Bimble Box).		Y					Negligible	Subject land has undergone vegetation mapping. This TEC does not occur within the subject land.
Threatened ecological community	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	E	E	-	The Grey Box (Eucalyptus microcarpa) Grassy Woodlands and Derived Native Grasslands of South-Eastern Australia ecological community occupies 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. A tree canopy dominated by Eucalyptus microcarpa (Grey Box) is typically present.		Y					Known	Subject land contains the TEC.
Threatened ecological community	Natural grasslands on basalt and fine-textured alluvial plains of northern New South Wales and southern Queensland	Natural grasslands on basalt and fine-textured alluvial plains of northern New South Wales and southern Queensland	-	CE	-	The Natural Grasslands on basalt and fine-textured alluvial plains of northern NSW and southern Queensland ecological community may be recognised by a distribution mainly in the Darling Downs of southern Queensland and the Liverpool Plains and Moree Plains of northern NSW. Occurrence is mainly associated with fine textured, often cracking clay soils derived from either basalt or alluvium. Occurrence on landforms that are typically flat to very low slopes (less than 5 percent/1 degree). Natural grasslands on basalt and fine-textured alluvial plains of northern NSW and southern Qld. Tree canopy usually absent to sparse, comprising less than 10% projective crown cover. The ground layer is typically dominated by perennial native grasses.		Y					Negligible	Subject land has undergone vegetation mapping. This TEC does not occur within the subject land.
Threatened ecological community	Poplar Box Grassy Woodland on Alluvial Plains	Poplar Box Grassy Woodland on Alluvial Plains	-	E	-	The ecological community occurs within the Brigalow Belt North, Brigalow Belt South, Southeast Queensland, Cobar Peneplain, Darling Riverine Plains, NSW South Western Slopes and Riverina IBRA bioregions. The ecological community typically occurs on palaeo and recent depositional soils in flat terrain and occasionally along watercourses in undulating country. The canopy of the Poplar Box Grassy Woodland is dominated by Eucalyptus populnea		Y					Negligible	Subject land has undergone vegetation mapping. This TEC does not occur within the subject land.
Threatened ecological community	Weeping Myall Woodlands	Weeping Myall Woodlands	E	E	-	Weeping Myall Woodlands occur in a range of forms from open woodlands to woodlands, in which weeping myall (Acacia pendula) trees are the sole or dominant overstorey species. The Weeping Myall Woodlands occurs on the inland alluvial plains west of the Great Dividing Range in NSW and QLD. It occurs in the Riverina, NSW South Western Slopes, Darling Riverine Plains, Brigalow Belt South, Murray-Darling Depression, Nandewar and Cobar Peneplain Interim Biogeographic Regionalisation for Australia (IBRA) bioregions.		Y					Negligible	No Weeping Myall Woodland occurs within the subject land.
Threatened ecological community	White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland	White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland	CE	CE	-	Box – Gum Grassy Woodlands and Derived Grasslands are characterised by a species-rich understorey of native tussock grasses, herbs and scattered shrubs, and the dominance, or prior dominance, of White Box, Yellow Box or Blakely's Red Gum trees. Also occurs as a grassland.		Y					Known	Subject land contains theTEC.

Attachment 9

Significant impact assessments – EPBC Act

EMM
creating opportunities

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

EPBC Act – endangered

The Commonwealth Conservation Advice for Grey Box (*Eucalyptus microcarpa*) Grassy Woodlands and Derived Native Grasslands of South-eastern Australia (DEWHA 2010) describes the conservation status, distribution, biology/ecology and threats to the survival of the EEC.

Grey Box (*Eucalyptus microcarpa*) Grassy Woodlands and Derived Native Grasslands of South-eastern Australia characteristically occurs on the drier edge of the temperate grassy eucalypt woodland belt. It ranges 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 in the Victorian Volcanic Plain to the west of Melbourne, and also in the Flinders and Mount Lofty Ranges near Adelaide in South Australia (DEWHA 2010).

The tree canopy is dominated by Grey Box (*Eucalyptus microcarpa*) whilst the mid- and understorey comprises a sparse shrub layer and a species-rich ground layer of grasses and herbs. Chenopods are often present, particularly in drier parts of the range. The ecological community includes patches of derived grassland where a tree canopy of Grey Box was known to have been present but has been removed, and the native ground layer remains largely intact (DEWHA 2010b).

The main threats associated with the TEC include clearing, fragmentation, inappropriate land management practices, a low level of protection in reserves, weed invasion and climate change (NSW TSSC 2010).

Approximately 1.01 ha of vegetation within the subject land conforms with the Grey Box (*Eucalyptus microcarpa*) Grassy Woodlands and Derived Native Grasslands of South-eastern Australia listing under the EPBC Act.

i Local occurrence justification

Calculation of the local occurrence of the TEC with context to the subject land has been defined as continuous patches of the TEC which are connected to the subject land. A patch is defined to reflect patch size definition according to the BAM (DPIE 2020) which is 'an area of native vegetation that occurs on the development site and includes native vegetation that has a gap of less than 100 m from the next area of native vegetation (or ≤30 m for non-woody ecosystems)'.

Regional mapping was used to estimate local occurrence and requires some interpretation as to which plant community types (PCTs) may conform to the TEC (DPIE 2015). The NSW Vegetation Classification system (DPIE 2022) was used to identify potentially conforming PCTs. The PCTs identified within the regional mapping which are considered to have potential to conform to Grey Box (*Eucalyptus microcarpa*) Grassy Woodlands and Derived Native Grasslands of South-eastern Australia EEC include PCTs 76, 81, 511 and 796. PCTs 511 and 796 are considered to be derived native grasslands and require further consideration when identifying potential TECs.

Derived grassland mapping in the regional context has been completed at a broad scale and it is expected that some variation is to occur when on-ground. A key observation about potential grassland TEC conformation was made during site surveys within the subject land. Five vegetation integrity plots were placed within Grey Box derived grassland, which resulted in one conforming to the EPBC listing (Figure 4.1). Based on the location of this plot and ecological principles, it was determined that the plot closest to the tree line was likely to conform due to the microclimate provided and expected increase in native diversity. The condition of derived native grassland improves as it approaches the woodland. A distance of 140 m from the tree line was used to delineate between grassland which does and does not conform. This distance was determined based on the average distance between the conforming plot and non-conforming plots.

This same principle has been applied to assess potential grassland which may conform to both the Grey Box (*Eucalyptus microcarpa*) Grassy Woodlands and Derived Native Grasslands of South-eastern Australia EEC and the White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland CEEC (see below). A distance of 140 m from conforming woodland patches has been used to determine potential grassland conforming patches.

The total predicted local occurrence of Grey Box (*Eucalyptus microcarpa*) Grassy Woodlands and Derived Native Grasslands of South-eastern Australia is 175 ha.

Table A.9.1 Assessment of significance for Grey Box (Eucalyptus microcarpa) Grassy Woodlands and Derived Native Grasslands of South-eastern Australia

Criteria	Discussion
1. Reduce the extent.	The proposed works will result in the removal of up to 1.01 ha of the Grey Box EEC, representing approximately 0.6% of the predicted local occurrence of the community. The access road design has also been considered to avoid impact to the high condition EEC where possible, utilising the existing Barney's Reef Road, which occurs as a dirt road through the subject land. The road design has been created as such, to minimise the increased width required for the proposed works and therefore minimise impact to the EEC. Although steps have been taken to avoid higher quality areas of the EEC, the project will result in a reduction of the extent of this community.
2. Fragment or increase fragmentation.	The occurrence of the Grey Box EEC within the subject land is highly connected to native vegetation along a road corridor. Roadsides, travelling stock routes or reserves or localised patches of grassland that are part of a larger remnant with trees, as may occur under power easements, rail easements or fire breaks are considered to primarily be the areas where this EEC occurs in high and intact condition (NSW TSSC 2010; Prober and Thiele 2005). The road corridor introduces existing fragmentation to the EEC, and an increase in the width of the road by approximately eight metres, is unlikely to further fragment the occurrence of the EEC. Pollinators of the flora species which make up the EEC are likely to be insects, which are unlikely to be inhibited from traversing the subject land and its locality. The EEC will also remain connected to native vegetation within the locality in a north-south direction, allowing for habitat connectivity for pollinators and fauna species which may utilise the EEC habitat. Given the existing access road within the site boundary and the areas of higher quality vegetation to be avoided, it is unlikely the project will result in a significant increase in fragmentation of the vegetation community.
3. Adversely affect habitat critical to survival.	The proposed works will result in the removal of up to 1.01 ha of the Grey Box EEC, representing approximately 0.6% of the predicted local occurrence of the community. Habitat critical to the survival of the Grey Box EEC has not been defined in the listing advice or conservation advice. The occurrence of the EEC within the subject land is likely to be necessary for the long-term maintenance of the EEC and maintaining genetic diversity as listed in the assessment criteria for critically endangered and endangered ecological communities (DE 2013). For this reason, the occurrence of the Grey Box EEC within the subject land is also considered to be habitat critical to the survival of the Grey Box EEC. Therefore, the proposed works will result in the removal of 1.01 ha of habitat critical to survival of the Grey Box EEC.

