Department of Planning and Environment

Biodiversity Development Assessment Report, Proposed Subdivision, 253 Bundabah Road, Bundabah and 120 Clark Street, Pindimar, NSW

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Somerville Ecology

Final Report 23 June 2025

Document control

Version	Date	Author	Details
1	23.06.2025	M. Somerville	Final V1

Summary

This BDAR has been prepared for Tea Gardens Farms Pty Ltd by Somerville Ecology. This BDAR is to accompany the development application for the proposed development being the development described in the Introduction to this Report.

Preparation of a BDAR was required due to the occurrence of Biodiversity Values Mapping on the subject land (see 1.2 of this BDAR).

Measure to avoid and minimise impacts both direct and indirect on PCTs, TECs and ECs have been considered as part of the project location and project design (see 7.1.1 of this BDAR). Measure to avoid and minimise prescribed impacts have also been identified (see 7.2.1 of this BDAR).

Serious and irreversible impacts on a number of entities at risk of an SAII have been considered. These have been done on the basis of the assumed presence of the species (see 5.2 of this BDAR).

Avoidance and minimisation measures for direct, indirect and prescribed impacts are set out in 7.4 of this BDAR.

The final offset requirements for ecosystem credits and species credits are set out in the tables E1 and E2 below.

Table E1 Impacts that require an offset – ecosystem credits

Vegetation zone	PCT	TEC/EC	Impact area (ha)	Number of ecosystem credits required
3581_MOD	3581-Hunter Coast Foothills Apple Forest	Not a TEC	0.3	6
3583_GOOD	3583-Hunter Coast Lowland Scribbly Gum Forest	Not a TEC	1.1	30
3583_MOD	3583-Hunter Coast Lowland Scribbly Gum Forest	Not a TEC	0.5	11
3583_POOR	3583-Hunter Coast Lowland Scribbly Gum Forest	Not a TEC	0.8	8
3437_GOOD	3437-Hunter Coast Lowland Spotted Gum Dry Forest	Not a TEC	3.2	76
3437_MOD	3437-Hunter Coast Lowland Spotted Gum Dry Forest	Not a TEC	2.4	44
3437_POOR	3437-Hunter Coast Lowland Spotted Gum Dry Forest	Not a TEC	1.5	25
4038_GOOD	4038-Hunter Estuarine Melaleuca nodosa Scrub	Swamp Oak Floodplain Forest of the New South	0.1	2

Vegetation zone	PCT	TEC/EC	Impact area (ha)	Number of ecosystem credits required
		Wales North Coast, Sydney Basin and South East Corner Bioregions		
3241_GOOD	Lower North White Mahogany-Spotted Gum Moist Forest	Not a TEC	0.3	5
3241_MOD	3241-Lower North White Mahogany-Spotted Gum Moist Forest	Not a TEC	0.9	9
3250_GOOD	3250-Northern Foothills Blackbutt Grassy Forest	Not a TEC	2.1	50
3250_POOR	3250-Northern Foothills Blackbutt Grassy Forest	Not a TEC	0.5	5
3250_DNG	3250-Northern Foothills Blackbutt Grassy Forest	Not a TEC	0.1	1

Table E2 Impacts that require an offset – species credits

Common name	Scientific name	Loss of habitat (ha) or individuals	Number of species credits required
Austral Toadflax	Thesium australe	1.6	33
Barking Owl	Ninox connivens	12.6	290
Bar-tailed Godwit (baueri) (Breeding)	Limosa lapponica baueri	0.04	1
Beach Stone-curlew (Breeding)	Esacus magnirostris	1.6	65
Black-eyed Susan	Tetratheca juncea	1.2	18
Brush-tailed Phascogale	Phascogale tapoatafa	11.4	272
Bush Stone-curlew	Burhinus grallarius	11.4	272
Charmhaven Apple	Angophora inopina	2.6	63
Common Planigale	Planigale maculata	11.4	272
Curlew Sandpiper (Breeding)	Calidris ferruginea	0.04	1
Eastern Australian Underground Orchid	Rhizanthella slateri	5.5	187
Eastern Curlew (Breeding)	Numenius madagascariensis	0.04	1
Eastern Osprey (Breeding)	Pandion cristatus	12.6	219
Eastern Pygmy-possum	Cercartetus nanus	12.6	290

Common name	Scientific name	Loss of habitat (ha) or individuals	Number of species credits required
Emu population in the New South Wales North Coast Bioregion and Port Stephens local government area	Dromaius novaehollandiae - endangered population	12.6	290
Gang-gang Cockatoo (Breeding)	Callocephalon fimbriatum	11	247
Giant Barred Frog	Mixophyes iteratus	5.5	95
Great Knot (Breeding)	Calidris tenuirostris	0.04	1
Greater Sand-plover (Breeding)	Charadrius leschenaultii	0.04	1
Green and Golden Bell Frog	Litoria aurea	11	247
Green-thighed Frog	Litoria brevipalmata	2.8	47
Grey-headed Flying-fox (Breeding)	Pteropus poliocephalus	12.6	290
Koala	Phascolarctos cinereus	12.6	290
Large Bent-winged Bat (Breeding)	Miniopterus orianae oceanensis	12.6	435
Leafless Tongue Orchid	Cryptostylis hunteriana	11.4	205
Lesser Sand-plover (Breeding)	Charadrius mongolus	0.04	1
Little Bent-winged Bat (Breeding)	Miniopterus australis	12.6	435
Little Eagle (Breeding)	Hieraaetus morphnoides	12.6	219
Long-nosed Potoroo	Potorous tridactylus	4.3	107
Magenta Lilly Pilly	Syzygium paniculatum	10	20
Mahony's Toadlet	Uperoleia mahonyi	9.8	229
Manning Yellow Solanum	Solanum sulphureum	2.8	61
Masked Owl	Tyto novaehollandiae	11.4	272
Maundia triglochinoides	Maundia triglochinoides	0.04	1
Netted Bottle Brush	Callistemon linearifolius	10	15
Noah's False Chickweed	Lindernia alsinoides	1.6	43
Pale Yellow Doubletail	Diuris flavescens	1.2	28
Pale-headed Snake	Hoplocephalus bitorquatus	1.6	43
Parma Wallaby	Notamacropus parma	9	216
Powerful Owl	Ninox strenua	12.6	290
Pterostylis chaetophora	Pterostylis chaetophora	8.3	183

Common name	Scientific name	Loss of habitat (ha) or individuals	Number of species credits required
Red Helmet Orchid	Corybas dowlingii	10.2	234
Red Knot (Breeding)	Calidris canutus	0.04	1
Red-backed Button-quail	Turnix maculosus	2.8	61
Rhizanthella slateri (Rupp) M.A. Clem. & Cribb in the Great Lakes local government area	Rhizanthella slateri - endangered population	3.1	104
Rough Doubletail	Diuris praecox	11.4	205
Sanderling (Breeding)	Calidris alba	0.04	1
Small-flower Grevillea	Grevillea parviflora subsp. parviflora	2.7	64
South-eastern Glossy Black-Cockatoo (Breeding)	Calyptorhynchus lathami lathami	12.6	290
Southern Greater Glider	Petauroides volans	10.2	234
Southern Myotis	Myotis macropus	12.6	290
Spider orchid	Dendrobium melaleucaphilum	1.6	43
Square-tailed Kite (Breeding)	Lophoictinia isura	12.6	219
Squirrel Glider	Petaurus norfolcensis	12.6	290
Stephens' Banded Snake	Hoplocephalus stephensii	5.5	125
Stuttering Frog	Mixophyes balbus	12.6	435
Terek Sandpiper (Breeding)	Xenus cinereus	0.04	1
Trailing Woodruff	Asperula asthenes	2.8	61
Wallum Froglet	Crinia tinnula	11.4	205
White-bellied Sea-Eagle (Breeding)	Haliaeetus leucogaster	12.6	290
White-flowered Wax Plant	Cynanchum elegans	1.6	43

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Shortened forms

APZ	asset protection zone
ASL	above sea level
BAM	Biodiversity Assessment Method
BAM-C	Biodiversity Assessment Method Calculator

BC Act	*Biodiversity Conservation Act 2016* (NSW)
BC Regulation	Biodiversity Conservation Regulation 2017 (NSW)
BDAR	Biodiversity Development Assessment Report
BOAMS	Biodiversity Offsets and Agreement Management System
BOS	Biodiversity Offsets Scheme
~~CEEC~~	~~critically endangered ecological community~~
~~DBH~~	~~diameter at breast height over bark~~
EC	ecological community listed under the EPBC Act
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999* (Cwlth)
EP&A Act	*Environmental Planning and Assessment Act 1979* (NSW)
EEC	endangered ecological community
~~HTW~~	~~high threat weed~~
IBRA	Interim Biogeographic Regionalisation for Australia
LLS Act	*Local Land Services Act 2013* (NSW)
MNES	matters of national environmental significance
~~NPW Act~~	~~*National Parks and Wildlife Act 1974* (NSW)~~
NSW	New South Wales
PCT	plant community type
SAII	serious and irreversible impact
SEARs	Secretary's Environmental Assessment Requirements
TBDC	Threatened Biodiversity Data Collection
TEC	threatened ecological community
~~VEC~~	~~vulnerable ecological community~~
Vegetation SEPP	*State Environmental Planning Policy (Vegetation in Non-Rural Areas) 2017* (NSW)

Declarations

i. Certification under clause 6.15 *Biodiversity Conservation Act 2016*

I, Michael Somerville, certify that this report has been prepared based on the requirements of, and information provided under, the Biodiversity Assessment Method and clause 6.15 of the *Biodiversity Conservation Act 2016* (BC Act).

Signature: _____ _____

Date: **23 June 2025**

BAM Assessor Accreditation no: BAA518098

This BDAR has been prepared to meet the requirements of BAM 2020. Appendix A provides an assessment of compliance with the minimum information requirements outlined in BAM Appendix K.

ii. Details and experience of author/s and contributors

Authors and contributors

Name	BAM Assessor Accreditation no. (if relevant)	Position/Role	Tasks performed	Relevant qualifications
Michael Somerville	BAA518098	Principal Ecologist	report preparation document review BAM-C data entry and analysis figure preparation BAM plot surveys	B.Sc., Grad. Dop. Nat. Res.
Kai Somerville	N/A	Ecologist	BAM plot surveys, targeted threated flora surveys, figure preparation	B. Audio Engineering RePL, ReOC
Patrick Costello	N/A	Subcontractor	targeted threated flora surveys	B. Env. Mgt.
Ross Wellington	N/A	Subcontractor	targeted threated flora surveys	B. Sc. Biological Sciences
Cooper Reed	N/A	Subcontractor	targeted threated flora surveys	B. Sc. Ecology & Evolutionary Biology
Sam Arandale-Bioletti	N/A	Subcontractor	targeted threated flora surveys	Cert 3 Land Mgt; Cert 3 Permaculture

iii. Conflict of interest

I, Michael Somerville, declare that I have considered the circumstances and there is no actual, perceived or potential conflict of interest

This declaration has been made in the interests of full disclosure to the decision-maker. Full disclosure has also been provided to the client.

Signature: _____ _____

Date: 23 June 2025

BAM Assessor Accreditation no: BAA518098

Provide a detailed description in an appendix. Guidance on conflict of interest is available on the Department of Planning and Environment (the department) website.

Stage 1: Biodiversity assessment

1. Introduction

1.1 Proposed development

1.1.1 Development overview

The proposal involves the subdivision of land together with the carrying out of development pursuant to s.1.5(1)(b) and s.1.5(3) of the EP&A Act, respectively. The proposed development is for a subdivision of 4 lots into 9 lots of a minimum 40ha size. Each lot will have a single house site, with access roads provided for each lot/house site. This development requires consent under Part 4 of the EP&A Act.

1.1.2 Location

The proposed development site is located in Bundabah, NSW and can be accessed from both Bundabah Road, Bundabah and Clarke Street, Pindimar (see Figure 1 Site Map and Figure 2 Location Map). The site comprises the following lots (including four lots which are to be subdivided emphasised in bold):

- **Lot 101 DP 1049845 No. 253 Bundabah Road, Bundabah - 66.8ha**
- **Lot 104 DP 1049845 Bundabah Road, Bundabah - 100.7ha**
- **Lot 103 DP 1049845 Bundabah Road, Pindimar - 129.4ha**
- **Lot 2 DP: 1076610 Bundabah Road, Bundabah - 104.7ha**
- Lot 100 DP 1049845 No. 251 Bundabah Road, Bundabah - 10.1ha
- Lot 4 DP 252388 207 Bundabah Road, Bundabah – 10.08ha
- Lot 14 DP 238401 No. 120 Clarke Street, Pindimar – 10.89ha
- Lot 22 DP 238401 No. 120 Clarke Street, Pindimar – 13.93ha

1.1.3 Proposed development and the subject land

The proposed development is for a Torrens-title subdivision of four (4) allotments into nine (9) lots as noted in the Proposed Lot Layout prepared by Barry Hunt and Associates Surveyors.

Each of the proposed lots will be between 40ha and 55.4ha in size and will accommodate a single dwelling, with clearing for a dwelling site and required APZs. It is also proposed to provide vehicular access to each of the lots either by improving the existing access tracks, and/or the provision of new access roads with associated rights of carriageway. The proposed development would include the following associated infrastructure works (see Figure 3).

- An indicative building footprint within each of the proposed lots.
- An associated APZ around each indicative building footprint.
- Access roads and stormwater disposal works from the proposed roads.
- Areas for wastewater disposal.

The development footprint for this proposed covers an area of approximately 17.08 ha (see Figure 2)

The subject land occurs on the northern side of Port Stephens, near the township of Bundabah, approximately 80km north of Newcastle, NSW. The topography of the site

consists of gently rolling to steeper hills, climbing to a high point on Fame Mountain of around 140m asl. The geology of the hills consists of the Ignimbrites and associated volcanic rocks of the Nerong Volcanics formation, along with smaller areas of undifferentiated quaternary sand deposits. The hydrology of the site consists of a number of ephemeral and permanent streams which rain into Port Stephens via Fame Cove and North Arm Cove. The soils at the site consist variously of Kurosols, Dermosols and Rudosols associated with the Nerong Volcanics and Podosols associated with the Quaternary sands. Previous uses of the land include:

- rural residential purposes and contains improvements such as dwellings and shed;
- agricultural grazing;
- rearing livestock; and
- orchards for apples, mangoes, grapes and citrus.

1.1.4 Other documentation

Plans relevant to the project include the following:

Document	Sheet	Author	Revision	Date
Existing Lot Layout	1	Barry Hunt Associates		9 May 2025
Proposed Lot Layout	2	Barry Hunt Associates		9 May 2025
Detail and Contour Survey	3	Barry Hunt Associates	D	9 May 2025
Site Detail 1A	4	Barry Hunt Associates		9 May 2025
Site Detail 2A	5	Barry Hunt Associates		9 May 2025
Site Detail 3A	6	Barry Hunt Associates		9 May 2025
Site Detail 4A	7	Barry Hunt Associates		9 May 2025
Site Detail 5A	8	Barry Hunt Associates		9 May 2025
Site Detail 6A	9	Barry Hunt Associates		9 May 2025
Site Detail 7A	10	Barry Hunt Associates		9 May 2025
Site Detail 8A	11	Barry Hunt Associates		9 May 2025
Site Detail 9A	12	Barry Hunt Associates		9 May 2025

Other documentation relevant to the project include the following:

Document	Author	Revision	Date
Site Analysis Diagram	Barry Hunt Associates		20 December 2024
Statement of Environmental Effects	State Planning Services	June 2025	June 2025
Estimated Development Cost Report	Real Est. Quantity Surveyors		13 February 2025

Bushfire Assessment Report	Building Code & Bushfire Hazard Solutions	2	12 February 2025
On-site Wastewater Report	Broadcrest Environmental Pty Ltd	2	19 February 2025
Conceptual Stormwater Management Plan	OSKA Consulting Group	B	12 May 2025
Engineering Infrastructure Report	OSKA Consulting Group	C	12 May 2025

1.2 Biodiversity Offsets Scheme entry

This project meets the criteria for entry into the NSW BOS based on the occurrence of Biodiversity Values Mapping on the subject land. Biodiversity values mapped within the proposed footprint include “Threatened species or communities identified as being at risk of serious and irreversible impacts” and “Identified Old Growth Forest”. In addition, the proposed clearing of 17.08 ha would trigger entry to the BOS based on minimum clearing thresholds.

1.3 Excluded impacts

No excluded impacts are proposed.

1.4 Matters of national environmental significance

The proposed development has the potential to impact on a MNES. This includes a number of Commonwealth listed threatened flora and fauna species and one Commonwealth listed endangered ecological community. A summary of all MNES is included as Appendix E. Based on these potential impacts, a referral under the EPBC Act is required by the proposal.

1.5 Information sources

Information sources used in the preparation of this BDAR include but are not limited to:

- BAM 2020
- BioNet Vegetation Classification
- BioNet Threatened Biodiversity Data Collection
- NSW (Mitchell) Landscapes – Version 3.1
- NSW Interim Biogeographic Regions of Australia Version 7
- Directory of Important Wetlands in Australia

2. Methods

2.1 Site context methods

2.1.1 Landscape features

Preliminary surveys were undertaken on the property between 24th and 26th of October 2024, to confirm the extent and condition of landscape features and collect flora data to assist in the production of a draft vegetation zones map.

2.1.2 Native vegetation cover

The extent and condition of native vegetation cover on the subject land and surrounds was assessed within a 1500m buffer around the subject land. Vegetation cover was mapped within the buffer area into four classes, Native/Woody, Native/Non-woody, Non-native/Woody and Non-native/Non-woody, based on a desktop assessment using the latest Google Earth aerial imagery (date of capture - 12/04/2024). Additional information sources, including Landuse Mapping for NSW 2017 (NSW DCCEEW 2017) and the Statewide Vegetation Type Map (NSW DCCEWW 2020). Ground-truthing of the vegetation extent mapping was undertaken between 24th and 26th of October 2024.

2.2 Native vegetation, threatened ecological communities and vegetation integrity methods

2.2.1 Existing information

A review of existing information was undertaken to identify likely PCTs and TECs at the site, prior to field surveys. Information sources consulted during this review included the Statewide Vegetation Type Mapping (NSW DCCEEW 2020) and BioNet Vegetation Classification database (NSW OEH 2018a). The review also included existing vegetation mapping of the property, and associated flora plot data and reports, prepared in 2013 (Umwelt 2013).

2.2.2 Mapping native vegetation extent

Preliminary surveys, including 93 rapid data points and 16 rapid BAM plots, were undertaken between the 24th and 26th of October 2024. These data were used, along with aerial imagery and existing plot data and mapping from the site, to produce a draft vegetation zones map, as per BAM section 4.1. This mapping was further refined based on subsequent systematic floristic vegetation survey.

2.2.3 Plot-based vegetation survey

Systematic plot-based floristic vegetation survey undertaken in accordance with BAM Subsection 4.2.1 to identify the most likely PCTs on the subject land (refer to Appendix B and Figure 6 for plot locations). Site stratification for plot location selection was based on the draft vegetation zone map. Surveys were conducted between the 7th and the 11th of January 2025 and the 18th and 19th of March 2025. All flora species were recorded at each site, with the following data collected for each species observed:

- Species Name
- Growth Form
- Percent Cover

- Abundance

2.2.4 Vegetation integrity survey

Vegetation Integrity Survey was undertaken in accordance with BAM Subsection 4.3.4. All systematic flora plots described in subsection 2.2.3, were also used for the collection of vegetation integrity data. In addition to the floristic data, the following vegetation function data were collected at each plot:

- Number of large trees
- Tree stem size classes
- Tree regeneration
- Fallen logs
- Litter cover
- Tree hollows

2.3 Threatened flora survey methods

2.3.1 Review of existing information

A review of existing information was undertaken to identify candidate species and associated habitat constraints and microhabitats at the site. Sources consulted in this review included the BioNet Atlas (NSW DCCEEW 2016), species specific survey guidelines and previous vegetation studies of the site (Umwelt 2013) and soils and geology mapping for an earlier proposal which did not proceed.

2.3.2 Habitat constraints assessment

Preliminary surveys undertaken at the site included an assessment of habitat constraints for threatened flora species at the site. This included an assessment of vegetation condition across the development footprint.

2.3.3 Field surveys

Field surveys were undertaken for a number of candidate threatened flora species following the BAM Guidelines on surveying threatened plants and their habitats (NSW Department of Planning, Industry and Environment 2020). Threatened flora surveys were undertaken using parallel field traverses at 10m spacings, between 6th January 2025 and 10th January 2025. Flora species targeted during field surveys were,

- *Angophora inopina*
- *Eucalyptus camfieldii*
- *Eucalyptus glaucina*
- *Eucalyptus largeana*
- *Melaleuca biconvexa*
- *Melaleuca groveana*
- *Pomaderris queenslandica*
- *Rhodamnia rubescens*
- *Rhodomyrtus psidioides*

- *Syzygium paniculatum*
- *Callistemon linearifolius*
- *Grevillea parviflora subsp. parviflora*
- *Tetratheca juncea*

Survey traverses and threatened flora observations are shown in Figure 6.

2.4 Threatened fauna survey methods

2.4.1 Review of existing information

A review of existing information was undertaken to identify candidate species and associated habitat constraints and microhabitats at the site. Sources consulted in this review included the BioNet Atlas (2016) NSW DCCEEW and species-specific survey guidelines.

2.4.2 Habitat constraints assessment

Preliminary surveys undertaken at the site included an assessment of habitat constraints for threatened fauna species at the site. Habitat features, including habitat trees, hollows, stick nests, rock outcrops and wetlands were recorded.

2.4.3 Field surveys

No field surveys were undertaken for candidate threatened fauna species.

2.5 Weather conditions

Table 1 Environmental conditions during threatened species surveys

Survey undertaken (e.g. method / targeted species)	**Date**	**Time**	**Temperature** (min. & max.)	**Wind** (light, mod…)	**Rainfall** (mm)	**Other conditions relevant to the species**
Threatened species transects spaced at 5, 10 and 20 metres.	07/01/2025		21.1-22.3	mod-heavy	28.5	Dark cloud cover
Threatened species transects spaced at 5, 10 and 20 metres.	08/01/2025		18.7-20.3	mod-heavy	29.8	Dark cloud cover
Threatened species transects spaced at 10 metres.	09/01/2025		17.5-24.5	mod-heavy	52.2	Dark cloud cover
Threatened species transects spaced at 10 metres.	10/01/2025		17.6-28.7	mod	1.8	
Threatened species transects spaced at 10 metres.	11/01/2025		19.5-28.5	mod	1.2	

2.6 Limitations

A relatively large number of flora species (14) were surveyed during the flora traverses. The issue of identification of a large number of species was mitigated by the use of traverses at closer spacings than the Guidelines suggest for trees and shrubs in relatively open vegetation. Weather conditions during threatened flora surveys were rainy, which may have reduced visibility, however ground layer species were not included in the flora surveys and conditions were suitable for observation of tree and shrub species. All surveys were undertaken under a biodiversity conservation licence granted under Part 2 of the BC Act, which authorises the following activities: Pick and deal in (possess) protected and threatened plants for identification purposes (Scientific Licence No: SL102227).

3. Site context

3.1 Assessment area

The area used in assessing the site context for the proposal was the area within a 1,500 m buffer around the subject land (see Figure 2).

3.2 Landscape features

Landscape features identified within the subject land and assessment area are shown on Figure 1 Site Map and Figure 2 Location Map, respectively. A discussion of relevant landscape features is provided below.

3.2.1 IBRA bioregions and IBRA subregions

The subject land is located in the Karuah-Manning subregion of the NSW North Coast bioregion (Environment Australia 2000).

3.2.2 Rivers, streams, estuaries and wetlands

A number of creeks and ephemeral streams occur within the assessment area. Pig Station Creek runs south from the western access road, draining into Nelson Bay. It is fed by various unnamed watercourses. Nanabah Creek runs through the centre of the property and is fed by unnamed watercourses from both the western and eastern sides of the property. It drains into Fame Cove and then on into Nelson Bay. The far eastern side of the property has various unnamed watercourses draining eastward into Bundabah Creek/North Arm Cove.

3.2.3 Habitat connectivity

The proposed development site is situated within a heavily forested peninsula which provides connectivity with adjacent forested areas along the northern edge of Port Stephens and northwards along the coast.

3.2.4 Karst, caves, crevices, cliffs, rocks or other geological features of significance

No geological features of significance occur on the subject land, although there are a number of very small rock outcrops on hilltops.

3.2.5 Areas of outstanding biodiversity value

No areas of outstanding biodiversity value occur on the site.

3.2.6 NSW (Mitchell) landscape

The subject land is located mainly within the Newcastle Coastal Ramp, with the south-western corner falling into the Myall – Forster barrier system.

3.2.7 Additional landscape features identified in SEARs

The study area is mapped as Class 5 Acid Sulfate Soils with Class 1-5 soils also mapped within the assessment area (1,500 metre buffer) (DPE 2022b). For Class 5 Soils land development consent is required for works within 500 metres of adjacent Class 1, 2, 3 or 4 land which are likely to lower the water table below 1 metre Australian Height Datum on

adjacent Class 1, 2, 3 or 4 land. As Class 5 areas are unlikely to contain acid sulfate soils, no further assessment is required (Stone et. al.1998).

3.2.8 Soil hazard features

Not applicable.

3.3 Native vegetation cover

Native vegetation cover within the assessment area was determined using a visual assessment of aerial imagery. This assessment was informed by the State Vegetation Type Map (NSW DCCEEW 2020) and the Landuse Mapping for NSW (NSW DCCEEW 2023). The assessment of native vegetation cover was ground-truthed where practical during field surveys. Table 2 summarises the extent of native vegetation cover within the assessment area. Figure 2 Location Map shows native vegetation cover within the assessment area.

Table 2 Native vegetation cover in the assessment area

Assessment area (ha)	3712.17
Total area of native vegetation cover (ha)	1755.17
Percentage of native vegetation cover (%)	47.28%
Class (0-10, >10-30, >30-70 or >70%)	>30-70%

4. Native vegetation, threatened ecological communities and vegetation integrity

4.1 Native vegetation extent

Native vegetation extent within the subject land was determined using a visual assessment of aerial imagery, which was ground-truthed during field surveys. Figure 7 shows the extent of native vegetation on the subject land.

4.1.1 Changes to the mapped native vegetation extent

Some areas which did not contain native vegetation could not be fully determined using aerial imagery due to canopy closure. These areas were ground-truthed to determine their extent.

4.1.2 Areas that are not native vegetation

Areas within the subject land that are not native vegetation include existing buildings, roads and tracks and associated embankments as well as areas of open water (see Figure 7)

4.2 Plant community types

4.2.1 Overview

Vegetation within the subject land has been assessed as aligning with the BioNet Vegetation Classification PCTs identified within Table 3 and their extent is shown in Figure Plant community types. Detailed descriptions of each PCT are provided in the following subsections.

Table 3 PCTs identified within the subject land

PCT ID	PCT name	Subject land area (ha)
3241	Lower North White Mahogany-Spotted Gum Moist Forest	1.18
3250	Northern Foothills Blackbutt Grassy Forest	2.61
3437	Hunter Coast Lowland Spotted Gum Dry Forest	7.09
3581	Hunter Coast Foothills Apple Forest	0.26
3583	Hunter Coast Lowland Scribbly Gum Forest	2.38
4038	Hunter Estuarine Melaleuca nodosa Scrub	0.04
	Total area	13.56

4.2.2 3241 - Lower North White Mahogany-Spotted Gum Moist Forest

4.2.2.1 PCT overview

Table 4 PCT 3241 - Lower North White Mahogany-Spotted Gum Moist Forest

PCT ID	3241
PCT name	Lower North White Mahogany-Spotted Gum Moist Forest
Vegetation formation	Wet Sclerophyll Forests (Grassy sub-formation)
Vegetation class	Northern Hinterland Wet Sclerophyll Forests
Per cent cleared value (%)	31.07
Extent within subject land (ha)	1.18

This PCT is represented at the site by a tall, wet sclerophyll forest, with a canopy dominated by *Corymbia maculata* and *Eucalyptus acmenoides*, often in association with ironbarks (mostly *E. fergusonii*). A small tree layer, including *Allocasuarina torulosa*, *A. littoralis* and *Glochidion ferdinandi* is often present. The shrub layer is sparse to mid dense and is comprised of a diverse range of shrubs, including *Dodonaea triquetra, Pultenaea villosa, Persoonia linearis* and *Acacia brownii*. The ground layer is typically mid dense and dominated by a range of grasses, including *Imperata cylindrica, Entolsia marginata, Themeda triandra* and *Poa labillardieri*, and forbs including *Lobelia purpurascens, Pseuderanthemum variabile* and *Desmodium rhytidophyllum*.