Table A.9.1 Assessment of significance for Grey Box (Eucalyptus microcarpa) Grassy Woodlands and Derived Native Grasslands of South-eastern Australia

Criteria	Discussion
4. 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 proposed work which will impact the Grey-Box Woodland EEC involves the construction of an access road for the proposed solar farm. Construction and operation of an access road has the potential to indirectly impact the EEC due to increased surface water runoff or fuel and chemical spills during construction. The EEC already occurs next to Barney's Reef Rd, which although it is a dirt road, is the cause of the same potential indirect impacts. The road design includes a sealed road which may increase the surface water runoff into the adjacent EEC, however a table drain installed parallel to the road will minimise these indirect impacts. As the EEC is already influenced by the existing road, construction and operation of the access road is unlikely to modify surface water levels to the point of significantly impacting the EEC. The proposed works are unlikely to directly impact groundwater flow through the subject land, as proposed works include the construction of an access road and installation of solar panels. There will be no reduction or draw-down of groundwater levels associated with the project; therefore, the project is not expected to impact on groundwater.
5. 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.	The Grey Box EEC is located within a road corridor along Barney's Reef Road, which is also subject to existing impacts such as weed encroachment. This EEC already has a moderate weed diversity particularly in the ground stratum which is likely attributed to the existing access road. The project has the potential to exacerbate these indirect impacts such as introduction and/or increase in weed species from construction and operation. The following mitigation measures will be implemented to ensure the project does not result in indirect impacts to the EEC: • appropriate identification, disposal and management of weed species during clearing works • wash down of all vehicles and equipment prior to entry to site. Therefore, it is considered unlikely that the project will result in the introduction of new weeds or increase of existing weed species within the EEC, further resulting in the decline of functionally important species.
6. Cause a substantial reduction in the quality or integrity of an occurrence of an ecological community, including, but not limited to: a) assisting invasive species, that are harmful to the listed ecological community, to become established, or b) 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.	The project has the potential to result in indirect impacts such as introduction and/or increase in weed species, introduction of pathogens and fuel or chemical spills during construction. The following mitigation measures will be implemented to ensure the project does not result in indirect impacts to the EEC: • appropriate identification, disposal and management of weed species during clearing works • wash down of all vehicles and equipment prior to entry to site • chemicals and fuel will be managed in accordance with Safe Work Australia guidelines (e.g. employ use of barriers, inspecting tanks and containers, etc) • use of appropriate spill containment materials (or spill kits) to clean-up spills if they occur. With the above mitigation measures implemented it is unlikely the project will result in the introduction of weeds and/or pathogens to the area or fuel/chemical spills which may indirectly impact the EEC. For the above reasons, it is unlikely that the quality or integrity of the ecological community outside the direct impact area will be impacted as a result of the project.

Table A.9.1 Assessment of significance for Grey Box (Eucalyptus microcarpa) Grassy Woodlands and Derived Native Grasslands of South-eastern Australia

Criteria	Discussion
7. Interfere with recovery.	There is no recovery plan for the Grey Box (*Eucalyptus microcarpa*) Grassy Woodlands and Derived Native Grasslands of South-Eastern Australia EEC. Some recovery actions listed in the conservation advice (TSSC 2010) relevant to the proposed works include: • Investigate management agreements to ensure that remnants currently within the Travelling Stock Route estate are managed with regard to the long-term protection of their biodiversity and conservation values, in conjunction with sustainably managed production. • Ensure chemicals or other mechanisms used to manage weeds do not have significant adverse non-target impacts on remnants of the Grey Box (*E. microcarpa*) Grassy Woodlands and Derived Native Grasslands of South-Eastern Australia. • Manage sites to prevent introduction or further spread of new invasive exotic weeds, and targeted control of existing key weeds which threaten the Grey Box (*E. microcarpa*) Grassy Woodlands and Derived Native Grasslands of South-Eastern Australia, using appropriate methods. The project will result in a reduction of extent of the Grey Box EEC by 1.01 ha. Through detailed design the disturbance footprint has been developed to avoid high quality areas of the EEC containing intact and connected vegetation. The disturbance footprint is located on an existing access road which introduces the EEC to existing indirect impacts. Due to existing weed encroachment within the EEC, recovery potential is moderate, however the widening of Barney's Reef Road by eight metres is unlikely to exacerbate introduction or spread of weed encroachment. Given the above, the proposed works are unlikely to interfere with the recovery of the EEC.
Conclusion	The proposed works have been considered to minimise the impact to Grey Box (*Eucalyptus microcarpa*) Grassy Woodlands and Derived Native Grasslands of South-eastern Australia EEC. The assessment of significance has resulted in: • the disturbance footprint has been designed to avoid clearing of woodland areas and higher quality grassland areas • 0.06% of the Grey Box EEC within the local occurrence is likely to be removed as part of the considered design • the areas to be cleared occur along Barney's Reef Road and are already subject to indirect impacts such as weed encroachment • mitigation measures will be implemented to ensure the project does not result in the spread or introduction of weed species or fuel/chemicals • the works are unlikely to impact on abiotic factors that the community requires for survival • areas of higher quality vegetation within the impact area will be left undisturbed and maintain connectivity for the community through the impact area. As a result, the project is unlikely to have a significant impact on the Grey Box (*Eucalyptus microcarpa*) Grassy Woodlands and Derived Native Grasslands of South-eastern Australia EEC given the minimal EEC removal when compared to the extent within the locality, measures to avoid, minimise and mitigate potential indirect impacts as part of the proposed works and the connectivity to native vegetation to remain within the locality.

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

EPBC Act – critically endangered

The Commonwealth Conservation Advice for White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland (TSSC 2006) describes the conservation status, distribution, biology/ecology and threats to the survival of the CEEC.

White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland is a TEC characterised by a species-rich understorey consisting of native tussock grasses, herbs and scattered shrubs, with the canopy dominated by White Box, Yellow Box or Blakely's Red Gum trees. Co-dominate trees include Grey Box, Fuzzy Box (*E. conica*), Apple Box (*E. bridgesiana*), Red Box (*E. polyanthemos*), Red Stringybark (*E. macrorhyncha*), White Cypress Pine (*Callitris glaucophylla*), Black Cypress Pine (*C. enderlicheri*), Long-leaved Box (*E. gonicalyx*), New England Stringybark (*E. calignosa*), Brittle Gum (*E. mannifera*), Candlebark (*E. rubida*), Argyle Apple (*E. cinerea*), Kurrajong (*Brachychiton populneus*) and Drooping She-oak (*Allocasuarina verticillata*) (TSSC 2006).

The TEC is known to occur in an arc along the western slopes and tablelands of the Great Dividing Range from Southern Queensland through NSW to central Victoria (TSSC 2006).

The main threats associated with the TEC include clearing associated with agricultural, horticultural, urban development and mining, grazing pressures, firewood collection, changed fire regimes, use of chemicals, mowing or slashing regimes, weed invasion, climate change and animal pests (DECCW 2011).

Approximately 0.35 ha of White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland which conforms under the EPBC Act was mapped within the subject land.

Regional mapping was used to estimate local occurrence and requires some interpretation as to which plant community types (PCTs) may conform to the TEC (DPIE 2015). The NSW Vegetation Classification system (DPIE 2022) was used to identify potentially conforming PCTs. The PCTs identified within the regional mapping which are considered to have potential to conform to White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland include PCTs 266, 267, 276, 277, 280, 281, 347, 381, 401, 403, 433, 435, 437, 483, 511, 599 and 796.

The total predicted local occurrence of White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland is 58 ha.

Table A.9.2 Assessment of significance for White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland

Criteria	Discussion
1. Reduce the extent.	The proposed works will result in the removal of up to 0.35 ha of the Box-Gum CEEC, representing approximately 0.6% of the predicted local occurrence of the community. The access road design has also been considered to avoid impact to the high condition CEEC where possible, utilising the existing Barney's Reef Road, which occurs as a dirt road through the subject land. The road design has been created as such, to minimise the increased width required for the proposed works and therefore minimise impact to the CEEC. Although steps have been taken to avoid higher quality areas of CEEC, the project will result in a reduction of the extent of this community.
2. Fragment or increase fragmentation.	The occurrence of the Box-Gum CEEC within the subject land is highly connected to native vegetation along a road corridor. Roadsides, travelling stock routes or reserves or localised patches of grassland that are part of a larger remnant with trees, as may occur under power easements, rail easements or fire breaks are considered to primarily be the areas where this CEEC occurs in high and intact condition (NSW TSSC 2010; Prober and Thiele 2005). The road corridor introduces existing fragmentation to the CEEC, and an increase in the width of the road by approximately eight metres, is unlikely to further fragment the occurrence of the CEEC. Pollinators of the flora species which make up the CEEC are likely to be insects, which are unlikely to be inhibited from traversing the subject land and its locality. The CEEC will also remain connected to native vegetation within the locality in a north-south direction, allowing for habitat connectivity for pollinators and fauna species which may utilise the CEEC habitat. Given the existing access road within the site boundary and the areas of higher quality vegetation to be avoided, it is unlikely the project will result in a significant increase in fragmentation of the vegetation community.

Table A.9.2 Assessment of significance for White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland

Criteria	Discussion
3. Adversely affect habitat critical to survival.	The proposed works will result in the removal of up to 0.35 ha of the Box Gum CEEC, representing approximately 0.6% of the predicted local occurrence of the community. Habitat critical to the survival of the Box-Gum CEEC is defined as areas on moderate to highly fertile soils of the western slopes of NSW and Queensland, the northern slopes of Victoria, and the tablelands of the Great Dividing Range (DECCW 2011). Given the level of fragmentation and degradation of this community within NSW, all areas of the Box-Gum CEEC that meet the minimum criteria for the EPBC listing as outlined in the recovery plan should be considered critical to the survival of the community. According to these criteria, all areas mapped as Box-Gum CEEC within the subject land is classified as critical. Therefore, the proposed works will result in the removal of 0.35 ha of habitat critical to survival of the Box-Gum CEEC.
4. 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 proposed work which will impact the Box-Gum CEEC involves the construction of an access road for the proposed solar farm. Construction and operation of an access road has the potential to indirectly impact the CEEC due to increased surface water runoff or fuel and chemical spills during construction. The CEEC already occurs next to Barney's Reef Rd, which although it is a dirt road, is the cause of the same potential indirect impacts. The road design includes a sealed road which may increase the surface water runoff into the adjacent CEEC, however a table drain installed parallel to the road will minimise these indirect impacts. As the CEEC is already influenced by the existing road, construction and operation of the access road is unlikely to modify surface water levels to the point of significantly impacting the CEEC. The proposed works are unlikely to directly impact groundwater flow through the subject land, as proposed works include the construction of an access road and installation of solar panels. There will be no reduction or draw-down of groundwater levels associated with the project; therefore, the project is not expected to impact on groundwater.
5. 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.	The Box-Gum CEEC is located within a road corridor along Barney's Reef Road, which is also subject to existing impacts such as weed encroachment. This CEEC already has a moderate weed diversity particularly in the ground stratum which is likely attributed to the existing access road. The project has the potential to exacerbate these indirect impacts such as introduction and/or increase in weed species from construction and operation. The following mitigation measures will be implemented to ensure the project does not result in indirect impacts to the CEEC: • appropriate identification, disposal and management of weed species during clearing works • wash down of all vehicles and equipment prior to entry to site. Therefore, it is considered unlikely that the project will result in the introduction of new weeds or increase of existing weed species within the CEEC, further resulting in the decline of functionally important species.