Photo 1 PCT 3241 - Lower North White Mahogany-Spotted Gum Moist Forest

4.2.2.2 Condition states

At the site, this PCT occurs as both an intact woodland (Good condition) and as a modified woodland, with disturbed canopy (Moderate condition).

4.2.2.3 Justification of PCT selection

Plant Community Types listed with the BioNet Vegetation Classification database (NSW OEH 2018a) were filtered based on the following criteria to find a shortlist of potential candidate PCTs,

- Occurrence within the Karuah-Manning IBRA subregion
- Inclusion in the Wet Sclerophyll Forest formation
- Canopy including *Eucalyptus acmenoides, Corymbia maculata* and *Eucalyptus fegusonii*
- Mid stratum including *Dodonaea triquetra* and *Pultenaea villosa*
- Ground stratum including *Imperata cylindrica* and *Themeda triandra*.

This leaves a shortlist of five potential candidate PCTs 3234, 3241, 3242, 3244 and 3250. Of these, PCT 3242 can be discounted, as it is dominated by *Syncarpia glomulifera,* which does not occur at the site. PCT 3234 includes a higher cover of *Corymbia maculata* in the upper stratum, which is more strongly dominant and occasionally occurring with *Eucalyptus paniculata* or *E. umbra*, whereas at the site, this type has a canopy with *E. acmenoides* more prominent. PCT 3250 also occurs on site and is more strongly dominated by *E. acmenoides*, with *Corymbia maculata* uncommon and *Eucalyptus microcorys* more often present, which does not fit with this type. PCT 3244 is very similar in composition but frequently includes *Syncarpia gloumulifera* in the small tree layer and often includes *Acacia implexa*, neither of which occur within this type at the site. This leaves PCT 3241 as the best candidate for this type at the site.

4.2.2.4 Alignment with TECs

This PCT is not associated with any TEC within the BioNet Vegetation Classification database (NSW OEH 2018a) and does not fit the definition of any NSW listed TECs.

4.2.2.5 Alignment with EPBC Act listed ECs

This PCT is not associated with any EC listed under the EPBC Act within the BioNet Vegetation Classification database (NSW OEH 2018a) and does not fit the definition of any NSW listed ECs.

4.2.3 3250 - Northern Foothills Blackbutt Grassy Forest

4.2.3.1 PCT overview

Table 5 PCT 3250 - Northern Foothills Blackbutt Grassy Forest

PCT ID	3250
PCT name	Northern Foothills Blackbutt Grassy Forest
Vegetation formation	Wet Sclerophyll Forests (Grassy sub-formation)
Vegetation class	Northern Hinterland Wet Sclerophyll Forests
Per cent cleared value (%)	29.6
Extent within subject land (ha)	2.61

At the site, this PCT is represented by a tall, wet sclerophyll forest, dominated by *Eucalyptus pilularis*, often in association with *Corymbia intermedia* and *E. microcorys*. A small tree layer, including *Allocasuarina torulosa* or *A. littoralis* is often present. The shrub layer is typically sparse and includes *Dodonaea triquetra, Pultenaea villosa* and *Polyscias sambuccifolia* and *Tetratheca thymifolia.* The ground layer is typically dense and dominated by a range of grasses, including *Imperata cylindrica, Themeda triandra* and *Entolasia stricta*. A range of forbs, including *Lobelia purpurascens* and *Pseuderanthemum variabile* and the fern *Pteridium esculentum*, are also commonly present.

Photo 2 PCT 3250 - Northern Foothills Blackbutt Grassy Forest

4.2.3.2 Condition states

This PCT occurs at the site in both a relatively intact state (Good condition) as well as in a highly modified state, with disturbed/removed canopy and a high cover of pioneer shrub species.

4.2.3.3 Justification of PCT selection

Plant Community Types listed with the BioNet Vegetation Classification database (NSW OEH 2018a) were filtered based on the following criteria to find a shortlist of potential candidate PCTs,

- Occurrence within the Karuah-Manning IBRA subregion
- Inclusion in the Wet Sclerophyll Forest formation
- Canopy including *Eucalyptus pilularis, Corymbia intermedia* and *Eucalyptus microcorys*

- Mid stratum including *Dodonaea triquetra*, *Pultenaea villosa, Tetratheca thymifolia* and *Polyscias sambuccifolia*
- Ground stratum including *Imperata cylindrica*, *Themeda triandra* and *Pteridium esculentum.*

This leaves a shortlist of six potential candidate PCTs 3244, 3248, 3250, 3435, 3582 and 3998. Of these, PCT 3582 is dominated by *Angophora costata* and *Corymbia gummifera*, which are not common in this type at the site. PCT 3998 is dominated by either *Eucalyptus resinifera* or *E. robusta*, neither of which occur in this type at the site. PCT 3435 is dominated by *Angophora costata* and *E. resinifera*, which are uncommon or not present in this type at the site. PCT 3248 frequently includes *Syncarpia glomulifera*, which isn't present in this type at the site. PCT 3244 has a canopy frequently dominated by Corymbia maculata, which is uncommon in this type at the site. This leaves PCT 3250 as the only suitable candidate PCT for this type at the site.

4.2.3.4 Alignment with TECs

This PCT is not associated with any TEC within the BioNet Vegetation Classification database (NSW OEH 2018a) and does not fit the definition of any NSW listed TECs.

4.2.3.5 Alignment with EPBC Act listed ECs

This PCT is not associated with any EC listed under the EPBC Act within the BioNet Vegetation Classification database (NSW OEH 2018a) and does not fit the definition of any NSW listed ECs.

4.2.4 3437 - Hunter Coast Lowland Spotted Gum Dry Forest

4.2.4.1 PCT overview

Table 6 PCT 3437 - Hunter Coast Lowland Spotted Gum Dry Forest

PCT ID	3437
PCT name	Hunter Coast Lowland Spotted Gum Dry Forest
Vegetation formation	Dry Sclerophyll Forests (Shrub/grass sub-formation)
Vegetation class	Hunter-Macleay Dry Sclerophyll Forests
Per cent cleared value (%)	51.82
Extent within subject land (ha)	7.09

This PCT is represented at the site by a relatively shrubby, dry open sclerophyll forest, with a canopy strongly dominated by *Corymbia maculata*, typically in association with *Eucalyptus fergusonii or* other ironbark species. Mahogany species, including *E. umbra* and *E. acmenoides* are also common. A small tree layer dominated by *Allocasuarina torulosa* or *A. littoralis* and *Melaleuca nodosa* is commonly present. The shrub layer is sparse to mid dense and includes a diverse range of shrub species, including *Dodonaea triquetra, Pultenaea villosa, Persoonia linearis* and *Acacia brownii*. The ground layer is usually grassy and dominated by species including *Themeda triandra, Entolasia stricta* and *Imperata cylindrica* and graminoids including *Gahnia aspera* and *Lomandra confertifolia.* A range of forbs, including *Lobelia purpurascens, Dianella longifolia* and *Pseuderanthemum variabile* are also commonly present.

Photo 3 PCT 3437 - Hunter Coast Lowland Spotted Gum Dry Forest

4.2.4.2 Condition states

This PCT occurs at the site in a relatively intact state (good condition) as well as in a partially modified state, with disturbed canopy (moderate condition) and in a highly modified state, with removed canopy and a high cover of pioneer shrub species (low condition).

4.2.4.3 Justification of PCT selection

Plant Community Types listed with the BioNet Vegetation Classification database (NSW OEH 2018a) were filtered based on the following criteria to find a shortlist of potential candidate PCTs,

- Occurrence within the Karuah-Manning IBRA subregion
- Inclusion in the Dry Sclerophyll Forest formation
- Canopy including *Corymbia maculata, Eucalyptus fergusonii* and *E. umbra*
- Mid stratum including *Dodonaea triquetra*, *Pultenaea villosa, Persoonia linearis* and *Acacia brownii*
- Ground stratum including *Dianella longifolia*, *Themeda triandra* and *Entolasia stricta.*

This leaves a shortlist of five potential candidate PCTs 3432, 3433, 3437, 3446 and 3581. PCT 3581 has a canopy strongly dominated by *Angophora costata*, usually in association with *Corymbia gummifera*, neither of which occur in this type at the site. PCT 3446, while dominated by *C. maculata*, usually also includes one of the ironbarks E. crebra or *E.*

paniculata as well as *E. moluccana* and/or *E. tereticornis* in the canopy. These associated species are uncommon or not present in this type at the site. PCT 3432 frequently includes a high cover of *A. costata* in the canopy, which is not present in this type at the site. PCT 3433 has a very similar composition and is known to grade into PCT 3437 closer to the coast and at lower elevation. PCT 343 typically includes a high cover of either *E. fibrosa* or *E. siderophloia*, neither of which is common in this type at the site, with *E. fergusonii* being the more common ironbark species. PCT 3433 is recorded as occurring on Permian sediments and claystones of the Narrabeen group, whereas PCT 3437 is recorded as occurring on the Nerong volcanics, where this site is located. PCT 3437 is therefore the most appropriate PCT assignment for this type at the site.

4.2.4.4 Alignment with TECs

This PCT is not associated with any TEC within the BioNet Vegetation Classification database (NSW OEH 2018a) and does not fit the definition of any NSW listed TECs.

4.2.4.5 Alignment with EPBC Act listed ECs

This PCT is not associated with any EC listed under the EPBC Act within the BioNet Vegetation Classification database (NSW OEH 2018a) and does not fit the definition of any NSW listed ECs.

4.2.5 3581 - Hunter Coast Foothills Apple Forest

4.2.5.1 PCT overview

Table 7 PCT 3581 - Hunter Coast Foothills Apple Forest

PCT ID	3581
PCT name	Hunter Coast Foothills Apple Forest
Vegetation formation	Dry Sclerophyll Forests (Shrubby sub-formation)
Vegetation class	Sydney Coastal Dry Sclerophyll Forests
Per cent cleared value (%)	26.09
Extent within subject land (ha)	0.26

PCT 3581 is represented at the site by a shrubby, dry open sclerophyll forest, with a high cover of *Angophora costata*, frequently in association with *Eucalyptus globoidea.* A sparse small tree layer, including *Glochidion fedinandi* and *Melaleuca nodosa* is typically present. The shrub layer is typically sparse to mid dense and includes a range of shrub species, including *Leptospermum polygalifolium, Persoonia linearis* and *Hibbertia aspera.* The ground layer is typically mid dense and dominated by a range of grass and graminoid species, including *Entolasia stricta, Themeda triandra* and *Gahnia sieberiana*. A range of forbs including *Pseuderanthemum variabile, Lobelia purpurascens* and *Centella asiatica* and the fern *Pteridium esculentum* are also commonly present at low covers.

Photo 1 PCT 3581 - Hunter Coast Foothills Apple Forest

4.2.5.2 Condition states

This PCT occurs at the site in a single condition state, with a modified canopy made up of relatively even age trees.

4.2.5.3 Justification of PCT selection

Plant Community Types listed with the BioNet Vegetation Classification database (NSW OEH 2018a) were filtered based on the following criteria to find a shortlist of potential candidate PCTs,

- Occurrence within the Karuah-Manning IBRA subregion
- Inclusion in the Dry Sclerophyll Forest formation
- Canopy including *Angophora costata* and *Eucalyptus globoidea*
- *Small tree layer including Glochidion fedinandi* and *Melaleuca nodosa*
- Mid stratum including *Leptospermum polygalifolium, Hibbertia aspera*, and *Persoonia linearis*
- Ground stratum including *Gahnia sieberiana*, *Entolasia stricta and Centella asiatica*

This leaves a shortlist of six potential candidate PCTs 3432, 3433, 3435, 3446, 3581 and 3582. PCT 3432 typically includes one of the ironbark species, most commonly *Eucalyptus fibrosa*, which is not present in this type at the site. PCT 3433 is dominated by *Corymbia maculata*, in association with *E. fibrosa* or *E. siderophloia*. None of these species are present in this type at the site. PCT 3446 typically includes *C. maculata*, ironbark species

and *E. moluccana* or *E. tereticornis*. None of these species are present in this type at the site. PCT 3582 typically includes *Angophora costata* in association with C*orymbia gummifera,* the latter of which is not present in this type at the site. PCT 3435 is similar in composition to PCT 3581, however the former is recorded from Permo-Triassic and Carboniferous sediments, whereas PCT 3581 is recorded as occurring on the Nerong Volcanics, where the site is located. PCT 3581 is therefore the most appropriate PCT assignment for this type at the site.

4.2.5.4 Alignment with TECs

This PCT is not associated with any TEC within the BioNet Vegetation Classification database (NSW OEH 2018a) and does not fit the definition of any NSW listed TECs.

4.2.5.5 Alignment with EPBC Act listed ECs

This PCT is not associated with any EC listed under the EPBC Act within the BioNet Vegetation Classification database (NSW OEH 2018a) and does not fit the definition of any NSW listed ECs.

4.2.6 3583 - Hunter Coast Lowland Scribbly Gum Forest

4.2.6.1 PCT overview

Table 8 PCT 3583 - Hunter Coast Lowland Scribbly Gum Forest

PCT ID	3583
PCT name	Hunter Coast Lowland Scribbly Gum Forest
Vegetation formation	Dry Sclerophyll Forests (Shrubby sub-formation)
Vegetation class	Sydney Coastal Dry Sclerophyll Forests
Per cent cleared value (%)	64.11
Extent within subject land (ha)	2.38

PCT 3583 is represented at the site by a shrubby, dry open sclerophyll forest, with a canopy dominated by *Angophora costata*, in association with *Eucalyptus racemosa and Corymbia gummifera. Angophora inopina* is often also present in the canopy. The shrub layer is dense and includes a diverse range of shrubs, including *Banksia spinulosa, Leptospermum trinervium, Persoonia levis* and *Lambertia Formosa*. The ground stratum is mid dense to dense and dominated by grasses and graminoids, including *Entolasia stricta, Themeda triandra, Ptilothrix deusta, Tetraria capillaris* and *Cyathochaeta diandra*.

Photo 1 PCT 3583 - Hunter Coast Lowland Scribbly Gum Forest

4.2.6.2 Condition states

This PCT occurs at the site in a relatively intact state (good condition) as well as in a partially modified state, with disturbed canopy (moderate condition) and in a highly modified state, with the canopy mostly removed (low condition).

4.2.6.3 Justification of PCT selection

Plant Community Types listed with the BioNet Vegetation Classification database (NSW OEH 2018a) were filtered based on the following criteria to find a shortlist of potential candidate PCTs,

- Occurrence within the Karuah-Manning IBRA subregion
- Inclusion in the Dry Sclerophyll Forest formation
- Canopy including *Angophora costata, Eucalyptus racemosa* and *Angophora inopina*
- Mid stratum including *Banksia spinulosa, Persoonia levis*, *Leptospermum trinervium* and *Lambertia Formosa*
- Ground stratum including *Entolasia stricta, Ptilothrix deusta* and *Cyathochaeta diandra*.

This leaves a shortlist of three potential candidate PCTs 3436, 3581 and 3583. The main diagnostic attribute of PCT 3436 is a closed canopy of the mid-stratum that almost always is completely dominated by Melaleuca nodosa. This feature is not present in this type at the site. PCT 3582 commonly includes one of the stringybark species in the canopy and a small tree layer including Allocasuarina littoralis. These species are either uncommon or not

present in this type at the site. PCT 3583 is therefore the most appropriate assignment for this type at the site.

4.2.6.4 Alignment with TECs

This PCT is not associated with any TEC within the BioNet Vegetation Classification database (NSW OEH 2018a) and does not fit the definition of any NSW listed TECs.

4.2.6.5 Alignment with EPBC Act listed ECs

This PCT is not associated with any EC listed under the EPBC Act within the BioNet Vegetation Classification database (NSW OEH 2018a) and does not fit the definition of any NSW listed ECs.

4.2.7 4038 - Hunter Estuarine Melaleuca nodosa Scrub

4.2.7.1 PCT overview

Table 9 PCT 4038 - Hunter Estuarine Melaleuca nodosa Scrub

PCT ID	4038
PCT name	Hunter Estuarine Melaleuca nodosa Scrub
Vegetation formation	Forested Wetlands
Vegetation class	Coastal Floodplain Wetlands
Per cent cleared value (%)	50.58
Extent within subject land (ha)	0.04

PCT 3583 is represented at the site by a forested wetland with a dense canopy strongly dominated by *Melaleuca nodosa* in association with *Casuarina glauca*, fringing the tidal zone. A sparse layer of small trees and shrubs is present and includes *Glochidion ferdinandi, Notelaea longifolia* and *Breynia oblongifolia*. The ground layer is typically sparse to mid dense and dominated by sedges and rushes, with the most common being *Juncus krausii*. A number of grass species, including *Entolasia stricta* and *Oplismenus imbecilis* and forbs including *Lobelia purpurascens* and *Samolus repens* are also present at low covers.

Photo 1 PCT 4038 - Hunter Estuarine Melaleuca nodosa Scrub

4.2.7.2 Condition states

This PCT occurs at the site in a single condition state, with a relatively intact canopy (good condition).

4.2.7.3 Justification of PCT selection

PCTs listed with the BioNet Vegetation Classification database (NSW OEH 2018a) were filtered based on the following criteria to find a shortlist of potential candidate PCTs,

- Occurrence within the Karuah-Manning IBRA subregion
- Inclusion in the Forested Wetlands formation
- Canopy including *Melaleuca nodosa* and *Casuarina glauca*
- Mid stratum including *Glochidion ferdinandi* and *Notelaea longifolia*
- Ground stratum including *Entolasia stricta, Juncus krausii, Samolus repens* and *Lobelia purpurascens*.

This leaves a shortlist of seven potential candidate PCTs- 3985, 4000, 4006, 4026, 4028, 4038 and 4056. PCT 4985 is almost always dominated by dense stands of *Melaleuca ericifolia,* which is not present in this type at the site. The canopy of PCT 4000 almost always includes *Melaleuca quinquenervia*, which is not present in this type at the site. The canopy of PCT 4006 very frequently includes both *M. quinquenervia* and *Eucalyptus robusta*, neither of which is present in this type at the site. PCT 4028 includes a canopy dominated by *Casuarina glauca*, with *Melaleuca nodosa* uncommon, where this type at the site is strongly dominated by *M. nodosa*, with *C. glauca* less common. PCT 4056 includes a closed canopy

of small trees almost always dominated by *M. ericifolia*, which is not present in this type at the site. PCT 4026 has a similar composition to PCT 4038, however the former is typically dominated by C. glauca, with other species being uncommon in the canopy. This does not fit with this type at the site. PCT 4038 is therefore the most appropriate PCT assignment for this type at the site.

4.2.7.4 Alignment with TECs

PCT 4038 is associated with Swamp Oak Floodplain Forest of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions TEC within the BioNet Vegetation Classification database (NSW OEH 2018a). This TEC is defined as occurring on coastal floodplains and having a canopy dominated by *Casuarina glauca* in association with a number of small tree species, including *Melaleuca* species and *Glochidion fedinandi*. PCT 4038 as it occurs at the site, conforms with the defition of this TEC as per the final determination (NSW Scientific Committee 2011) as it includes *C. glauca* as a codominant species and includes a range of other species included in the TEC, such as *Melaleuca* species, *Glopchidion ferdinandi* and *Juncus kraussii*. This TEC is listed as occurring in the NSW North Coast bioregion, where the site is located.

4.2.7.5 Alignment with EPBC Act listed ECs

PCT 4038 is associated with Coastal Swamp Oak (Casuarina glauca) Forest of New South Wales and South East Queensland ecological community EC within the BioNet Vegetation Classification database (NSW OEH 2018a). This EC is described as occuring in coastal catchments, mostly at elevations of less than 20 m above sea-level. The canopy is dominated by *Casuarina glauca*, with *Melaleuca* species being common. This EC includes a range of small tree species, such as *Glochdion ferdinandi*, which occurs in this type at the site. The ground layer of this EC also aligns with the ground layer of this type at the site, with *Juncus kraussii, Samolus repens* and *Tetragonia tetragonoides* all listed as occurring in the EC and found at the site. PCT 4038 at the site conforms to the definition of the EPBC listed EC.

4.3 Threatened ecological communities

TECs and where relevant, ECs identified within the subject land are listed in Table 10 and their extent is shown on Figure 9 Threatened ecological communities and ecological communities.

Table 10 TECs within the subject land

TEC name	Profile ID (from TBDC)	BC Act status	EPBC Act status	Associated vegetation zones within the subject land	Area within subject land (ha)
Swamp Oak Floodplain Forest of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions	10945	E	E	4038/GOOD	0.04

4.4 Vegetation zones

Vegetation zones (areas of a PCT in a similar condition state) were delineated initially by visual interpretation of aerial imagery, followed up by ground truthing of polygons (see Figure

10). Vegetation zones were further refined using initial vegetation integrity (VI scores) with zones with similar VI scores merged. Patch size classes were identified using the assessment of native vegetation cover within the 1,500 m assessment area. Vegetation zones and patch sizes are summarised in Table 11.

Table 11 Vegetation zones and patch sizes

Vegetation zone ID	PCT ID number and name	Condition / other defining feature	Area (ha)	Patch size class (select multiple if areas of native vegetation are discontinuous)	No. vegetation integrity plots required	No. vegetation integrity plots completed	No. vegetation integrity plots used in assessment	Plot IDs of vegetation integrity plots used in assessment
3241_GOOD	3241-Lower North White Mahogany-Spotted Gum Moist Forest	GOOD	0.3	☐ <5 ha ☐ 5–24 ha ☐ 25–100 ha ☒ >100 ha	1	1	1	BUBP2004
3241_MOD	3241-Lower North White Mahogany-Spotted Gum Moist Forest	MOD	0.9	☐ <5 ha ☐ 5–24 ha ☐ 25–100 ha ☒ >100 ha	1	1	1	BUBP2006
3250_GOOD	3250-Northern Foothills Blackbutt Grassy Forest	GOOD	2.1	☐ <5 ha ☐ 5–24 ha ☐ 25–100 ha ☒ >100 ha	2	2	2	BUBP0005; BUBP0003
3250_POOR	3250-Northern Foothills Blackbutt Grassy Forest	POOR	0.5	☐ <5 ha ☐ 5–24 ha ☐ 25–100 ha ☒ >100 ha	1	2	1	BUBP2007
3437_GOOD	3437-Hunter Coast Lowland Spotted Gum Dry Forest	GOOD	3.2	☐ <5 ha ☐ 5–24 ha ☐ 25–100 ha ☒ >100 ha	2	2	2	BUBP0017; BUBP2011
3437_MOD	3437-Hunter Coast Lowland Spotted Gum Dry Forest	MOD	2.4	☐ <5 ha ☐ 5–24 ha ☐ 25–100 ha ☒ >100 ha	2	3	2	BUBP2001; BUBP2009

Vegetation zone ID	PCT ID number and name	Condition / other defining feature	Area (ha)	Patch size class (select multiple if areas of native vegetation are discontinuous)	No. vegetation integrity plots required	No. vegetation integrity plots completed	No. vegetation integrity plots used in assessment	Plot IDs of vegetation integrity plots used in assessment
3437_POOR	3437-Hunter Coast Lowland Spotted Gum Dry Forest	POOR	1.5	☐ <5 ha ☐ 5–24 ha ☐ 25–100 ha ☒ >100 ha	1	1	1	BUBP0004
3581_MOD	3581-Hunter Coast Foothills Apple Forest	MOD	0.3	☐ <5 ha ☐ 5–24 ha ☐ 25–100 ha ☒ >100 ha	1	1	1	BUBP2002
3583_GOOD	3583-Hunter Coast Lowland Scribbly Gum Forest	GOOD	1.1	☐ <5 ha ☐ 5–24 ha ☐ 25–100 ha ☒ >100 ha	1	1	1	BUBP0011
3583_MOD	3583-Hunter Coast Lowland Scribbly Gum Forest	MOD	0.5	☐ <5 ha ☐ 5–24 ha ☐ 25–100 ha ☒ >100 ha	1	2	1	BUBP2005
3583_POOR	3583-Hunter Coast Lowland Scribbly Gum Forest	POOR	0.8	☐ <5 ha ☐ 5–24 ha ☐ 25–100 ha ☒ >100 ha	1	1	1	BUBP0007
3250_DNG	3250-Northern Foothills Blackbutt Grassy Forest	DNG	0.01	☐ <5 ha ☐ 5–24 ha ☐ 25–100 ha ☒ >100 ha	1	1	1	BUBP2003

Vegetation zone ID	PCT ID number and name	Condition / other defining feature	Area (ha)	Patch size class (select multiple if areas of native vegetation are discontinuous)	No. vegetation integrity plots required	No. vegetation integrity plots completed	No. vegetation integrity plots used in assessment	Plot IDs of vegetation integrity plots used in assessment
4038_GOOD	4038-Hunter Estuarine Melaleuca nodosa Scrub	GOOD	0.04	☐ <5 ha ☐ 5–24 ha ☐ 25–100 ha ☒ >100 ha	1	1	1	BUBP2000

4.5 Vegetation integrity (vegetation condition)

4.5.1 Vegetation integrity survey plots

Most vegetation zones within the development footprint were less than 2 ha in area, therefore requiring 1 plot each as per BAM Table 3. Two vegetation zones (3437_GOOD and 3437_MOD) were over 2 ha in area and required two plots each. An additional plot, over the required number, was collected in each of three vegetation zones (3583/MOD, 3250/LOW and 3437/MOD). In each case, the most representative plots were used in the assessment.

4.5.2 Scores

Table 12 Vegetation integrity scores

Vegetation zone ID	Composition condition score	Structure condition score	Function condition score (where relevant)	Vegetation integrity score	Hollow bearing trees present?
3241_GOOD	75	11.5	87.4	42.2	No
3241_MOD	71	5.8	50.3	27.4	No
3250_GOOD	85.8	32.6	92.3	63.7	Yes
3250_POOR	49.4	11	34.3	26.5	No
3437_GOOD	81.3	29.7	66	54.2	Yes
3437_MOD	92.5	14.6	53.5	41.7	No
3437_POOR	83.1	10.4	63.2	37.9	No
3581_MOD	74.2	39.8	42.6	50.1	No
3583_GOOD	86.8	50.3	54.9	62.1	Yes
3583_MOD	71.6	34	52.7	50.5	No
3583_POOR	43	6.1	40.4	22	Yes
3250_DNG	58.7	14.1	31.6	29.7	No
4038_GOOD	72.9	10.3	65	36.5	No

4.5.3 Use of benchmark data

Vegetation benchmark data version 80 was used to determine VI scores for the site.