Table A.9.2 Assessment of significance for White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland

Criteria	Discussion
6. Cause a substantial reduction in the quality or integrity of an occurrence of an ecological community, including, but not limited to: a) assisting invasive species, that are harmful to the listed ecological community, to become established, or b) 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.	The project has the potential to result in indirect impacts such as introduction and/or increase in weed species, introduction of pathogens and fuel or chemical spills during construction. The following mitigation measures will be implemented to ensure the project does not result in indirect impacts to the CEEC: • appropriate identification, disposal and management of weed species during clearing works • wash down of all vehicles and equipment prior to entry to site • chemicals and fuel will be managed in accordance with Safe Work Australia guidelines (e.g. employ use of barriers, inspecting tanks and containers, etc) • use of appropriate spill containment materials (or spill kits) to clean-up spills if they occur. With the above mitigation measures implemented it is unlikely the project will result in the introduction of weeds and/or pathogens to the area or fuel/chemical spills which may indirectly impact the CEEC. For the above reasons, it is unlikely that the quality or integrity of the ecological community outside the direct impact area will be impacted as a result of the project.
7. Interfere with recovery.	The national recovery plan for the White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland (DECCW 2011) identifies the following objectives for the recovery of the Box-Gum CEEC: • achieving no net loss in extent and condition of the ecological community throughout its distribution • increasing protection of sites with high recovery potential • increasing landscape functionality of the ecological community through management and restoration of degraded sites • increasing transitional areas around remnants and linkages between remnants • changes in land management attitudes and practices to increase extent, integrity and function of Box-Gum Grassy Woodland. The project will result in a reduction of extent of the Box-Gum CEEC by 0.35 ha. Through detailed design the disturbance footprint has been developed to avoid high quality areas of the CEEC containing intact and connected vegetation. The disturbance footprint is located on an existing access road which introduces the CEEC to existing indirect impacts. Due to existing weed encroachment within the CEEC, recovery potential is moderate, however the widening of Barney's Reef Road by eight metres is unlikely to exacerbate introduction or spread of weed encroachment. Given the above, the proposed works are unlikely to interfere with the recovery of the CEEC.

Table A.9.2 Assessment of significance for White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland

Criteria	Discussion
Conclusion	The proposed works have been considered to minimise the impact to White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland CEEC. The assessment of significance has resulted in: • the disturbance footprint has been designed to avoid clearing of woodland areas and higher quality grassland areas • 0.6% of the Box-Gum CEEC within the local occurrence is likely to be removed as part of the considered design • the areas to be cleared occur along Barney's Reef Road and are already subject to indirect impacts such as weed encroachment • mitigation measures will be implemented to ensure the project does not result in the spread or introduction of weed species or fuel/chemicals • the works are unlikely to impact on abiotic factors that the community requires for survival • areas of higher quality vegetation within the impact area will be left undisturbed and maintain connectivity for the community through the impact area. As a result, the project is unlikely to have a significant impact on White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland CEEC given the minimal CEEC removal when compared to the extent within the locality, measures to avoid, minimise and mitigate potential indirect impacts as part of the proposed works and the connectivity to native vegetation to remain within the locality.

9.1.3 Koala

EPBC Act – endangered

The range of the combined population of Koalas (EPBC Act – endangered) in QLD, NSW and ACT extends from the latitude of Cairns to the New South Wales-Victoria border and includes some island populations. The Koala's distribution is not continuous across this range, with some populations isolated by cleared land or unsuitable habitat (DAWE 2022b). Koalas inhabit a range of temperate, sub-tropical and tropical forest, woodland and semi-arid communities dominated by species from the genus *Eucalyptus* spp. The distribution of Koalas is also affected by altitude (generally limited to <800 m asl), temperature, and at the western end of their range, leaf moisture (DAWE 2022a).

Two locations within the subject land were recorded where Koala scat were identified by Koala detection dogs. These locations occur within the roadside of Barney's Reef Road (Figure 5.1). These locations occur in highly connected vegetation, which occur adjacent to Barney's Reef Road, from the Castlereagh Highway in the north and the ridgelines and slopes which occur in the south. Suitable habitat associated with the Koala within the subject land has been assessed as all woodland vegetation zones within the subject land (PCTs 281 and 80) (Figure 6.2). PCTs 281 and 80 are likely to provide key feed species for the Koala to forage.

Approximately 8.62 ha of Koala habitat occurs in the subject land. The availability of habitat within the locality is estimated to be 1784 ha, of which the subject land comprises 0.48%.

Table A.9.3 Assessment of significance for Koala

Criteria	Discussion
1. Lead to a long-term decrease in size of a population.	Although the proposed works will reduce the extent of Koala habitat by 8.62 ha, this removal extends a linear length of approximately 2.5 km and will not fragment potential habitat. Highly suitable habitat occurs adjacent to Barneys Reef Road, where 1.36 ha of the total 8.62 ha within the subject land occurs, which is highly connected to native vegetation in the north and south. The population which occurs within this area is likely to be relatively mobile, and traverse throughout the suitable habitat along Barney's Reef Road. The greatest width of clearance as a result of the proposed works will be 8 m, which still allows for the connected habitat to provide refuge for the Koala. Isolated patches of potential habitat also occur within the subject land, however, are surrounded by grassland landscapes which make the habitat sub-optimal for the species. Vehicles strikes are a known threat to the Koala (DAWE 2022a) and the proposed activity is likely to increase traffic on Barneys Reef Rd as a result of construction and operation of the solar farm. There are three previous records of the Koala in the locality (BCD 2022), one of which notes a deceased Koala on the road west of Dunedoo. Mitigation measures such as preclearance surveys will be conducted prior to tree removal to avoid direct impacts to any Koala which may occur within the subject land. Work site speed limits are also likely to be enforced during construction and are therefore unlikely to increase to Koala mortality due to vehicle strike. Due to the linear nature of the proposed works within suitable Koala habitat and mitigation measures to avoid direct impact to the species, the proposed works are unlikely to lead to a long-term decrease in the size of a Koala population.
2. Reduce the area of occupancy for the species.	The proposed works will result in the removal of up to 8.62 ha of suitable habitat for the Koala. This is equivalent to 0.48% of available habitat in the locality.
3. Fragment an existing population into two or more populations.	Although the proposed works will reduce the extent of Koala habitat by 8.62 ha, this removal extends a linear length of approximately 2.5 km and will not fragment potential habitat. Suitable habitat occurs adjacent to Barneys Reef Road, which is highly connected to native vegetation in the north and south. The population which occurs within this area is likely to be relatively mobile, and traverse throughout the suitable habitat along Barney's Reef Road. The greatest width of clearance as a result of the proposed works will be 8 m, adjacent to the existing Barneys Reef Road, which still allows for the connected habitat to provide refuge for the Koala. Removal of the already isolated and fragmented patches within the subject land is unlikely to further fragment the sub-optimal habitat which surrounds the subject land. The proposed activity is unlikely to fragment the existing Koala population into two or more populations.

Table A.9.3 Assessment of significance for Koala

Criteria	Discussion
4. Adversely affect habitat critical to survival of a species.	Habitat critical to the survival of the Koala has been defined by the approved conservation advice (DAWE 2022a) as: 'The areas that the species relies on to avoid or halt decline and promote the recovery of the species. Under the EPBC Act, the following factors and any other relevant factors may be considered when identifying habitat that is critical to the survival of a species: • 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. Such areas, if identified, would be expected to include habitat occupied and habitat currently unoccupied, areas necessary for population processes and maintenance of genetic diversity and evolutionary potential, and areas required to accommodate future population increase, recolonisation, reintroduction, or as climate refugia.' Given the known records of scats within the study area and highly connected nature of habitat within the locality, the habitat which occurs within the subject land is likely to be habitat critical to the survival of the species. The proposed works will result in the removal of up to 8.62 ha of critical habitat for the Koala. This is equivalent to 0.48% of available habitat in the locality.
5. Disrupt breeding cycle of a population.	The habitat within the subject land is suitable for foraging and breeding for the Koala. The breeding season of the Koala can be difficult to predict, as a number of factors such as population density, food quality and availability, soil type and climate, and health of the Koala effect breeding (DAWE 2022a and references therein). Koala reproduction is also heavily influenced by seasonality. It is likely that any noise and vibrations which occur as a result of the proposed works will encourage the Koala to move further away from the subject land; this may cause stress to the individual. Mitigation measures such as pre-clearance surveys to ensure the Koala is not present within the subject land prior to vegetation removal will be in place in order to avoid direct impacts to the Koala, potentially during the breeding season.
6. Modify, destroy, remove, isolate or degrade habitat to the extent that the species is likely to decline.	The proposed works will result in the removal of up to 8.62 ha of critical habitat for the Koala. This is equivalent to 0.48% of available habitat in the locality. No Koala habitat is likely to be isolated as a result of the proposed activity. The proposed activity has the potential to modify Koala habitat outside of the subject land, with indirect impacts such as weed encroachment. The following mitigation measures will be implemented to ensure the project does not result in indirect impacts to Koala habitat: • appropriate identification, disposal and management of weed species during clearing works • wash down of all vehicles and equipment prior to entry to site.