5. Habitat suitability for threatened species

5.1 Identification of threatened species for assessment

5.1.1 Ecosystem credit species

Table 13 Predicted ecosystem credit species

Common name	Scientific name	Listing status		Dual credit species	Sources	Species retained for further assessment?	Reason for exclusion from further assessment	Vegetation zone ID species retained within, including PCT ID	Sensitivity to gain class
		BC Act	EPBC Act						
Regent Honeyeater (Foraging)	Anthochaera phrygia	Critically Endangered	Critically Endangered	Yes	BAM-C	Yes	N/A	3241_GOOD; 3437_GOOD; 3437_MOD; 3583_GOOD; 3583_MOD; 3241_MOD; 3437_POOR; 3581_MOD; 3583_POOR	High Sensitivity to Gain
Dusky Woodswallow	Artamus cyanopterus cyanopterus	Vulnerable	Not Listed	No	BAM-C	Yes	N/A	3241_GOOD; 3250_GOOD; 3437_GOOD; 3437_MOD; 3583_GOOD; 3583_MOD; 3241_MOD; 3250_POOR; 3437_POOR; 3581_MOD; 3583_POOR; 3250_DNG	Moderate Sensitivity to Gain
Australasian Bittern	Botaurus poiciloptilus	Endangered	Endangered	No	BAM-C	Yes	N/A	4038_GOOD	Moderate Sensitivity to Gain
Sanderling (Foraging)	Calidris alba	Vulnerable	Not Listed	Yes	BAM-C	Yes	N/A	4038_GOOD	High Sensitivity to Gain

Common name	Scientific name	Listing status		Dual credit species	Sources	Species retained for further assessment?	Reason for exclusion from further assessment	Vegetation zone ID species retained within, including PCT ID	Sensitivity to gain class
		BC Act	EPBC Act						
Red Knot (Foraging)	Calidris canutus	Not Listed	Endangered	Yes	BAM-C	Yes	N/A	4038_GOOD	High Sensitivity to Gain
Curlew Sandpiper (Foraging)	Calidris ferruginea	Critically Endangered	Critically Endangered	Yes	BAM-C	Yes	N/A	4038_GOOD	High Sensitivity to Gain
Great Knot (Foraging)	Calidris tenuirostris	Vulnerable	Vulnerable	Yes	BAM-C	Yes	N/A	4038_GOOD	High Sensitivity to Gain
Gang-gang Cockatoo (Foraging)	Callocephalon fimbriatum	Endangered	Endangered	Yes	BAM-C	Yes	N/A	3241_GOOD; 3437_GOOD; 3437_MOD; 3583_GOOD; 3583_MOD; 3241_MOD; 3437_POOR; 3581_MOD; 3583_POOR; 4038_GOOD	Moderate Sensitivity to Gain
South-eastern Glossy Black-Cockatoo (Foraging)	Calyptorhynchus lathami lathami	Vulnerable	Vulnerable	Yes	BAM-C	Yes	N/A	3241_GOOD; 3250_GOOD; 3437_GOOD; 3437_MOD; 3583_GOOD; 3583_MOD; 3241_MOD; 3250_POOR; 3437_POOR; 3581_MOD; 3583_POOR; 3250_DNG; 4038_GOOD	High Sensitivity to Gain
Greater Sand-plover (Foraging)	Charadrius leschenaultii	Vulnerable	Vulnerable	Yes	BAM-C	Yes	N/A	4038_GOOD	High Sensitivity to Gain

Common name	Scientific name	Listing status		Dual credit species	Sources	Species retained for further assessment?	Reason for exclusion from further assessment	Vegetation zone ID species retained within, including PCT ID	Sensitivity to gain class
		BC Act	EPBC Act						
Lesser Sand-plover (Foraging)	Charadrius mongolus	Vulnerable	Endangered	Yes	BAM-C	Yes	N/A	4038_GOOD	High Sensitivity to Gain
Speckled Warbler	Chthonicola sagittata	Vulnerable	Not Listed	No	BAM-C	Yes	N/A	3241_GOOD; 3250_GOOD; 3437_GOOD; 3437_MOD; 3583_GOOD; 3583_MOD; 3241_MOD; 3250_POOR; 3437_POOR; 3581_MOD; 3583_POOR; 3250_DNG	High Sensitivity to Gain
Spotted Harrier	Circus assimilis	Vulnerable	Not Listed	No	BAM-C	Yes	N/A	3437_GOOD; 3437_MOD; 3437_POOR; 4038_GOOD	Moderate Sensitivity to Gain
Brown Treecreeper (eastern subspecies)	Climacteris picumnus victoriae	Vulnerable	Vulnerable	No	BAM-C	Yes	N/A	3241_GOOD; 3250_GOOD; 3437_GOOD; 3437_MOD; 3583_GOOD; 3583_MOD; 3241_MOD; 3250_POOR; 3437_POOR; 3581_MOD; 3583_POOR; 3250_DNG; 4038_GOOD	High Sensitivity to Gain
Barred Cuckoo-shrike	Coracina lineata	Vulnerable	Not Listed	No	BAM-C	Yes	N/A	3250_GOOD; 3250_POOR; 3250_DNG; 3241_GOOD; 3241_MOD	Moderate Sensitivity to Gain

Common name	Scientific name	Listing status		Dual credit species	Sources	Species retained for further assessment?	Reason for exclusion from further assessment	Vegetation zone ID species retained within, including PCT ID	Sensitivity to gain class
		BC Act	EPBC Act						
Varied Sittella	Daphoenositta chrysoptera	Vulnerable	Not Listed	No	BAM-C	Yes	N/A	3241_GOOD; 3250_GOOD; 3437_GOOD; 3437_MOD; 3583_GOOD; 3583_MOD; 3241_MOD; 3250_POOR; 3437_POOR; 3581_MOD; 3583_POOR; 3250_DNG; 4038_GOOD	Moderate Sensitivity to Gain
Spotted-tailed Quoll	Dasyurus maculatus	Vulnerable	Endangered	No	BAM-C	Yes	N/A	3241_GOOD; 3250_GOOD; 3437_GOOD; 3437_MOD; 3583_GOOD; 3583_MOD; 3241_MOD; 3250_POOR; 3437_POOR; 3581_MOD; 3583_POOR; 3250_DNG; 4038_GOOD	High Sensitivity to Gain
Black-necked Stork	Ephippiorhynchus asiaticus	Endangered	Not Listed	No	BAM-C	Yes	N/A	3241_GOOD; 3250_GOOD; 3437_GOOD; 3437_MOD; 3583_GOOD; 3583_MOD; 3241_MOD; 3250_POOR; 3437_POOR; 3581_MOD; 3583_POOR; 3250_DNG; 4038_GOOD	Moderate Sensitivity to Gain
Beach Stone-curlew (Foraging)	Esacus magnirostris	Critically Endangered	Not Listed	Yes	BAM-C	Yes	N/A	3250_GOOD; 3250_POOR; 3250_DNG	High Sensitivity to Gain

Common name	Scientific name	Listing status		Dual credit species	Sources	Species retained for further assessment?	Reason for exclusion from further assessment	Vegetation zone ID species retained within, including PCT ID	Sensitivity to gain class
		BC Act	EPBC Act						
Eastern False Pipistrelle	Falsistrellus tasmaniensis	Vulnerable	Not Listed	No	BAM-C	Yes	N/A	3241_GOOD; 3250_GOOD; 3437_GOOD; 3437_MOD; 3583_GOOD; 3583_MOD; 3241_MOD; 3250_POOR; 3437_POOR; 3581_MOD; 3583_POOR; 3250_DNG	High Sensitivity to Gain
Little Lorikeet	Glossopsitta pusilla	Vulnerable	Not Listed	No	BAM-C	Yes	N/A	3241_GOOD; 3250_GOOD; 3437_GOOD; 3437_MOD; 3583_GOOD; 3583_MOD; 3241_MOD; 3250_POOR; 3437_POOR; 3581_MOD; 3583_POOR; 3250_DNG;4038_GOOD	High Sensitivity to Gain
White-bellied Sea-Eagle (Foraging)	Haliaeetus leucogaster	Vulnerable	Not Listed	Yes	BAM-C	Yes	N/A	3241_GOOD; 3250_GOOD; 3437_GOOD; 3437_MOD; 3583_GOOD; 3583_MOD; 3241_MOD; 3250_POOR; 3437_POOR; 3581_MOD; 3583_POOR; 3250_DNG; 4038_GOOD	High Sensitivity to Gain
Little Eagle (Foraging)	Hieraaetus morphnoides	Vulnerable	Not Listed	Yes	BAM-C	Yes	N/A	3241_GOOD; 3250_GOOD; 3437_GOOD; 3437_MOD; 3583_GOOD; 3583_MOD; 3241_MOD; 3250_POOR; 3437_POOR; 3581_MOD; 3583_POOR; 3250_DNG; 4038_GOOD	Moderate Sensitivity to Gain

Common name	Scientific name	Listing status		Dual credit species	Sources	Species retained for further assessment?	Reason for exclusion from further assessment	Vegetation zone ID species retained within, including PCT ID	Sensitivity to gain class
		BC Act	EPBC Act						
White-throated Needletail	Hirundapus caudacutus	Vulnerable	Vulnerable	No	BAM-C	Yes	N/A	3241_GOOD; 3250_GOOD; 3437_GOOD; 3437_MOD; 3583_GOOD; 3583_MOD; 3241_MOD; 3250_POOR; 3437_POOR; 3581_MOD; 3583_POOR; 3250_DNG; 4038_GOOD	High Sensitivity to Gain
Black Bittern	Ixobrychus flavicollis	Vulnerable	Not Listed	No	BAM-C	Yes	N/A	3241_GOOD; 3250_GOOD; 3437_GOOD; 3437_MOD; 3583_GOOD; 3583_MOD; 3241_MOD; 3250_POOR; 3437_POOR; 3581_MOD; 3583_POOR; 3250_DNG	Moderate Sensitivity to Gain
Swift Parrot (Foraging)	Lathamus discolor	Endangered	Critically Endangered	Yes	BAM-C	Yes	N/A	3241_GOOD; 3250_GOOD; 3437_GOOD; 3437_MOD; 3583_GOOD; 3583_MOD; 3241_MOD; 3250_POOR; 3437_POOR; 3581_MOD; 3583_POOR; 3250_DNG; 4038_GOOD	Moderate Sensitivity to Gain
Broad-billed Sandpiper (Foraging)	Limicola falcinellus	Vulnerable	Not Listed	Yes	BAM-C	Yes	N/A	3437_GOOD; 3437_MOD; 3437_POOR	High Sensitivity to Gain
Bar-tailed Godwit	Limosa lapponica baueri	Not Listed	Vulnerable	Yes	BAM-C	Yes	N/A	4038_GOOD	High Sensitivity to Gain

Common name	Scientific name	Listing status		Dual credit species	Sources	Species retained for further assessment?	Reason for exclusion from further assessment	Vegetation zone ID species retained within, including PCT ID	Sensitivity to gain class
		BC Act	EPBC Act						
(baueri) (Foraging)									
Square-tailed Kite (Foraging)	Lophoictinia isura	Vulnerable	Not Listed	Yes	BAM-C	Yes	N/A	3241_GOOD; 3250_GOOD; 3437_GOOD; 3437_MOD; 3583_GOOD; 3583_MOD; 3241_MOD; 3250_POOR; 3437_POOR; 3581_MOD; 3583_POOR; 3250_DNG; 4038_GOOD	Moderate Sensitivity to Gain
South-eastern Hooded Robin	Melanodryas cucullata cucullata	Endangered	Endangered	No	BAM-C	Yes	N/A	3250_GOOD; 3250_POOR; 3250_DNG; 3583_GOOD; 3583_MOD; 3581_MOD; 3583_POOR	Moderate Sensitivity to Gain
Black-chinned Honeyeater (eastern subspecies)	Melithreptus gularis gularis	Vulnerable	Not Listed	No	BAM-C	Yes	N/A	3241_GOOD; 3250_GOOD; 3437_GOOD; 3437_MOD; 3583_GOOD; 3583_MOD; 3241_MOD; 3250_POOR; 3437_POOR; 3581_MOD; 3583_POOR; 3250_DNG	Moderate Sensitivity to Gain
Eastern Coastal Free-tailed Bat	Micronomus norfolkensis	Vulnerable	Not Listed	No	BAM-C	Yes	N/A	3241_GOOD; 3250_GOOD; 3437_GOOD; 3437_MOD; 3583_GOOD; 3583_MOD; 3241_MOD; 3250_POOR; 3437_POOR; 3581_MOD; 3583_POOR; 3250_DNG	High Sensitivity to Gain

Common name	Scientific name	Listing status		Dual credit species	Sources	Species retained for further assessment?	Reason for exclusion from further assessment	Vegetation zone ID species retained within, including PCT ID	Sensitivity to gain class
		BC Act	EPBC Act						
Little Bent-winged Bat (Foraging)	Miniopterus australis	Vulnerable	Not Listed	Yes	BAM-C	Yes	N/A	3241_GOOD; 3250_GOOD; 3437_GOOD; 3437_MOD; 3583_GOOD; 3583_MOD; 3241_MOD; 3250_POOR; 3437_POOR; 3581_MOD; 3583_POOR; 3250_DNG; 4038_GOOD	High Sensitivity to Gain
Large Bent-winged Bat (Foraging)	Miniopterus orianae oceanensis	Vulnerable	Not Listed	Yes	BAM-C	Yes	N/A	3241_GOOD; 3250_GOOD; 3437_GOOD; 3437_MOD; 3583_GOOD; 3583_MOD; 3241_MOD; 3250_POOR; 3437_POOR; 3581_MOD; 3583_POOR; 3250_DNG	High Sensitivity to Gain
Turquoise Parrot	Neophema pulchella	Vulnerable	Not Listed	No	BAM-C	Yes	N/A	3437_GOOD; 3437_MOD; 3437_POOR; 3583_GOOD; 3583_MOD; 3581_MOD; 3583_POOR	High Sensitivity to Gain
Eastern Curlew (Foraging)	Numenius madagascariensis	Not Listed	Critically Endangered	Yes	BAM-C	Yes	N/A	4038_GOOD	High Sensitivity to Gain
Eastern Osprey (Foraging)	Pandion cristatus	Vulnerable	Not Listed	Yes	BAM-C	Yes	N/A	3241_GOOD; 3250_GOOD; 3437_GOOD; 3437_MOD; 3583_GOOD; 3583_MOD; 3241_MOD; 3250_POOR; 3437_POOR; 3581_MOD;	Moderate Sensitivity to Gain

Common name	Scientific name	Listing status		Dual credit species	Sources	Species retained for further assessment?	Reason for exclusion from further assessment	Vegetation zone ID species retained within, including PCT ID	Sensitivity to gain class
		BC Act	EPBC Act						
								3583_POOR; 3250_DNG; 4038_GOOD	
Yellow-bellied Glider	Petaurus australis	Vulnerable	Vulnerable	No	BAM-C	Yes	N/A	3250_GOOD; 3250_POOR; 3250_DNG; 3241_GOOD; 3241_MOD; 3581_MOD	High Sensitivity to Gain
Scarlet Robin	Petroica boodang	Vulnerable	Not Listed	No	BAM-C	Yes	N/A	3241_GOOD; 3250_GOOD; 3437_GOOD; 3437_MOD; 3583_GOOD; 3583_MOD; 3241_MOD; 3250_POOR; 3437_POOR; 3581_MOD; 3583_POOR; 3250_DNG	Moderate Sensitivity to Gain
Flame Robin	Petroica phoenicea	Vulnerable	Not Listed	No	BAM-C	Yes	N/A	3241_GOOD; 3250_GOOD; 3437_GOOD; 3437_MOD; 3583_GOOD; 3583_MOD; 3241_MOD; 3250_POOR; 3437_POOR; 3581_MOD; 3583_POOR; 3250_DNG	Moderate Sensitivity to Gain
Golden-tipped Bat	Phoniscus papuensis	Vulnerable	Not Listed	No	BAM-C	Yes	N/A	3241_GOOD; 3250_GOOD; 3437_GOOD; 3437_MOD; 3583_GOOD; 3583_MOD; 3241_MOD; 3250_POOR; 3437_POOR; 3581_MOD; 3583_POOR; 3250_DNG	High Sensitivity to Gain