Table A.9.3 Assessment of significance for Koala

Criteria	Discussion
7. Result in invasive species that are harmful to a critically endangered or endangered species becoming established in the endangered or critically endangered species' habitat.	Domestic dogs (*Canis familiaris*) are a known threat to Koalas; however the proposed works will not introduce domestic dogs to the area (DAWE 2022b). Invasion by weeds and pathogens is also a known threat to the species, where weed encroachment and pathogen introduction can alter suitable habitat. The Koala habitat within the subject land is located within a road corridor along Barney's Reef Road, which is also subject to existing impacts of weed encroachment. This habitat has a moderate weed diversity primarily within the ground stratum. Despite the existing weed encroachment, the Koala is still known to occur. The following mitigation measures will be implemented to ensure the project does not result in indirect impacts to Koala habitat: • appropriate identification, disposal and management of weed species during clearing works • wash down of all vehicles and equipment prior to entry to site. Therefore, it is considered unlikely that the proposed works will result in invasive species that would adversely affect Koala habitat.
8. Introduce disease that may cause the species to decline	Koalas are susceptible to Chlamydia, a sexually transmitted disease. In general, disease outbreaks occur when animals are stressed due to environmental or climatic stressors (DAWE 2022b). The proposed works has the potential to increase stress levels to the Koala, as potential stressors such as noise and vibration levels within the subject land in addition to clearing vegetation may cause stress if the Koala was to occur in within the subject land. Mitigation measures such as pre-clearance surveys to ensure the Koala is not present within the subject land prior to vegetation removal will be in place in order to avoid potential stress factors for the Koala.
9. Interfere with the recovery of the species	Current recovery actions for the Koala include the establishment and implementation of a National Koala Monitoring Program, initiatives aimed at health programs and research, creation of Koala sighting programs and support for the wildlife rehabilitation sector (DAWE 2022b). Additional recovery actions include (DAWE 2022a): • build and share knowledge • strong community engagement and partnerships • increase habitat protection • koala conservation is integrated into policy, and statutory and land-use plans • strategic habitat restoration • active metapopulation management. The proposed works are likely to interfere with the recovery action of increase habitat protection and restoration, as the removal of 8.62 ha within the subject land is likely to inhibit the ability of the existing habitat to be protected or restored. Despite this, efforts to minimise direct impacts to suitable habitat on Barneys Reef Road have been made during design of the proposed works. The access road design utilises the existing Barney's Reef Road, which occurs as a dirt road through the subject land. The road design has been created as such, to minimise the increased width required for the proposed works and therefore minimise impact to Koala habitat.
Conclusion	The project is unlikely to have a significant impact on the Koala as: • direct impacts will occur to 8.62 ha of suitable habitat, which occurs as 0.48% within the locality • suitable habitat is likely to be fragmented or isolated as a result of the proposed works • mitigation measures in place to reduce potential direct and indirect impacts such as pre-clearance surveys and weed hygiene measures • the works are not likely to have a significant impact on populations size, area or increase isolation of these species.

9.1.4 Regent Honeyeater and Gang-gang Cockatoo

i Regent Honeyeater

EPBC Act – critically endangered

The Commonwealth Conservation Advice for Regent Honeyeater (DE 2015a) describes the conservation status, distribution, biology/ecology and threats to the survival of the species.

The Regent Honeyeater is a medium size bird predominantly black and yellow. The head, neck and throat are black, with warty pink or yellow skin around the eyes. The wings and tail feathers are edged with bright yellow (DE 2015a).

The Regent Honeyeater is endemic to mainland south-eastern Australia; extending from south-east Queensland, through NSW and the ACT to central Victoria (DE 2015a). There are only three known breeding regions remaining within Victoria and NSW. Within NSW the species is known to breed at Capertee Valley and the Bundarra-Barraba region (OEH 2022a). The species movement patterns are largely influenced by glowering of certain eucalypt species.

The species is most commonly associated with box-ironbark eucalypt woodland and dry sclerophyll forest. It is also known to occur within riparian vegetation such as *Casuarina* spp. where it feeds on mistletoe. The Regent Honeyeater uses a range of other habitats including remnant patches within farmland and urban areas, and roadside reserves. The species nests in the canopy of mature trees with rough bark. Breeding occurs between spring and summer (August to January) (DE 2015a).

The main threats to the Regent Honeyeater include clearing, fragmentation, degradation of habitat, competition from other birds, egg and nest predation by native birds and mammals and loss of key foraging resources as a result of inappropriate fire regimes (OEH 2022a).

While this species was not observed during field surveys, it is associated with PCTs 281 and 80. The subject land contains suitable foraging habitat for the species within mapped woodland areas.

ii Gang-gang Cockatoo

EPBC Act – endangered

The Commonwealth Conservation Advice for Gang-gang Cockatoo (DAWE 2022c) describes the conservation status, distribution, biology/ecology and threats to the survival of the species.

The Gang-gang Cockatoo is a small, primarily grey cockatoo with broad wings and short tails. Adult males are characterised by their scarlet-coloured head and a filamentous, forward-curling crest and occasionally a pale-yellow abdomen (DAWE 2022c). Adult females are entirely grey, with feathers fringed with yellow, particularly on the abdomen and undertails (DAWE 2022c).

The Gang-gang Cockatoo is endemic to south-eastern Australia and is more common at higher elevations and more southern latitudes (DAWE 2022c). In NSW, the species has been recorded in the Greater Blue Mountains Heritage Area and the Mid to Lower Central Coast, with isolated records as far north as Coffs Harbour (DAWE 2022c). The species also occurs throughout the ACT and is widespread throughout Victoria (DAWE 2022c).

The Gang-gang Cockatoo predominantly inhabits temperate eucalypt forests and woodlands, with the species commonly occurring in eucalypt-dominated forests with dense, shrubby understories in summer (DAWE 2022c). In winter, the species inhabits open eucalypt woodlands and, occasionally groups of river red gum, heathlands and dense coastal thickets of *Leptospermus* and *Casuarina* (DAWE 2022c).

The species has a broad diet, feeding on flower buds, seed pods, blossoms, leaf buds and fruits, but relies primarily on eucalypts and acacia for foraging (DAWE 2022c). The species relies on stands of large, hollow-bearing trees for breeding, generally near water. Breeding primarily occurs between October and January (DAWE 2022c).

The main threats to the Gang-gang Cockatoo include habitat loss due to wildfire and clearing, particularly in mature forests with old hollow-bearing trees, and the resulting competition with other birds and arboreal species for suitable nesting hollows (DAWE 2022c).

While this species was not observed during field surveys, it is associated with PCTs 281 and 80. The subject land contains suitable foraging habitat for the species within mapped woodland areas.

Table A.9.4 Assessment of significance for Regent Honeyeater and Gang-gang Cockatoo

Criteria	Discussion
1. Lead to a long-term decrease in size of a population.	The Regent Honeyeater and Gang-gang Cockatoo are known to occur throughout eastern NSW, with existing records for the Regent Honeyeater occurring within the locality. The species are considered to have potential to utilise foraging habitat within the subject land. These species are likely to utilise the woodland habitat only and are unlikely to be associated with the grasslands within the subject land. The proposed works will result in the removal of up to 8.62 ha of foraging habitat for the Regent Honeyeater and Gang-gang Cockatoo. The subject land is situated within a primarily agricultural landscape, however highly connected patches of woodland occur within the subject land in addition to isolated patches and individual trees. It is not predicted that the impact to 8.62 ha of foraging habitat will lead to a long-term decrease in the size of a population of these two woodland birds, given the extent of high quality and connected woodland within the locality.
2. Reduce the area of occupancy for the species.	The proposed works will result in the removal of up to 8.62 ha of foraging habitat for the Regent Honeyeater and Gang-gang Cockatoo. The subject land is situated within a primarily agricultural landscape, however highly connected patches of woodland occur within the subject land in addition to isolated patches and individual trees. Given the remaining foraging habitat within the locality, it is unlikely the project will result in a significant reduction of foraging habitat for the Regent Honeyeater or the Gang-gang Cockatoo.
3. Fragment an existing population into two or more populations.	The subject land is located within a fragmented landscape with historical clearing and existing agricultural land uses and is also connected to larger extents of native vegetation in the south. The project will include the construction of solar panels and access road. Given both species can fly across the subject land, the proposed works are unlikely to result in significant fragmentation of species habitat.
4. Adversely affect habitat critical to survival of a species.	Habitat critical to the survival of the Regent Honeyeater has been defined by the recovery plan (DE 2016) as: • any breeding or foraging habitat in areas where the species is likely to occur (as defined by distribution maps in the recovery plan) • any newly discovered breeding or foraging locations. The subject land lies within the species distribution as mapped within the recovery plan (DE 2016). Habitat critical to the survival of the Gang-gang Cockatoo has been defined as 'all foraging habitat during both the breeding and non-breeding season' (DAWE 2022c). As such, habitat within the subject land contains critical habitat for both species. The proposed works will result in the removal of up to 8.62 ha of critical habitat for the Regent Honeyeater and Gang-gang Cockatoo. High quality connected habitat occurs within the locality and is also likely to be considered critical habitat.
5. 5. Disrupt breeding cycle of a population.	The subject land is located outside of the known breeding areas of these species. The closest key breeding area for the Regent Honeyeater is the Mudgee-Wollar area, approximately 50 km south-east of the subject land (DoE 2016). Breeding for the Gang-gang Cockatoo usually occurs between October and January (Summer) where they primarily inhabit mature, wet sclerophyll forests at higher altitudes (DAWE 2022c). The proposed works are unlikely to directly disrupt the breeding cycle of these species.

Table A.9.4 Assessment of significance for Regent Honeyeater and Gang-gang Cockatoo

Criteria	Discussion
6. Modify, destroy, remove, isolate or degrade habitat to the extent that the species is likely to decline.	The proposed activity will remove up to 8.62 ha of foraging habitat for these species. The subject land is outside the known breeding areas for both species. Given the proposed activity will remove foraging habitat only, it is unlikely this will result in a substantial reduction of the species.
7. Result in invasive species that are harmful to a critically endangered or endangered species becoming established in the endangered or critically endangered species' habitat.	Weeds are considered to contribute to habitat degradation for both species. Soil disturbance for the proposed works has potential to result in the spread of invasive weeds to retained areas of vegetation and potential habitat. The foraging habitat within the subject land for these species is located within a road corridor along Barney's Reef Road, which is also subject to existing impacts of weed encroachment. This habitat has a moderate weed diversity primarily within the ground stratum. The following mitigation measures will be implemented to ensure the project does not result in indirect impacts to Regent Honeyeater and Gang-gang Cockatoo habitat: • appropriate identification, disposal and management of weed species during clearing works • wash down of all vehicles and equipment prior to entry to site. Therefore, it is considered unlikely that the proposed works will result in invasive species that would adversely affect foraging habitat for these species.
8. Introduce disease that may cause the species to decline	There are no known diseases that pose a threat to the Regent Honeyeater. Psittacine beak and feather disease (PBFD) is a common and potentially deadly disease that is widespread in wild populations of many Australian parrots and cockatoos (DEH 2004), including the Gang-gang Cockatoo (DAWE 2022c). The potential impacts of the disease depend on environmental conditions and the general health of populations. The disease has the potential to impact Gang-gang Cockatoo populations if their health declines due to competition for food resources. It is not predicted that the proposed works would impact on the levels of PBFD directly as it already exists in wild populations, or indirectly, as the relatively small area of foraging habitat to be cleared will not cause significant stress to Gang-gang Cockatoo populations.
9. Interfere with the recovery of the species	Whilst there is no recovery plan for the Gang-gang Cockatoo, the approved conservation advice outlines a number of recovery actions relevant to the proposed works including (DAWE 2022c): • cease all land clearing of habitat critical to the survival of Gang-gang Cockatoo. Additional recovery actions include conservation strategies, stakeholder engagement and survey and monitoring priorities. The proposed activity will interfere with the recovery action listed above, due to the removal of up to 8.62 ha of foraging habitat, which is also considered critical habitat. The extent of clearance is minimal and linear in nature, where no fragmentation of highly connected habitat will occur. The interference with this recovery action is unlikely to be significant. Recovery actions for the Regent Honeyeater include (DE 2016): • improve the extent and quality of the 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. As recovery actions are focused on increasing knowledge of the species and maintaining and restoring high quality habitat the project will not interfere with recovery. The project will interfere with the quality and extent of potential habitat for the species; however this is unlikely to be substantial, removing 8.62 ha.

Table A.9.4 Assessment of significance for Regent Honeyeater and Gang-gang Cockatoo

Criteria	Discussion
Conclusion	The proposed works are unlikely to have a significant impact on the Regent Honeyeater or Gang-gang Cockatoo as: • direct impacts will occur to 8.62 ha of foraging habitat • the habitat to be cleared is unlikely to be fragmented due to the nature of the works and the high mobility of these bird species • the subject land is located outside of the known breeding areas of these species • the works are not likely to have a significant impact on populations size, area or increase isolation of these species.

9.1.5 Painted Honeyeater and White-throated Needletail

i Painted Honeyeater

EPBC Act – vulnerable

The Commonwealth Conservation Advice for Painted Honeyeater (DE 2015b) describes the conservation status, distribution, biology/ecology and threats to the survival of the species.

The Painted Honeyeater is a small size bird with a distinct black head and black and white underparts. It has black spots on its flanks and yellow edges on the wings and tail feathers. The distinct bill is pink, and the eyes are red (DE 2015b).

The Painted Honeyeater is known to occur from south-eastern Australia to north-western Queensland and eastern Northern Territory (DE 2015b). The species is most commonly known from the inland slopes of the Great Dividing Rage in NSW, VIC and southern QLD where majority of the breeding occurs (OEH 2022b).

The Painted Honeyeater is the most specialised of Australia's honeyeaters, with a diet consisting of mistletoe fruits, nectar and arthropods. The species is known to occur within eucalypt forests/woodlands with an abundance of mistletoes. It inhabits a range of habitats including 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 create nests out of mistletoe and nest within the foliage of trees. The species breeds between October to March when mistletoe fruits are in abundance (DE 2015b).

The main threats to the Painted Honeyeater are habitat loss and degradation, habitat infestation by weeds, heavy grazing, removal of key feed species such as mistletoes, inappropriate fire regimes and competition with Noisy Miner (Manorina melanocephala).

While this species was not observed during field surveys, it is associated with PCTs 281 and 80. The subject land contains suitable foraging habitat for the species within mapped woodland areas.

ii White-throated Needletail

EPBC Act – vulnerable, migratory

The Commonwealth Conservation Advice for the White-throated Needletail (TSSC 2019) describes the conservation status, distribution, biology/ecology and threats to the survival of the species.

The White-throated Needletail is a large swift with long curved pointed wings and white markings. Adults have a dark-olive head and neck, with juveniles similar in appearance (TSSC 2019). Their tail is short and square, with a white undertail. The underwing is black, brown with glossy grey-brown flight feathers and the bill is black (TSSC 2019).

The White-throated Needletail is widespread in eastern and south-eastern Australia, and only occurring as vagrants in the Northern Territory and Western Australia. The species breeds in Asia and is recorded passing through eastern China, the Korean Peninsula and Japan. Most White-throated Needletails are known to spend the non-breeding season in Australasia (TSSC 2019).

Within Australia, the White-throated Needletail is almost exclusively aerial. Although they occur over most types of habitats, they are most often recorded over wooded areas and in coastal areas they are sometimes seen flying over sandy beaches or mudflats (TSSC 2019). The species almost always forages aerially within Australia, at heights up to 'cloud level'. The species has been recorded roosting in dense foliage or hollows of trees within forests and woodland (TSSC 2019). The White-throated Needletail does not breed in Australia (TSSC 2019).

There are few known threats associated with the White-throated Needletail in Australia. Collision with overhead wires, windows and lighthouses only affects a few individuals and is not known as a threat to the species overall (TSSC 2019).

While this species was not observed during field surveys, it is associated with PCTs 281 and 80. The subject land contains suitable roosting habitat for this species within mapped woodland areas.

Table A.9.5 Assessment of significance for Painted Honeyeater and White-throated Needletail

Criteria	Discussion
1. Lead to a long-term decrease in the size of an important population.	Recovery plans have not been developed for the White-throated Needletail or Painted Honeyeater; therefore, important populations have not been defined. As described in the significant impact guidelines (DE 2013) an important population can include: • key source populations either for breeding or dispersal • populations that are necessary for maintain genetic diversity • populations that are near the limit of the species range. The White-throated Needletail is known to breed in the northern hemisphere and return to Australia in the non-breeding season and is primarily exclusively aerial (TSSC 2019). The Painted Honeyeater's breeding season is known to be associated with the fruiting of mistletoes and the species exhibits seasonal north-south movement as a result (DE 2015b). The species breeds in large remnant mature woodland with an abundance of mistletoe. The subject land does not contain mistletoes and occurs as a linear extent within the landscape. For this reason, the subject land is not considered to support key source populations for breeding or dispersal. There are two recognised subspecies of the White-throated Needletail (TSSC 2019): • subspecies *caudacutus* occurs in central and eastern Siberia, northern Mongolia, northern China and the Korean Peninsula, Sakhalin and Japan, and migrates to spend the non-breeding season in Australasia • subspecies *nudipes*, which breeds in the Himalayas from northern Pakistan to Assam and south-western China and is largely resident and does not occur in Australasia. One of these sub-populations (*caudacutus*) occur within Australia. The species is almost exclusively aerial and may utilise the subject land to forage. As only one population occurs within Australia, it is unlikely that any occurrence of the species within the subject land is likely to impact genetic diversity of the species. The Painted Honeyeater occurs as one population with no separate sub-populations likely (DE 2015b). It is unlikely that the subject land supports populations that are necessary for maintain genetic diversity. The subject land is located within the known distribution ranges of the White-throated Needletail and the Painted Honeyeater and does not occur within the limit of their respective ranges. It is unlikely that any individuals present in the subject land would be part of an important population of these species.

Table A.9.5 Assessment of significance for Painted Honeyeater and White-throated Needletail

Criteria	Discussion
2. Reduce the area of occupancy area of an important population.	As per above, important populations have not been defined for these species, and it is unlikely that individuals in the subject land would form part of an important population. The proposed works will result in the removal of 8.62 ha of foraging and roosting habitat for both species. These species are highly mobile. High quality connective habitat remains to the south of the subject land. Given this it is unlikely the proposed works will result in a significant reduction of habitat for the Painted Honeyeater or White-throated Needletail.
3. Fragment an existing important population into two or more populations.	As per above, important populations have not been defined for these species, and it is unlikely that individuals in the subject land would form part of an important population. The subject land is located within a fragmented landscape with historical clearing and existing agricultural land uses and is also connected to larger extents of native vegetation in the south. The project will include the construction of solar panels and access road. Given both species are highly mobile and can fly across the subject land, the proposed works are unlikely to result in significant fragmentation of species habitat.
4. Adversely affect habitat critical to the survival of a species.	Habitat critical to the survival of the White-throated Needletail and Painted Honeyeater have not been described. The White-throated Needletail is almost entirely aerial in Australia, although has been recorded roosting in woodland habitat. The subject land contains roosting habitat suitable for the species. The woodland habitat within the impact area provides potential foraging and roosting habitat for the Painted Honeyeater. Habitat critical to the survival of a species can be defined as 'habitat for activities such as foraging, breeding, roosting or dispersal' (DE 2013). Despite the subject land being suitable foraging and roosting habitat for these species, it is unlikely to be critical due to the extent of suitable high quality connected vegetation south of the subject land and the highly mobile nature of these species. Given the extent of remaining habitat within the locality and the removal of 8.62 ha as a result of the proposed works, it is unlikely the proposed works will result in adverse effects to habitat critical to the survival of these species.
5. Disrupt the breeding cycle of an important population.	As per above, important populations have not been defined for these species, and it is unlikely that individuals in the impact area would form part of an important population. The White-throated Needletail breeds in Siberia, China and Japan, after which it migrates to Australia during the non-breeding season. Therefore, the project will not disrupt the breeding cycle of the White-throated Needletail. The Painted Honeyeater breeds in large remnant mature woodland with an abundance of mistletoe. The subject land is unlikely to provide breeding habitat for the Painted Honeyeater, as it does not contain mistletoes and occurs as a linear extent within the landscape. Given the extent of connected high quality habitat south of the subject land, it is unlikely the project will have a significant impact on the species breeding cycle.
6. Modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline.	The project will remove up to 8.62 ha of potential habitat for the White-throated Needletail and the Painted Honeyeater. The subject land contains roosting habitat for the largely aerial White-throated Needletail and foraging habitat for the Painted Honeyeater. Given both species have a widespread distribution across the east of Australia, the removal of habitat within the subject land will not substantially reduce the national extent of these species.