Common name	Scientific name	Listing status		Dual credit species	Sources	Species retained for further assessment?	Reason for exclusion from further assessment	Vegetation zone ID species retained within, including PCT ID	Sensitivity to gain class
		BC Act	EPBC Act						
Grey-crowned Babbler (eastern subspecies)	Pomatostomus temporalis temporalis	Vulnerable	Not Listed	No	BAM-C	Yes	N/A	3241_GOOD; 3250_GOOD; 3437_GOOD; 3437_MOD; 3241_MOD; 3250_POOR; 3437_POOR; 3250_DNG; 4038_GOOD	Moderate Sensitivity to Gain
Eastern Chestnut Mouse	Pseudomys gracilicaudatus	Vulnerable	Not Listed	No	BAM-C	Yes	N/A	3437_GOOD; 3437_MOD; 3437_POOR; 4038_GOOD	High Sensitivity to Gain
New Holland Mouse	Pseudomys novaehollandiae	Not Listed	Vulnerable	No	BAM-C	Yes	N/A	3250_GOOD; 3250_POOR; 3250_DNG; 3583_GOOD; 3583_MOD; 3581_MOD; 3583_POOR	High Sensitivity to Gain
Grey-headed Flying-fox (Foraging)	Pteropus poliocephalus	Vulnerable	Vulnerable	Yes	BAM-C	Yes	N/A	3241_GOOD; 3250_GOOD; 3437_GOOD; 3437_MOD; 3583_GOOD; 3583_MOD; 3241_MOD; 3250_POOR; 3437_POOR; 3581_MOD; 3583_POOR; 3250_DNG	High Sensitivity to Gain
Wompoo Fruit-Dove	Ptilinopus magnificus	Vulnerable	Not Listed	No	BAM-C	Yes	N/A	3250_GOOD; 3250_POOR; 3250_DNG; 3241_GOOD; 3241_MOD	Moderate Sensitivity to Gain
Rose-crowned Fruit-Dove	Ptilinopus regina	Vulnerable	Not Listed	No	BAM-C	Yes	N/A	3250_GOOD; 3250_POOR; 3250_DNG; 3583_GOOD; 3583_MOD; 3581_MOD; 3583_POOR	Moderate Sensitivity to Gain

Common name	Scientific name	Listing status		Dual credit species	Sources	Species retained for further assessment?	Reason for exclusion from further assessment	Vegetation zone ID species retained within, including PCT ID	Sensitivity to gain class
		BC Act	EPBC Act						
Superb Fruit-Dove	Ptilinopus superbus	Vulnerable	Not Listed	No	BAM-C	Yes	N/A	3250_GOOD; 3250_POOR; 3250_DNG; 3437_GOOD; 3437_MOD; 3437_POOR	Moderate Sensitivity to Gain
Australian Painted Snipe	Rostratula australis	Endangered	Endangered	No	BAM-C	Yes	N/A	4038_GOOD	Moderate Sensitivity to Gain
Yellow-bellied Sheathtail-bat	Saccolaimus flaviventris	Vulnerable	Not Listed	No	BAM-C	Yes	N/A	3250_GOOD; 3437_GOOD; 3437_MOD; 3583_GOOD; 3583_MOD; 3250_POOR; 3437_POOR; 3581_MOD; 3583_POOR; 3250_DNG	High Sensitivity to Gain
Greater Broad-nosed Bat	Scoteanax rueppellii	Vulnerable	Not Listed	No	BAM-C	Yes	N/A	3241_GOOD; 3250_GOOD; 3437_GOOD; 3437_MOD; 3583_GOOD; 3583_MOD; 3241_MOD; 3250_POOR; 3437_POOR; 3581_MOD; 3583_POOR; 3250_DNG	High Sensitivity to Gain
Diamond Firetail	Stagonopleura guttata	Vulnerable	Vulnerable	No	BAM-C	Yes	N/A	3250_GOOD; 3250_POOR; 3250_DNG; 3437_GOOD; 3437_MOD; 3437_POOR	Moderate Sensitivity to Gain
Common Blossom-bat	Syconycteris australis	Vulnerable	Not Listed	No	BAM-C	Yes	N/A	3250_GOOD; 3250_POOR; 3437_GOOD; 3437_MOD; 3437_POOR; 3581_MOD; 3250_DNG	High Sensitivity to Gain

Common name	Scientific name	Listing status		Dual credit species	Sources	Species retained for further assessment?	Reason for exclusion from further assessment	Vegetation zone ID species retained within, including PCT ID	Sensitivity to gain class
		BC Act	EPBC Act						
Red-legged Pademelon	Thylogale stigmatica	Vulnerable	Not Listed	No	BAM-C	Yes	N/A	3250_GOOD; 3250_POOR; 3250_DNG	High Sensitivity to Gain
Eastern Grass Owl	Tyto longimembris	Vulnerable	Not Listed	No	BAM-C	Yes	N/A	3250_GOOD; 3250_POOR; 3250_DNG	Moderate Sensitivity to Gain
Terek Sandpiper (Foraging)	Xenus cinereus	Vulnerable	Vulnerable	Yes	BAM-C	Yes	N/A	4038_GOOD	High Sensitivity to Gain

5.1.2 Species credit species

Table 14 Predicted flora species credit species

Common name	Scientific name	Listing status		Sources	Species retained for further assessment?	Reason for exclusion from further assessment	Vegetation zone ID species retained within, including PCT ID
		BC Act	EPBC Act				
Austral Toadflax	Thesium australe	Vulnerable	Vulnerable	BAM-C	Yes	N/A	3250_GOOD, 3250_POOR
Biconvex Paperbark	Melaleuca biconvexa	Vulnerable	Vulnerable	BAM-C	Yes	N/A	3241_GOOD; 3250_GOOD; 3241_MOD; 3250_POOR; 3250_DNG

Common name	Scientific name	Listing status		Sources	Species retained for further assessment?	Reason for exclusion from further assessment	Vegetation zone ID species retained within, including PCT ID
		BC Act	EPBC Act				
Black-eyed Susan	Tetratheca juncea	Vulnerable	Vulnerable	BAM-C	Yes	N/A	3241_GOOD, 3241_MOD
Camfield's Stringybark	Eucalyptus camfieldii	Vulnerable	Vulnerable	BAM-C	Yes	N/A	3583_MOD, 3583_POOR
Charmhaven Apple	Angophora inopina	Vulnerable	Vulnerable	BAM-C	Yes	N/A	3583_GOOD, 3583_MOD, 3581_MOD, 3583_POOR
Craven Grey Box	Eucalyptus largeana	Endangered	Endangered	BAM-C	Yes	N/A	3241_GOOD, 3241_MOD
Eastern Australian Underground Orchid	Rhizanthella slateri	Vulnerable	Endangered	BAM-C	Yes	N/A	3241_GOOD, 3250_GOOD, 3583_GOOD, 3583_MOD, 3241_MOD, 3250_POOR, 3581_MOD, 3583_POOR
Grove's Paperbark	Melaleuca groveana	Vulnerable	Not Listed	BAM-C	Yes	N/A	3250_GOOD, 3437_GOOD, 3437_MOD, 3250_POOR, 3437_POOR
Leafless Tongue Orchid	Cryptostylis hunteriana	Vulnerable	Vulnerable	BAM-C	Yes	N/A	3250_GOOD, 3437_GOOD, 3437_MOD, 3583_GOOD, 3583_MOD, 3250_POOR, 3437_POOR, 3581_MOD, 3583_POOR

Common name	Scientific name	Listing status		Sources	Species retained for further assessment?	Reason for exclusion from further assessment	Vegetation zone ID species retained within, including PCT ID
		BC Act	EPBC Act				
Magenta Lilly Pilly	Syzygium paniculatum	Endangered	Vulnerable	BAM-C	Yes	N/A	3241_GOOD, 3250_GOOD
Manning Yellow Solanum	Solanum sulphureum	Endangered	Endangered	BAM-C	Yes	N/A	3241_GOOD, 3250_GOOD, 3241_MOD, 3250_POOR
Maundia triglochinoides	Maundia triglochinoides	Vulnerable	Not Listed	BAM-C	Yes	N/A	4038_GOOD
Native Guava	Rhodomyrtus psidioides	Critically Endangered	Critically Endangered	BAM-C	Yes	N/A	3250_GOOD; 3241_MOD; 3250_POOR; 3250_DNG
Netted Bottle Brush	Callistemon linearifolius	Vulnerable	Not Listed	BAM-C	Yes	N/A	3437_GOOD
Noah's False Chickweed	Lindernia alsinoides	Endangered	Not Listed	BAM-C	Yes	N/A	3250_GOOD, 3250_POOR
Pale Yellow Doubletail	Diuris flavescens	Critically Endangered	Critically Endangered	BAM-C	Yes	N/A	3241_GOOD, 3241_MOD

Common name	Scientific name	Listing status		Sources	Species retained for further assessment?	Reason for exclusion from further assessment	Vegetation zone ID species retained within, including PCT ID
		BC Act	EPBC Act				
Pterostylis chaetophora	Pterostylis chaetophora	Vulnerable	Not Listed	BAM-C	Yes	N/A	3241_GOOD, 3437_GOOD, 3437_MOD, 3241_MOD, 3437_POOR
Red Helmet Orchid	Corybas dowlingii	Endangered	Not Listed	BAM-C	Yes	N/A	3241_GOOD, 3250_GOOD, 3437_GOOD, 3437_MOD, 3241_MOD, 3250_POOR, 3437_POOR, 3581_MOD
Rhizanthella slateri (Rupp) M.A. Clem. & Cribb in the Great Lakes local government area	Rhizanthella slateri - endangered population	Endangered Population	Not Listed	BAM-C	Yes	N/A	3241_GOOD, 3250_GOOD, 3241_MOD, 3250_POOR, 3581_MOD
Rough Doubletail	Diuris praecox	Vulnerable	Vulnerable	BAM-C	Yes	N/A	3250_GOOD, 3437_GOOD, 3437_MOD, 3583_GOOD, 3583_MOD, 3250_POOR, 3437_POOR, 3581_MOD, 3583_POOR
Scrub Turpentine	Rhodamnia rubescens	Critically Endangered	Critically Endangered	BAM-C	Yes	N/A	3250_GOOD, 3437_GOOD, 3437_MOD, 3250_POOR, 3437_POOR, 3241_GOOD; 3250_GOOD; 3241_MOD
Slaty Red Gum	Eucalyptus glaucina	Vulnerable	Vulnerable	BAM-C	Yes	N/A	3241_GOOD, 3241_MOD

Common name	Scientific name	Listing status		Sources	Species retained for further assessment?	Reason for exclusion from further assessment	Vegetation zone ID species retained within, including PCT ID
		BC Act	EPBC Act				
Small-flower Grevillea	Grevillea parviflora subsp. parviflora	Vulnerable	Vulnerable	BAM-C	Yes	N/A	3583_GOOD, 3583_MOD, 3581_MOD, 3583_POOR
Spider orchid	Dendrobium melaleucaphilum	Endangered	Not Listed	BAM-C	Yes	N/A	3250_GOOD, 3250_POOR
Trailing Woodruff	Asperula asthenes	Vulnerable	Vulnerable	BAM-C	Yes	N/A	3241_GOOD, 3250_GOOD, 3241_MOD, 3250_POOR
White-flowered Wax Plant	Cynanchum elegans	Endangered	Endangered	BAM-C	Yes	N/A	3250_GOOD, 3250_POOR

Table 15 Predicted fauna species credit species

Common name	Scientific name	Listing status		Dual credit species	Sources	Species retained for further assessment?	Reason for exclusion from further assessment	Vegetation zone ID species retained within, including PCT ID
		BC Act	EPBC Act					
Rufous Bettong	Aepyprymnus rufescens	Vulnerable	Not Listed	No	BAM-C	No	Geographic limitations- this species occurs North of Gloucester.	
Regent Honeyeater (Breeding)	Anthochaera phrygia	Critically Endangered	Critically Endangered	Yes	BAM-C	Yes	No habitat mapped in important habitat map at the site.	
Bush Stone-curlew	Burhinus grallarius	Endangered	Not Listed	No	BAM-C	Yes	N/A	3250_GOOD, 3437_GOOD, 3437_MOD, 3583_GOOD, 3583_MOD, 3250_POOR, 3437_POOR, 3581_MOD, 3583_POOR
Sanderling (Breeding)	Calidris alba	Vulnerable	Not Listed	Yes	BAM-C	Yes	N/A	4038_GOOD
Red Knot (Breeding)	Calidris canutus	Not Listed	Endangered	Yes	BAM-C	Yes	N/A	4038_GOOD

Common name	Scientific name	Listing status		Dual credit species	Sources	Species retained for further assessment?	Reason for exclusion from further assessment	Vegetation zone ID species retained within, including PCT ID
		BC Act	EPBC Act					
Curlew Sandpiper (Breeding)	Calidris ferruginea	Critically Endangered	Critically Endangered	Yes	BAM-C	Yes	N/A	4038_GOOD
Great Knot (Breeding)	Calidris tenuirostris	Vulnerable	Vulnerable	Yes	BAM-C	Yes	N/A	4038_GOOD
Gang-gang Cockatoo (Breeding)	Callocephalon fimbriatum	Endangered	Endangered	Yes	BAM-C	Yes	N/A	3241_GOOD, 3437_GOOD, 3437_MOD, 3583_GOOD, 3583_MOD, 3241_MOD, 3437_POOR, 3581_MOD, 3583_POOR
South-eastern Glossy Black-Cockatoo (Breeding)	Calyptorhynchus lathami lathami	Vulnerable	Vulnerable	Yes	BAM-C	Yes	N/A	3241_GOOD, 3250_GOOD, 3437_GOOD, 3437_MOD, 3583_GOOD, 3583_MOD, 3241_MOD, 3250_POOR, 3437_POOR,

Common name	Scientific name	Listing status		Dual credit species	Sources	Species retained for further assessment?	Reason for exclusion from further assessment	Vegetation zone ID species retained within, including PCT ID
		BC Act	EPBC Act					
								3581_MOD, 3583_POOR
Eastern Pygmy-possum	Cercartetus nanus	Vulnerable	Not Listed	No	BAM-C	Yes	N/A	3241_GOOD, 3250_GOOD, 3437_GOOD, 3437_MOD, 3583_GOOD, 3583_MOD, 3241_MOD, 3250_POOR, 3437_POOR, 3581_MOD, 3583_POOR
Large-eared Pied Bat	Chalinolobus dwyeri	Endangered	Endangered	No	BAM-C	Yes	Habitat constraints not met- Cliffs;Within two kilometres of rocky areas containing caves, overhangs, escarpments, outcrops, or crevices, or within two kilometres of old mines or tunnels	

Common name	Scientific name	Listing status		Dual credit species	Sources	Species retained for further assessment?	Reason for exclusion from further assessment	Vegetation zone ID species retained within, including PCT ID
		BC Act	EPBC Act					
Greater Sand-plover (Breeding)	Charadrius leschenaultii	Vulnerable	Vulnerable	Yes	BAM-C	Yes	N/A	4038_GOOD
Lesser Sand-plover (Breeding)	Charadrius mongolus	Vulnerable	Endangered	Yes	BAM-C	Yes	N/A	4038_GOOD
Wallum Froglet	Crinia tinnula	Vulnerable	Not Listed	No	BAM-C	Yes	N/A	3250_GOOD, 3437_GOOD, 3437_MOD, 3583_GOOD, 3583_MOD, 3250_POOR, 3437_POOR, 3581_MOD, 3583_POOR
Emu population in the New South Wales North Coast Bioregion and Port Stephens local government area	Dromaius novaehollandiae - endangered population	Endangered Population	Not Listed	No	BAM-C	Yes	N/A	3241_GOOD, 3250_GOOD, 3437_GOOD, 3437_MOD, 3583_GOOD, 3583_MOD, 3241_MOD, 3250_POOR, 3437_POOR,

Common name	Scientific name	Listing status		Dual credit species	Sources	Species retained for further assessment?	Reason for exclusion from further assessment	Vegetation zone ID species retained within, including PCT ID
		BC Act	EPBC Act					
								3581_MOD, 3583_POOR
Beach Stone-curlew (Breeding)	Esacus magnirostris	Critically Endangered	Not Listed	Yes	BAM-C	Yes	N/A	3250_GOOD, 3250_POOR
White-bellied Sea-Eagle (Breeding)	Haliaeetus leucogaster	Vulnerable	Not Listed	Yes	BAM-C	Yes	N/A	3241_GOOD, 3250_GOOD, 3437_GOOD, 3437_MOD, 3583_GOOD, 3583_MOD, 3241_MOD, 3250_POOR, 3437_POOR, 3581_MOD, 3583_POOR
Little Eagle (Breeding)	Hieraaetus morphnoides	Vulnerable	Not Listed	Yes	BAM-C	Yes	N/A	3241_GOOD, 3250_GOOD, 3437_GOOD, 3437_MOD, 3583_GOOD, 3583_MOD, 3241_MOD,

Common name	Scientific name	Listing status		Dual credit species	Sources	Species retained for further assessment?	Reason for exclusion from further assessment	Vegetation zone ID species retained within, including PCT ID
		BC Act	EPBC Act					
								3250_POOR, 3437_POOR, 3581_MOD, 3583_POOR
Pale-headed Snake	Hoplocephalus bitorquatus	Vulnerable	Not Listed	No	BAM-C	Yes	N/A	3250_GOOD, 3250_POOR
Stephens' Banded Snake	Hoplocephalus stephensii	Vulnerable	Not Listed	No	BAM-C	Yes	N/A	3241_GOOD, 3250_GOOD, 3583_GOOD, 3583_MOD, 3241_MOD, 3250_POOR, 3581_MOD, 3583_POOR
Swift Parrot (Breeding)	Lathamus discolor	Endangered	Critically Endangered	Yes	BAM-C	No	No habitat mapped in important habitat map at the site.	
Broad-billed Sandpiper (Breeding)	Limicola falcinellus	Vulnerable	Not Listed	Yes	BAM-C	No	No habitat mapped in important habitat map at the site.	

Common name	Scientific name	Listing status		Dual credit species	Sources	Species retained for further assessment?	Reason for exclusion from further assessment	Vegetation zone ID species retained within, including PCT ID
		BC Act	EPBC Act					
Bar-tailed Godwit (baueri) (Breeding)	Limosa lapponica baueri	Not Listed	Vulnerable	Yes	BAM-C	Yes	N/A	4038_GOOD
Green and Golden Bell Frog	Litoria aurea	Endangered	Vulnerable	No	BAM-C	Yes	N/A	3241_GOOD, 3437_GOOD, 3437_MOD, 3583_GOOD, 3583_MOD, 3241_MOD, 3437_POOR, 3581_MOD, 3583_POOR
Green-thighed Frog	Litoria brevipalmata	Vulnerable	Not Listed	No	BAM-C	Yes	N/A	3241_GOOD, 3250_GOOD, 3241_MOD, 3250_POOR
Square-tailed Kite (Breeding)	Lophoictinia isura	Vulnerable	Not Listed	Yes	BAM-C	Yes	N/A	3241_GOOD, 3250_GOOD, 3437_GOOD, 3437_MOD, 3583_GOOD, 3583_MOD, 3241_MOD, 3250_POOR,

Common name	Scientific name	Listing status		Dual credit species	Sources	Species retained for further assessment?	Reason for exclusion from further assessment	Vegetation zone ID species retained within, including PCT ID
		BC Act	EPBC Act					
								3437_POOR, 3581_MOD, 3583_POOR
Little Bent-winged Bat (Breeding)	Miniopterus australis	Vulnerable	Not Listed	Yes	BAM-C	Yes	N/A	3241_GOOD, 3250_GOOD, 3437_GOOD, 3437_MOD, 3583_GOOD, 3583_MOD, 3241_MOD, 3250_POOR, 3437_POOR, 3581_MOD, 3583_POOR
Large Bent-winged Bat (Breeding)	Miniopterus orianae oceanensis	Vulnerable	Not Listed	Yes	BAM-C	Yes	N/A	3241_GOOD, 3250_GOOD, 3437_GOOD, 3437_MOD, 3583_GOOD, 3583_MOD, 3241_MOD, 3250_POOR, 3437_POOR, 3581_MOD, 3583_POOR

Common name	Scientific name	Listing status		Dual credit species	Sources	Species retained for further assessment?	Reason for exclusion from further assessment	Vegetation zone ID species retained within, including PCT ID
		BC Act	EPBC Act					
Stuttering Frog	Mixophyes balbus	Endangered	Vulnerable	No	BAM-C	Yes	N/A	3241_GOOD, 3250_GOOD, 3437_GOOD, 3437_MOD, 3583_GOOD, 3583_MOD, 3241_MOD, 3250_POOR, 3437_POOR, 3581_MOD, 3583_POOR
Giant Barred Frog	Mixophyes iteratus	Vulnerable	Vulnerable	No	BAM-C	Yes	N/A	3241_GOOD, 3250_GOOD, 3583_GOOD, 3583_MOD, 3241_MOD, 3250_POOR, 3581_MOD, 3583_POOR
Southern Myotis	Myotis macropus	Vulnerable	Not Listed	No	BAM-C	Yes	N/A	3241_GOOD, 3250_GOOD, 3437_GOOD, 3437_MOD, 3583_GOOD, 3583_MOD,

Common name	Scientific name	Listing status		Dual credit species	Sources	Species retained for further assessment?	Reason for exclusion from further assessment	Vegetation zone ID species retained within, including PCT ID
		BC Act	EPBC Act					
								3241_MOD, 3250_POOR, 3437_POOR, 3581_MOD, 3583_POOR
Barking Owl	Ninox connivens	Vulnerable	Not Listed	No	BAM-C	Yes	N/A	3241_GOOD, 3250_GOOD, 3437_GOOD, 3437_MOD, 3583_GOOD, 3583_MOD, 3241_MOD, 3250_POOR, 3437_POOR, 3581_MOD, 3583_POOR
Powerful Owl	Ninox strenua	Vulnerable	Not Listed	No	BAM-C	Yes	N/A	3241_GOOD, 3250_GOOD, 3437_GOOD, 3437_MOD, 3583_GOOD, 3583_MOD, 3241_MOD, 3250_POOR, 3437_POOR,

Common name	Scientific name	Listing status		Dual credit species	Sources	Species retained for further assessment?	Reason for exclusion from further assessment	Vegetation zone ID species retained within, including PCT ID
		BC Act	EPBC Act					
								3581_MOD, 3583_POOR
Parma Wallaby	Notamacropus parma	Vulnerable	Vulnerable	No	BAM-C	Yes	N/A	3250_GOOD, 3437_GOOD, 3437_MOD, 3250_POOR, 3437_POOR, 3581_MOD
Eastern Curlew (Breeding)	Numenius madagascariensis	Not Listed	Critically Endangered	Yes	BAM-C	Yes	N/A	4038_GOOD
Eastern Osprey (Breeding)	Pandion cristatus	Vulnerable	Not Listed	Yes	BAM-C	Yes	N/A	3241_GOOD, 3250_GOOD, 3437_GOOD, 3437_MOD, 3583_GOOD, 3583_MOD, 3241_MOD, 3250_POOR, 3437_POOR, 3581_MOD, 3583_POOR

Common name	Scientific name	Listing status		Dual credit species	Sources	Species retained for further assessment?	Reason for exclusion from further assessment	Vegetation zone ID species retained within, including PCT ID
		BC Act	EPBC Act					
Southern Greater Glider	Petauroides volans	Endangered	Endangered	No	BAM-C	Yes	N/A	3241_GOOD, 3250_GOOD, 3437_GOOD, 3437_MOD, 3241_MOD, 3250_POOR, 3437_POOR, 3581_MOD
Squirrel Glider	Petaurus norfolcensis	Vulnerable	Not Listed	No	BAM-C	Yes	N/A	3241_GOOD, 3250_GOOD, 3437_GOOD, 3437_MOD, 3583_GOOD, 3583_MOD, 3241_MOD, 3250_POOR, 3437_POOR, 3581_MOD, 3583_POOR
Brush-tailed Rock-wallaby	Petrogale penicillata	Endangered	Vulnerable	No	BAM-C	No	Habitat constraints not met- Land within 1 km of rocky escarpments, gorges, steep slopes, boulder piles, rock outcrops or clifflines	

Common name	Scientific name	Listing status		Dual credit species	Sources	Species retained for further assessment?	Reason for exclusion from further assessment	Vegetation zone ID species retained within, including PCT ID
		BC Act	EPBC Act					
Brush-tailed Phascogale	Phascogale tapoatafa	Vulnerable	Not Listed	No	BAM-C	Yes	N/A	3250_GOOD, 3437_GOOD, 3437_MOD, 3583_GOOD, 3583_MOD, 3250_POOR, 3437_POOR, 3581_MOD, 3583_POOR
Koala	Phascolarctos cinereus	Endangered	Endangered	No	BAM-C	Yes	N/A	3241_GOOD, 3250_GOOD, 3437_GOOD, 3437_MOD, 3583_GOOD, 3583_MOD, 3241_MOD, 3250_POOR, 3437_POOR, 3581_MOD, 3583_POOR
Common Planigale	Planigale maculata	Vulnerable	Not Listed	No	BAM-C	Yes	N/A	3250_GOOD, 3437_GOOD, 3437_MOD, 3583_GOOD, 3583_MOD,

Common name	Scientific name	Listing status		Dual credit species	Sources	Species retained for further assessment?	Reason for exclusion from further assessment	Vegetation zone ID species retained within, including PCT ID
		BC Act	EPBC Act					
								3250_POOR, 3437_POOR, 3581_MOD, 3583_POOR
Long-nosed Potoroo	Potorous tridactylus	Vulnerable	Vulnerable	No	BAM-C	Yes	N/A	3250_GOOD, 3583_GOOD, 3583_MOD, 3250_POOR, 3581_MOD, 3583_POOR
Grey-headed Flying-fox (Breeding)	Pteropus poliocephalus	Vulnerable	Vulnerable	Yes	BAM-C	Yes	N/A	3241_GOOD, 3250_GOOD, 3437_GOOD, 3437_MOD, 3583_GOOD, 3583_MOD, 3241_MOD, 3250_POOR, 3437_POOR, 3581_MOD, 3583_POOR
Red-backed Button-quail	Turnix maculosus	Vulnerable	Not Listed	No	BAM-C	Yes	N/A	3241_GOOD, 3250_GOOD, 3241_MOD, 3250_POOR

Common name	Scientific name	Listing status		Dual credit species	Sources	Species retained for further assessment?	Reason for exclusion from further assessment	Vegetation zone ID species retained within, including PCT ID
		BC Act	EPBC Act					
Masked Owl	Tyto novaehollandiae	Vulnerable	Not Listed	No	BAM-C	Yes	N/A	3250_GOOD, 3437_GOOD, 3437_MOD, 3583_GOOD, 3583_MOD, 3250_POOR, 3437_POOR, 3581_MOD, 3583_POOR
Sooty Owl	Tyto tenebricosa	Vulnerable	Not Listed	No	BAM-C	No	Habitat constraints not met- Caves, Cliffs;including clifflines/ledges, Escarpments;including clifflines/ledges, Hollow bearing trees;a living or dead tree with a hollow >20 cm diameter that occurs >4 metres above the ground	
Mahony's Toadlet	Uperoleia mahonyi	Endangered	Endangered	No	BAM-C	Yes	N/A	3437_GOOD, 3437_MOD, 3583_GOOD, 3583_MOD, 3437_POOR,

Common name	Scientific name	Listing status		Dual credit species	Sources	Species retained for further assessment?	Reason for exclusion from further assessment	Vegetation zone ID species retained within, including PCT ID
		BC Act	EPBC Act					
								3581_MOD, 3583_POOR
Eastern Cave Bat	Vespadelus troughtoni	Vulnerable	Not Listed	No	BAM-C	No	Habitat constraints not met- Caves; Within two kilometres of rocky areas containing caves, overhangs, escarpments, outcrops, crevices or boulder piles, or within two kilometres of old mines, tunnels, old buildings or sheds.	
Terek Sandpiper (Breeding)	Xenus cinereus	Vulnerable	Vulnerable	Yes	BAM-C	Yes	N/A	4038_GOOD