Table A.9.5 Assessment of significance for Painted Honeyeater and White-throated Needletail

Criteria	Discussion
7. Result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat.	Known threats to the Painted Honeyeater include habitat infestation by weeds such as African boxthorn, Gazania and invasive grasses. Invasive species are not known threats to the White-throated Needletail (OEH 2022b). The foraging and roosting habitat within the subject land for these species is located within a road corridor along Barney's Reef Road, which is also subject to existing impacts of weed encroachment. The grasslands within the subject land are also likely to provide foraging habitat for the White-throated Needletail. The habitat along Barney's Reef Road has a moderate weed diversity primarily within the ground stratum. This also occurs within the grasslands with a varied abundance of exotic grasses and herbaceous species observed at differing seasons. The following mitigation measures will be implemented to ensure the project does not result in indirect impacts to Painted Honeyeater and White throated Needletail habitat: • appropriate identification, disposal and management of weed species during clearing works • wash down of all vehicles and equipment prior to entry to site. Therefore, it is considered unlikely that the proposed works will result in invasive species that would adversely affect foraging habitat for these species.
8. Introduce disease that may cause the species to decline	There are no known diseases are associated with these species. Hygiene protocols such as washdown of all vehicles, machinery and equipment can be implemented to minimise the potential for introduction or spread of pathogens.
9. Interfere substantially with the recovery of the species.	There are no specific recovery plans for these species; however, the Approved Conservation Advice (DE 2015b; TSSC 2019) describes key priority actions and mitigation measures against threats to enable recovery of these species. Those that are relevant to the proposed works for the Painted Honeyeater include (DE 2015b): • no further clearance of suitable habitat • protect all woodland from clearing in which painted honeyeaters have been regularly sighted, including remnant roadside vegetation and regrowth. Priorities include identifying and protecting important habitats, specifically protecting and encouraging adequate numbers of mature trees and mistletoe populations for the Painted Honeyeater. Priorities for the White-throated Needletail list protecting important habitats, increased stakeholder engagement and monitoring and research priorities (TSSC 2019). The proposed activity will interfere with the recovery actions listed above, due to the removal of up to 8.62 ha of foraging and roosting habitat. The extent of clearance is minimal and linear in nature, where no fragmentation of highly connected habitat will occur. The interference with this recovery action is unlikely to be significant.
Conclusion	The proposed works are unlikely to have a significant impact on the White-throated Needletail or the Painted Honeyeater as: • direct impacts will occur to 8.62 ha of foraging habitat • the habitat to be cleared is unlikely to be fragmented due to the nature of the works and the high mobility of these bird species • important populations are unlikely to be adversely affected • the works are not likely to have a significant impact on populations size, area or increase isolation of these species.

Table A.9.6 Assessment of significance for White-throated Needletail (migratory)

Criteria	Discussion
1. 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.	Important habitat for the White-throated Needletail has been defined as non-breeding habitat only, where it is found across a range of habitats (TSSC 2019). The species appears to occur more often over wooded areas, where it is almost exclusively aerial. Large tracts of native vegetation, particularly forest, may be a key habitat requirement for species. The White-throated Needletail is found to roost in tree hollows in tall trees on ridge-tops, on bark or rock faces (TSSC 2019). The project will remove up to 8.62 ha of potential habitat for the White-throated Needletail. The subject land contains roosting habitat for the largely aerial White-throated Needletail. Given that the White-throated Needletail has a widespread distribution across the east of Australia, the removal of habitat within the subject land is unlikely to substantially modify, destroy or isolate an area of important habitat for this species.
2. Result in an invasive species that is harmful to the migratory species becoming established in an area of important habitat for the migratory species.	Invasive species harmful to the White-throated Needletail are not known (TSSC 2019) The foraging and roosting habitat within the subject land for this species is located within a road corridor along Barney's Reef Road, which is also subject to existing impacts of weed encroachment. The grasslands within the subject land are also likely to provide foraging habitat for the White-throated Needletail. The habitat along Barney's Reef Road has a moderate weed diversity primarily within the ground stratum. This also occurs within the grasslands with a varied abundance of exotic grasses and herbaceous species observed at differing seasons. The following mitigation measures will be implemented to ensure the project does not result in indirect impacts to White throated Needletail habitat: • appropriate identification, disposal and management of weed species during clearing works • wash down of all vehicles and equipment prior to entry to site. Therefore, it is considered unlikely that the proposed works will result in invasive species that would adversely affect foraging or roosting habitat for this species.
3. Seriously disrupt the lifecycle (breeding, feeding, migration, or resting behaviour) of an ecologically significant proportion of the population of a migratory species	The described ecologically significant proportion of the population of the White-throated Needletail is dependent on the number if individuals which may occur across the subject land. The White-throated Needletail can occur in flocks, and less regularly are seen occurring as solo individuals (DAWE 2022d). For instances where the population occurs in flocks, 1% of the population (100 individuals) are considered internationally important (TSSC 2019). Where it does not occur in flocks, 0.1% of the population (10 individuals) are considered nationally important. As the White-throated Needletail is almost exclusively aerial within Australia, the chances of the species utilising the subject land for roosting is low. The species also does not breed in Australia. The project will remove up to 8.62 ha of potential habitat for the White-throated Needletail. This small amount to be removed when compared to the locality, is unlikely to seriously disrupt the lifecycle of an ecologically significant proportion of the population of the White-throated Needletail.
Conclusion	The proposed works are unlikely to have a significant impact on the White-throated Needletail as: • the removal of 8.62 ha of habitat within the subject land will not substantially modify, destroy or isolate an area of important habitat for this species • it is considered unlikely that the proposed works will result in invasive species that would adversely affect foraging or roosting habitat • the proposed works are unlikely to seriously disrupt the lifecycle of an ecologically significant proportion of the population of the White-throated Needletail.

9.1.6 Superb Parrot

EPBC Act – vulnerable

The Commonwealth Conservation Advice for the Superb Parrot (Commonwealth TSSC 2016) describes the conservation status, distribution, biology/ecology and threats to the survival of the Superb Parrot. In NSW, the Superb Parrot occurs west of the Great Dividing Range, in Canberra, Goulburn and west to Nyngan and Swan Hill. The Superb Parrot nests in large, living or dead trees with many hollow branches, typically near watercourses. On the inland slopes, they use at least six species of eucalypts (Commonwealth TSSC 2016 and references therein), but have a particular reliance on Blakely's Red Gum (*E. blakelyi).* An assumed reliance on White Box (*E. albens*) and Yellow Box (*E. melliodora*) remains unproven (Commonwealth TSSC 2016 and references therein). Most nest sites are within 10 km of Box Gum Woodland. Following breeding, Superb Parrots disperse and forage on a variety woodland and other habitat types. Threats to the survival of the species comprise the loss and degradation of habitat, competition for nest hollows, roadkill, illegal collection of wild birds, Psittacine beak and feather disease and climate change.

The National Recovery Plan for the Superb Parrot (Baker-Gabb 2011) details the species biology, ecology, distribution, populations, habitat and threats. The recovery plan describes the species as nomadic, resident, dispersive and migratory, making regular seasonal movements between breeding and non-breeding areas, in response to changes in food availability. When making local foraging movements, the species usually moves through wooded corridors, rarely crossing large areas of open ground.

The breeding range of the Superb Parrot is concentrated on the NSW South Western Slopes and Riverina bioregions.

The three main breeding areas comprise:

- the area bounded by Molong, Rye Park, Yass, Coolac, Cootamundra and Young
- along the Murrumbidgee River between Wagga Wagga and Toganmain Station to Goolgowi
- along the Murray and Edward Rivers, east of Barmah and Millewa State Forest to south of Taylors Bridge.

The total population of the Superb Parrot has been estimated at 5,000 to 8,000 birds, 6,500 of which comprise adults.

The recovery plan (Baker-Gabb 2011) defines habitat critical to the survival of the Superb Parrot as breeding habitat that comprises riverine forests in the Riverina and Box-Gum Woodlands on the tablelands and slopes. Tree species typically selected for nesting on the slopes and tablelands comprise River Red Gum (*E. camaldulensis*), Blakely's Red Gum, Apple Box, Grey Box (*E. microcarpa*), White Box and Red Box (*E. polyanthemos*).

Foraging habitat critical to the survival of the species is defined by the recovery plan (Baker-Gabb 2011) as Boree Woodlands between the Murrumbidgee and Murray Rivers, River Red Gum Forest, Box-Pine Woodland and White Cypress Pine Woodland.

The Superb Parrot has not been recorded within the subject land. Targeted surveys have been conducted for the species within the road corridor and solar and BESS project and therefore does not require further consideration under the EPBC Act. Due to the addition of the accommodation facility and access track, targeted surveys for Superb Parrot in these areas have not been conducted, therefore requiring the assessment of the species. As such, potential habitat for the species has been considered within the accommodation facility and access track area only. Potential habitat comprises areas of PCT 479. There will be no direct impact to breeding habitat (suitable hollow-bearing trees will be avoided). Up to 3.25 ha of foraging habitat for the Superb Parrot will be impacted (479_DNG); this has been calculated based on the BAM (DPIE 2020a) species polygons outlined in Section 6.5.

Table A.97 provides an assessment of significance for the removal of up to 3.25 ha of potential Superb Parrot foraging habitat (pct 479_DNG), in accordance with the assessment criteria for vulnerable species (DoE 2013).

Table A.9.7 Assessment of significance for the Superb Parrot (accommodation facility and access track)

Criteria	Discussion
1. Lead to a long-term decrease in the size of an important population.	Important populations have not been defined in the recovery plan for the Superb Parrot (Baker-Gabb 2011). An important population is described as those that are key source populations for breeding or dispersal, populations that are necessary for maintaining genetic diversity, and/or populations that are near the limit of the species range (DoE 2013). The accommodation facility and access track are not located at the edge of the species range. The recovery plan (Baker-Gabb 2011) also includes mapped areas of where breeding is likely or may occur. The accommodation facility and access track do not occur within these mapped breeding areas. The areas mapped as 'breeding likely or may occur' are located south of the accommodation facility and access track, from Orange, NSW down to Deniliquin on the NSW-Victorian border. As such, the potential Superb Parrot occurrence within the accommodation facility and access track is not considered to be an important population. No breeding habitat (hollows) will be impacted within the accommodation facility and access track. Foraging habitat comprised of 3.25 ha of PCT 479_DNG will be impacted. There is a large, connected extent of foraging habitat available to the species within the locality. The recovery plan states that the species feeds on a large range of species including Wheat (*Triticum aestivum*) and Oats (*Avena* sp). which have been recorded within the subject land and are highly likely to occur within the locality also (Baker-Gabb 2011). Due to the extent of similarly established grassland and woodland within the locality, it is expected that additional suitable foraging habitat would be available to the species. For the reasons stated above, the project is unlikely to lead to a long-term decrease in the size of an important population of the Superb Parrot.
2. Reduce the area of occupancy of an important population.	The project is unlikely to impact on an important population of Superb Parrot. It is therefore unlikely that the project will reduce the area of occupancy for an important population.
3. Fragment an existing important population into two or more populations.	The project is unlikely to impact on an important population of Superb Parrot. It is therefore unlikely that the project will fragment an existing important population into two or more populations.

Table A.9.7 Assessment of significance for the Superb Parrot (accommodation facility and access track)

Criteria	Discussion
4. Adversely affect habitat critical to the survival of the species.	Habitat critical to the survival of the species has been defined by the recovery plan (Baker-Gabb 2011) as: Breeding habitat Breeding habitat that comprises riverine forests in the Riverina and Box Gum Woodlands on the tablelands and slopes and foraging habitat comprising Boree Woodlands between the Murrumbidgee and Murray Rivers, River Red Gum Forest, Box-Pine Woodland and White Cypress Pine Woodland. Due to the location of the accommodation facility in grassland, the project will not remove any woodland or forest, and therefore will not remove any breeding habitat critical to the survival of the species. Foraging habitat After breeding, Superb Parrots move away from their breeding habitat in mid-January. Part of the population moves into the scattered Boree Acacia pendula woodlands between the Murrumbidgee and Murray Rivers (Baker-Gabb 2011), but the distribution and habitat use of other birds from mid-January to early April is unclear. The Superb Parrot are rarely observed on the inland slopes during winter, with the few birds seen usually being breeding pairs (Baker-Gabb 2011). Most of the breeding population from the inland slopes appears to move to the eucalypt-pine woodlands on the plains of west-central and north-central New South Wales (Baker-Gabb 2011). Due to the location of the accommodation facility in grassland, and the lack of Superb Parrot records on the inland slopes during the winter time, the project will not remove any foraging habitat critical to the survival of the species. The removal of 3.25 ha of potential grassland foraging habitat is unlikely to adversely affect the survival of the species. The habitat within the accommodation facility and access track is located within a much larger extent of habitat, which is likely to be habitat critical to the survival of the species. This habitat is connected throughout the locality due to the species ability to traverse the landscape.
5. Disrupt the breeding cycle of an important population.	The project is unlikely to impact on an important population of Superb Parrot. It is therefore unlikely to disrupt the breeding cycle of an important population. As mentioned above, no suitable hollow-bearing trees for the Superb Parrot within the accommodation facility and access track will be impacted.
6. 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 will remove 3.25 ha of potential foraging habitat for the Superb Parrot. There is a large extent of suitable foraging habitat within the locality. The Superb Parrot is a highly mobile species with a large home range. The removal of 3.25 ha of foraging habitat is unlikely to contribute to the species decline.
7. Result in invasive species that are harmful to the species becoming established in the species habitat.	Weeds are considered to contribute to habitat degradation for this species. Soil disturbance for the proposed works has potential to result in the spread of invasive weeds to retained areas of vegetation and potential habitat. The following mitigation measures will be implemented to ensure the accommodation facility and access track do not result in indirect impacts to Superb Parrot habitat: • appropriate identification, disposal and management of weed species during clearing works • wash down of all vehicles and equipment prior to entry to site. Therefore, it is considered unlikely that the accommodation facility and access track will result in invasive species that would adversely affect foraging habitat for this species.
8. Introduce disease that may cause the species to decline.	Superb Parrots may be susceptible to beak and feather disease. Disease outbreaks usually occur in wild animal populations where significant stresses arise. The clearance of 3.25 ha potential foraging habitat only (no breeding habitat), with mitigation measures in place prior to construction, is unlikely to cause significant stress such that a disease outbreak would occur. Mitigation measures outlined in Table 6.2 would reduce the stress on the species if it occurs during the project.

Table A.9.7 Assessment of significance for the Superb Parrot (accommodation facility and access track)

Criteria	Discussion
9. Interfere substantially with the recovery of the species.	Recovery actions for the Superb Parrot aim to determine population trends, increase knowledge of the species ecological requirements, develop and implement threat abatement strategies and increase community involvement and awareness of the recovery program (Baker-Gabb 2011). As recovery actions are focused on increasing knowledge of the species, the project is unlikely to interfere with recovery.
Conclusion	The project is unlikely to significantly impact the Superb Parrot due to: • an important population is unlikely to occur within the accommodation facility and access track area • no breeding habitat will be removed as a result of the accommodation facility and access track • the total amount of foraging habitat to be removed equates to 3.25 ha. Additional suitable habitat is also likely available in the locality • the species is highly mobile • the project is unlikely to further exacerbate invasive species or cause new species to become established within the accommodation facility and access track • the project is unlikely to interfere with recovery of the species.

9.1.7 Large-eared Pied Bat

EPBC Act – vulnerable

The Commonwealth Conservation Advice for the Large-eared Pied Bat (DAWE 2021) describes the conservation status, distribution, biology/ecology, and threats to the survival of the Large-eared Pied Bat. Found mainly in areas with extensive cliffs and caves, from Rockhampton in Queensland south to Bungonia in the NSW Southern Highlands. It is generally rare with a very patchy distribution in NSW. Within NSW, based on available records, the largest concentration of populations appears to be in the sandstone escarpments of the Sydney basin and northwest slopes of NSW.

Several facets of the known behaviour and ecology of the large-eared pied bat make it vulnerable to threats affecting other cave-roosting bat species. Individuals congregate to roost and raise young. This can place a reasonable proportion of a local population at a single locality. Most cave roosts observed are in shallow caves or in the outer reaches of deeper mines or caves. The Large-eared Pied Bat is dependent on the presence of diurnal roosts for shelter. Roosts are also used at night when bats are not feeding, as well as used for raising young. The species is known to roost in caves, overhangs, disused mine shafts, and abandoned *Petrochelidon ariel* (Fairy Martin) nests (DAWE 2021). The majority of species records are from wooded habitat which suggests the species is sensitive to clearing and has a preference for connected riparian strips of vegetation (DERM 2011).

The main known cause of decline in the species is the destruction of, and interference with maternity and other roosts. Information presented in the recovery plan (DERM 2011) identifies other probable threats as:

- mining of roosts
- mine induced subsidence of clifflines
- disturbance from human recreational activities
- habitat disturbance by introduced animals, including livestock
- predation by introduced pests; vegetation clearing in the proximity of roosts
- and fire in the proximity of roosts.

The subject land is considered to have suitable foraging habitat only for this species and is not likely to have breeding habitat within the subject land due to the specific requirements of breeding habitat for this species. The subject land does not contain disused mine shafts, caves, overhangs which are suitable breeding habitats. As the species is likely to avoid cleared areas, the wooded vegetation associated with Barney's Reef Road is considered to be suitable foraging habitat for the species in addition to the isolated patches of woodland within the pasture areas.

Table A.9.8 Assessment of significance for Large-eared Pied Bat

Criteria	Discussion
1. Lead to a long-term decrease in the size of an important population.	A definition for an important population of the species have not been provided, however the species recovery plan discusses that the largest concentrations of populations in NSW occurs in the sandstone escarpments of the Sydney basin and northwest slopes of NSW, much of which occurs within state reserves (DERM 2011). Important populations are also defined as populations that are near the limit of their range (DE 2013). The subject land occurs on the edge of the species western range. As such, any occurrence of the species within the subject land, is considered to be an important population. The subject land contains 8.62 ha of foraging habitat for the Large-eared Pied Bat. The subject land is situated within a primarily agricultural landscape, however highly connected patches of woodland occur within the subject land. It is not predicted that the impact to 8.62 ha of foraging habitat will lead to a long-term decrease in the size of an important population of this species, given the extent of high quality and connected woodland within the locality.
2. Reduce the area of occupancy area of an important population.	The proposed works will result in the removal of up to 8.62 ha of foraging habitat for the Large-eared Pied Bat. The subject land is situated within a primarily agricultural landscape, however highly connected patches of woodland occur within the subject land. Given the remaining foraging habitat within the locality, it is unlikely the project will result in a significant reduction of foraging habitat for the Large-eared Pied Bat.
3. Fragment an existing important population into two or more populations.	The subject land is located within a fragmented landscape with historical clearing and existing agricultural land uses and is also connected to larger extents of native vegetation in the south. The project will include the construction of solar panels and access road. Given that the species can fly across the subject land, the proposed works are unlikely to result in significant fragmentation of an existing important population.
4. Adversely affect habitat critical to the survival of a species.	Habitat critical to the survival of the species is discussed within the species national recovery plan (DERM 2011). The recovery plan states that diurnal roosts for shelter, such as disused mine shafts, caves, overhangs and abandoned fairy martin (*Hirundo ariel*) nests may offer habitat critical to the survival of the species. 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 subject land does not contain habitat critical to the survival of the species. The proposed works do not contain sandstone cliffs or wooded valleys, nor does in contain caves, mine shafts or rock overhangs. Foraging habitat only, has been assessed to occur within the subject land. The proposed works will result in the removal of 8.62 ha of foraging habitat for the species.
5. Disrupt the breeding cycle of an important population.	The subject land is located outside of the known breeding habitat of the Large-eared Pied Bat. Foraging habitat only is considered to occur. The proposed works are unlikely to directly disrupt the breeding cycle of these species.

Table A.9.8 Assessment of significance for Large-eared Pied Bat

Criteria	Discussion
6. Modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline.	The proposed works will remove 8.62 ha of potential foraging habitat for the Large-eared Pied Bat. The clearance of this suitable habitat is linear and will not isolate potential habitat. The proposed activity has the potential to modify Large-eared Pied Bat habitat outside of the subject land, with indirect impacts such as weed encroachment. The following mitigation measures will be implemented to ensure the project does not result in indirect impacts to Large-eared Pied Bat habitat: • appropriate identification, disposal and management of weed species during clearing works • wash down of all vehicles and equipment prior to entry to site.
7. Result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat.	Predation by introduced predators such as cats and foxes are a known threat to the species (DERM 2011), however the proposed works is unlikely to exacerbate this threat if these predatory species were to occur within the area. The proposed works include an access road, which includes the widening of Barney's Reef Road. Barney's Reef Road is likely to allow these species to currently traverse the subject land. This is similar for the grasslands in the subject land, predatory species such as cats and foxes and likely to already be able to traverse these areas. The widening of Barney's Reef Road and the installation of solar panels within the subject land are unlikely to exacerbate these threats. Soil disturbance for the proposed works has potential to result in the spread of invasive weeds to retained areas of vegetation and potential foraging habitat leading to habitat alteration. The foraging habitat within the subject land for this species is located within a road corridor along Barney's Reef Road, which is also subject to existing impacts of weed encroachment. This habitat has a moderate weed diversity primarily within the ground stratum. The following mitigation measures will be implemented to ensure the project does not result in indirect impacts to Large-eared Pied Bat habitat: • appropriate identification, disposal and management of weed species during clearing works • wash down of all vehicles and equipment prior to entry to site. Therefore, it is considered unlikely that the proposed works will result in invasive species that would adversely affect foraging habitat for these species.
8. Introduce disease that may cause the species to decline	Bats are known to carry the Australian bat lyssavirus which has the potential to spread through populations. The clearance of potential foraging habitat is unlikely to cause significant stress such that a disease outbreak would occur.
9. Interfere substantially with the recovery of the species	Recovery actions for the Large-eared Pied Bat include (DERM 2011): • 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 metapopulation dynamics throughout the distribution of the Large-eared Pied Bat. The proposed works are unlikely to interfere with these recovery objectives.
Conclusion	The project is unlikely to have a significant impact on the Large-eared Pied Bat as: • direct impacts will occur to 8.62 ha of suitable foraging habitat only, which is highly connected to high quality habitat outside of the subject land • there will be no direct impacts to breeding habitat, due to lack of suitable habitat within eh subject land • suitable foraging habitat is unlikely to be fragmented or isolated as a result of the proposed works • mitigation measures will be in place to reduce indirect impacts such as weed hygiene measures • the works are not likely to have a significant impact on population size, area or recovery of this species.

Attachment 10

Biodiversity credit reports

EMM
creating opportunities

BAM Biodiversity Credit Report (Like for like)

Proposal Details

Assessment Id
00028605/BAAS18135/23/00038036

Proposal Name
J210553 Birriwa Solar Farm - road corridor

BAM data last updated *
22/06/2023

Assessor Name
Erin Lowe

Assessor Number
BAAS18135

BAM Data version *
61

Proponent Names

Report Created
26/09/2023

BAM Case Status
Finalised

Assessment Revision
2

Assessment Type
Major Projects

Date Finalised
26/09/2023

* 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
Nil		

Species
Nil

Additional Information for Approval

PCT Outside Ibra Added

None added

PCTs With Customized Benchmarks

PCT
No Changes

Predicted Threatened Species Not On Site

Name
Calyptorhynchus lathami / Glossy Black-Cockatoo
Varanus rosenbergi / Rosenberg's Goanna

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
80-Western Grey Box - White Cypress Pine tall woodland on loam soil on alluvial plains of NSW South Western Slopes Bioregion and Riverina Bioregion	Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions	0.7	23	0	23
281-Rough-Barked Apple - red gum - Yellow 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	0.6	19	0	19

BAM Biodiversity Credit Report (Like for like)

80-Western Grey Box - White Cypress Pine tall woodland on loam soil on alluvial plains of NSW South Western Slopes Bioregion and Riverina 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	-	80_High	Yes	23	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	-	80_Pasture	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.

80-Western Grey Box - White Cypress Pine tall woodland on loam soil on alluvial plains of NSW South Western Slopes Bioregion and Riverina 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	**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 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_High	Yes	19	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					
	White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland 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_Pasture	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.

	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
Phascolarctos cinereus / Koala	**80_High, 281_High**	0.8	38.00

Credit Retirement Options

Like-for-like credit retirement options

Phascolarctos cinereus / Koala	Spp	IBRA subregion
	Phascolarctos cinereus / Koala	Any in NSW

BAM Biodiversity Credit Report (Like for like)

Proposal Details

Assessment Id
00028605/BAAS18135/23/00042129

Proposal Name
J210553 Birriwa Solar Farm - accommodation facility and access

BAM data last updated *
22/06/2023

Assessor Name
Erin Lowe

Assessor Number
BAAS18135

BAM Data version *
61

Proponent Names

Report Created
26/09/2023

BAM Case Status
Finalised

Assessment Revision
2

Assessment Type
Major Projects

Date Finalised
26/09/2023

* 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	281-Rough-Barked Apple - red gum - Yellow 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		

Nil

Additional Information for Approval

PCT Outside Ibra Added

None added

PCTs With Customized Benchmarks

PCT
No Changes

Predicted Threatened Species Not On Site

Name
Climacteris picumnus victoriae / Brown Treecreeper (eastern subspecies)
Dasyurus maculatus / Spotted-tailed Quoll
Grantiella picta / Painted Honeyeater
Lathamus discolor / Swift Parrot
Melanodryas cucullata cucullata / Hooded Robin (south-eastern form)
Melithreptus gularis gularis / Black-chinned Honeyeater (eastern subspecies)
Pomatostomus temporalis temporalis / Grey-crowned Babbler (eastern subspecies)
Pteropus poliocephalus / Grey-headed Flying-fox
Varanus rosenbergi / Rosenberg's Goanna
Anthochaera phrygia / Regent Honeyeater
Callocephalon fimbriatum / Gang-gang Cockatoo
Glossopsitta pusilla / Little Lorikeet
Daphoenositta chrysoptera / Varied Sittella
Artamus cyanopterus cyanopterus / Dusky Woodswallow

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
281-Rough-Barked Apple - red gum - Yellow 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	8.6	0	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	Not a TEC	23.5	0	0	0

281-Rough-Barked Apple - red gum - Yellow 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:	-	281_Pasture	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.

	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)

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					

Species Credit Summary

Species	Vegetation Zone/s	Area / Count	Credits
Polytelis swainsonii / Superb Parrot	**479_DNG**	3.3	21.00

Credit Retirement Options

Like-for-like credit retirement options

	Spp	IBRA subregion
Polytelis swainsonii / Superb Parrot	**Polytelis swainsonii /** Superb Parrot	Any in NSW

BAM Biodiversity Credit Report (Like for like)

Proposal Details

Assessment Id
00028605/BAAS17009/21/00028606

Proposal Name
J210553 Birriwa Solar Farm - solar farm and BESS

BAM data last updated *
22/06/2023

Assessor Name
Erin Lowe

Assessor Number
BAAS18135

BAM Data version *
61

Proponent Names

Report Created
26/09/2023

BAM Case Status
Finalised

Assessment Revision
13

Assessment Type
Major Projects

Date Finalised
26/09/2023

* 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	281-Rough-Barked Apple - red gum - Yellow 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

Additional Information for Approval

PCT Outside Ibra Added

None added

PCTs With Customized Benchmarks

PCT
No Changes

Predicted Threatened Species Not On Site

Name
Calyptorhynchus lathami / Glossy Black-Cockatoo
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
80-Western Grey Box - White Cypress Pine tall woodland on loam soil on alluvial plains of NSW South Western Slopes Bioregion and Riverina Bioregion	Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions	76.1	29	0	29
281-Rough-Barked Apple - red gum - Yellow 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	291.3	200	0	200
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	4.9	0	0	0

80-Western Grey Box - White Cypress Pine tall woodland on loam soil on alluvial plains of NSW South Western Slopes Bioregion and Riverina 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	-	80_High	Yes	25	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	-	80_Pasture	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	-	80_Poor	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.
281-Rough-Barked Apple - red gum - Yellow 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	-	281_High	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.

	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_Medium	Yes	20	Inland Slopes, Bogan-Macquarie,

	Blakely's 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,					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					
	White Box - Yellow Box - Blakely's 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_Pasture	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.

	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	-	281_Planted	Yes	81	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.

	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_Poor	Yes	96	Inland Slopes, Bogan-Macquarie,

	Blakely's 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,					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					
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					

Species Credit Summary

BAM Biodiversity Credit Report (Like for like)

Species	Vegetation Zone/s	Area / Count	Credits
Chalinolobus dwyeri / Large-eared Pied Bat	**80_Poor, 281_Planted, 281_Poor**	0.5	17.00
Phascolarctos cinereus / Koala	**80_High, 80_Poor, 281_High, 281_Medium, 281_Planted, 281_Poor**	7.8	189.00

Credit Retirement Options

Like-for-like credit retirement options

Chalinolobus dwyeri / Large-eared Pied Bat	Spp	IBRA subregion
	Chalinolobus dwyeri / Large-eared Pied Bat	Any in NSW
Phascolarctos cinereus / Koala	Spp	IBRA subregion
	Phascolarctos cinereus / Koala	Any in NSW

Australia

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BRISBANE
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Spring Hill QLD 4000
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CANBERRA
Level 2 Suite 2.04
15 London Circuit
Canberra City ACT 2601

ADELAIDE
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Adelaide SA 5000
T 08 8232 2253

MELBOURNE
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Melbourne VIC 3000
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2345 Younge Street Suite 300
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