5.2 Presence of candidate species credit species

Table 16 Determining the presence of candidate flora species credit species on the subject land

Common name	Scientific name	Listing status		Method used to determine presence	Present?	Further assessment required? (BAM Subsections 5.2.5 and 5.2.6)
		BC Act	EPBC Act			
				Targeted threatened species survey	Choose an item.	Choose an item.
Austral Toadflax	Thesium australe	Vulnerable	Vulnerable	Assumed present	Yes	No
Biconvex Paperbark	Melaleuca biconvexa	Vulnerable	Vulnerable	Targeted threatened species survey	No	No
Black-eyed Susan	Tetratheca juncea	Vulnerable	Vulnerable	Targeted threatened species survey	Yes	No
Camfield's Stringybark	Eucalyptus camfieldii	Vulnerable	Vulnerable	Targeted threatened species survey	No	No
Charmhaven Apple	Angophora inopina	Vulnerable	Vulnerable	Targeted threatened species survey	Yes	No
Craven Grey Box	Eucalyptus largeana	Endangered	Endangered	Targeted threatened species survey	No	No
Diuris arenaria	Diuris arenaria	Endangered	Not Listed	Assumed present	Yes	No
Eastern Australian Underground Orchid	Rhizanthella slateri	Vulnerable	Endangered	Assumed present	Yes	No
Grove's Paperbark	Melaleuca groveana	Vulnerable	Not Listed	Targeted threatened species survey	No	No

Common name	Scientific name	Listing status		Method used to determine presence	Present?	Further assessment required? (BAM Subsections 5.2.5 and 5.2.6)
		BC Act	EPBC Act			
Leafless Tongue Orchid	Cryptostylis hunteriana	Vulnerable	Vulnerable	Assumed present	No	No
Magenta Lilly Pilly	Syzygium paniculatum	Endangered	Vulnerable	Targeted threatened species survey	No	No
Manning Yellow Solanum	Solanum sulphureum	Endangered	Endangered	Assumed present	No	No
Maundia triglochinoides	Maundia triglochinoides	Vulnerable	Not Listed	Assumed present	Yes	No
Native Guava	Rhodomyrtus psidioides	Critically Endangered	Critically Endangered	Targeted threatened species survey	No	No
Netted Bottle Brush	Callistemon linearifolius	Vulnerable	Not Listed	Targeted threatened species survey	Yes	No
Noah's False Chickweed	Lindernia alsinoides	Endangered	Not Listed	Assumed present	Yes	No
Pale Yellow Doubletail	Diuris flavescens	Critically Endangered	Critically Endangered	Assumed present	Yes	No
Pterostylis chaetophora	Pterostylis chaetophora	Vulnerable	Not Listed	Assumed present	Yes	No
Rainforest Cassia	Senna acclinis	Endangered	Not Listed	Targeted threatened species survey	No	No
Red Helmet Orchid	Corybas dowlingii	Endangered	Not Listed	Assumed present	Yes	No
Rhizanthella slateri (Rupp) M.A. Clem. & Cribb in the Great Lakes	Rhizanthella slateri - endangered population	Endangered Population	Not Listed	Assumed present	Yes	No

Common name	Scientific name	Listing status		Method used to determine presence	Present?	Further assessment required? (BAM Subsections 5.2.5 and 5.2.6)
		BC Act	EPBC Act			
local government area						
Rough Doubletail	Diuris praecox	Vulnerable	Vulnerable	Assumed present	Yes	No
Scant Pomaderris	Pomaderris queenslandica	Endangered	Not Listed	Targeted threatened species survey	No	No
Scrub Turpentine	Rhodamnia rubescens	Critically Endangered	Critically Endangered	Targeted threatened species survey	No	No
Slaty Red Gum	Eucalyptus glaucina	Vulnerable	Vulnerable	Targeted threatened species survey	No	No
Small-flower Grevillea	Grevillea parviflora subsp. parviflora	Vulnerable	Vulnerable	Targeted threatened species survey	Yes	No
Spider orchid	Dendrobium melaleucaphilum	Endangered	Not Listed	Assumed present	Yes	No
Trailing Woodruff	Asperula asthenes	Vulnerable	Vulnerable	Assumed present	Yes	No
White-flowered Wax Plant	Cynanchum elegans	Endangered	Endangered	Assumed present	Yes	No

Table 17 Determining the presence of candidate fauna species credit species on the subject land

Common name	Scientific name	Listing status		Method used to determine presence	Present?	Further assessment required? (BAM Subsections 5.2.5 and 5.2.6)
		BC Act	EPBC Act			
				Choose an item.	Choose an item.	Choose an item.
Barking Owl	Ninox connivens	Vulnerable	Not Listed	Assumed present	Yes	No
Bar-tailed Godwit (baueri) (Breeding)	Limosa lapponica baueri	Not Listed	Vulnerable	Assumed present	Yes	No
Beach Stone-curlew (Breeding)	Esacus magnirostris	Critically Endangered	Not Listed	Assumed present	Yes	No
Brush-tailed Phascogale	Phascogale tapoatafa	Vulnerable	Not Listed	Assumed present	Yes	No
Bush Stone-curlew	Burhinus grallarius	Endangered	Not Listed	Assumed present	Yes	No
Common Planigale	Planigale maculata	Vulnerable	Not Listed	Assumed present	Yes	No
Curlew Sandpiper (Breeding)	Calidris ferruginea	Critically Endangered	Critically Endangered	Assumed present	Yes	No
Eastern Curlew (Breeding)	Numenius madagascariensis	Not Listed	Critically Endangered	Assumed present	Yes	No
Eastern Osprey (Breeding)	Pandion cristatus	Vulnerable	Not Listed	Assumed present	Yes	No
Eastern Pygmy-possum	Cercartetus nanus	Vulnerable	Not Listed	Assumed present	Yes	No
Emu population in the New South Wales North Coast Bioregion	Dromaius novaehollandiae - endangered population	Endangered	Not Listed	Assumed present	Yes	No

Common name	Scientific name	Listing status		Method used to determine presence	Present?	Further assessment required? (BAM Subsections 5.2.5 and 5.2.6)
		BC Act	EPBC Act			
and Port Stephens local government area		Population				
Gang-gang Cockatoo (Breeding)	Callocephalon fimbriatum	Endangered	Endangered	Assumed present	Yes	No
Giant Barred Frog	Mixophyes iteratus	Vulnerable	Vulnerable	Assumed present	Yes	No
Great Knot (Breeding)	Calidris tenuirostris	Vulnerable	Vulnerable	Assumed present	Yes	No
Greater Sand-plover (Breeding)	Charadrius leschenaultii	Vulnerable	Vulnerable	Assumed present	Yes	No
Green and Golden Bell Frog	Litoria aurea	Endangered	Vulnerable	Assumed present	Yes	No
Green-thighed Frog	Litoria brevipalmata	Vulnerable	Not Listed	Assumed present	Yes	No
Grey-headed Flying-fox (Breeding)	Pteropus poliocephalus	Vulnerable	Vulnerable	Assumed present	Yes	No
Koala	Phascolarctos cinereus	Endangered	Endangered	Assumed present	Yes	No
Large Bent-winged Bat (Breeding)	Miniopterus orianae oceanensis	Vulnerable	Not Listed	Assumed present	Yes	No
Lesser Sand-plover (Breeding)	Charadrius mongolus	Vulnerable	Endangered	Assumed present	Yes	No
Little Bent-winged Bat (Breeding)	Miniopterus australis	Vulnerable	Not Listed	Assumed present	Yes	No
Little Eagle (Breeding)	Hieraaetus morphnoides	Vulnerable	Not Listed	Assumed present	Yes	No
Long-nosed Potoroo	Potorous tridactylus	Vulnerable	Vulnerable	Assumed present	Yes	No
Mahony's Toadlet	Uperoleia mahonyi	Endangered	Endangered	Assumed present	Yes	No

Common name	Scientific name	Listing status		Method used to determine presence	Present?	Further assessment required? (BAM Subsections 5.2.5 and 5.2.6)
		BC Act	EPBC Act			
Masked Owl	Tyto novaehollandiae	Vulnerable	Not Listed	Assumed present	Yes	No
Pale-headed Snake	Hoplocephalus bitorquatus	Vulnerable	Not Listed	Assumed present	Yes	No
Parma Wallaby	Notamacropus parma	Vulnerable	Vulnerable	Assumed present	Yes	No
Powerful Owl	Ninox strenua	Vulnerable	Not Listed	Assumed present	Yes	No
Red Knot (Breeding)	Calidris canutus	Not Listed	Endangered	Assumed present	Yes	No
Red-backed Button-quail	Turnix maculosus	Vulnerable	Not Listed	Assumed present	Yes	No
Sanderling (Breeding)	Calidris alba	Vulnerable	Not Listed	Assumed present	Yes	No
South-eastern Glossy Black-Cockatoo (Breeding)	Calyptorhynchus lathami lathami	Vulnerable	Vulnerable	Assumed present	Yes	No
Southern Greater Glider	Petauroides volans	Endangered	Endangered	Assumed present	Yes	No
Southern Myotis	Myotis macropus	Vulnerable	Not Listed	Assumed present	Yes	No
Square-tailed Kite (Breeding)	Lophoictinia isura	Vulnerable	Not Listed	Assumed present	Yes	No
Squirrel Glider	Petaurus norfolcensis	Vulnerable	Not Listed	Assumed present	Yes	No
Stephens' Banded Snake	Hoplocephalus stephensii	Vulnerable	Not Listed	Assumed present	Yes	No
Stuttering Frog	Mixophyes balbus	Endangered	Vulnerable	Assumed present	Yes	No
Terek Sandpiper (Breeding)	Xenus cinereus	Vulnerable	Vulnerable	Assumed present	Yes	No
Wallum Froglet	Crinia tinnula	Vulnerable	Not Listed	Assumed present	Yes	No

Common name	Scientific name	Listing status		Method used to determine presence	Present?	Further assessment required? (BAM Subsections 5.2.5 and 5.2.6)
		BC Act	EPBC Act			
White-bellied Sea-Eagle (Breeding)	Haliaeetus leucogaster	Vulnerable	Not Listed	Assumed present	Yes	No

5.3 Threatened species surveys

Targeted threatened species surveys undertaken to determine the presence of candidate species credit species at the site are summarised in table 18 below.

Table 18 Threatened species surveys for candidate flora species credit species on the subject land

Common name	Scientific name	Threatened flora species surveys				Present	Further assessment required (BAM Subsections 5.2.5 and 5.2.6)
		Survey method (transects or grids)	Timing of survey – within recommended period? (BAM-C / TBDC)		Effort (hours & no. people)		
Austral Toadflax	Thesium australe	N/A	N/A	N/A	Assumed	No	Austral Toadflax
Biconvex Paperbark	Melaleuca biconvexa	Transects	Yes-6/01/2025-10/01/2030	40hrs/6ppl	No	No	Biconvex Paperbark
Black-eyed Susan	Tetratheca juncea	Transects	Yes-6/01/2025-10/01/2025	40hrs/6ppl	Yes	No	Black-eyed Susan
Camfield's Stringybark	Eucalyptus camfieldii	Transects	Yes-6/01/2025-10/01/2027	40hrs/6ppl	No	No	Camfield's Stringybark
Charmhaven Apple	Angophora inopina	Transects	Yes-6/01/2025-10/01/2026	40hrs/6ppl	Yes	No	Charmhaven Apple
Corybas dowlingii	Red Helmet Orchid	N/A	N/A	N/A	Assumed	No	Corybas dowlingii

Common name	Scientific name	Threatened flora species surveys				Present	Further assessment required (BAM Subsections 5.2.5 and 5.2.6)
		Survey method (transects or grids)	**Timing of survey – within recommended period?** (BAM-C / TBDC)		**Effort** (hours & no. people)		
Craven Grey Box	Eucalyptus largeana	Transects	Yes-6/01/2025-10/01/2029	40hrs/6ppl	No	No	Craven Grey Box
Eastern Australian Underground Orchid	Rhizanthella slateri	N/A	N/A	N/A	Assumed	No	Eastern Australian Underground Orchid
Grove's Paperbark	Melaleuca groveana	Transects	Yes-6/01/2025-10/01/2031	40hrs/6ppl	No	No	Grove's Paperbark
Leafless Tongue Orchid	Cryptostylis hunteriana	N/A	N/A	N/A	Assumed	No	Leafless Tongue Orchid
Magenta Lilly Pilly	Syzygium paniculatum	Transects	Yes-6/01/2025-10/01/2036	40hrs/6ppl	No	No	Magenta Lilly Pilly
Manning Yellow Solanum	Solanum sulphureum	N/A	N/A	N/A	Assumed	No	Manning Yellow Solanum
Native Guava	Rhodomyrtus psidioides	Transects	Yes-6/01/2025-10/01/2034	40hrs/6ppl	No	No	Native Guava
Netted Bottle Brush	Callistemon linearifolius	Transects	Yes-6/01/2025-10/01/2037	40hrs/6ppl	Yes	No	Netted Bottle Brush
Noah's False Chickweed	Lindernia alsinoides	N/A	N/A	N/A	Assumed	No	Noah's False Chickweed

Common name	Scientific name	Threatened flora species surveys				Present	Further assessment required (BAM Subsections 5.2.5 and 5.2.6)
		Survey method (transects or grids)	**Timing of survey – within recommended period?** (BAM-C / TBDC)		**Effort** (hours & no. people)		
Pale Yellow Doubletail	Diuris flavescens	N/A	N/A	N/A	Assumed	No	Pale Yellow Doubletail
Pterostylis chaetophora	Pterostylis chaetophora	N/A	N/A	N/A	Assumed	No	Pterostylis chaetophora
Rainforest Cassia	Senna acclinis	Transects	Yes-6/01/2025-10/01/2035	40hrs/6 ppl	No	No	Rainforest Cassia
Rhizanthella slateri - endangered population	Rhizanthella slateri (Rupp) M.A. Clem. & Cribb in the Great Lakes local government area	N/A	N/A	N/A	Assumed	No	Rhizanthella slateri - endangered population
Rough Doubletail	Diuris praecox	N/A	N/A	N/A	Assumed	No	Rough Doubletail
Sand Doubletail	Diuris arenaria	N/A	N/A	N/A	Assumed	No	Sand Doubletail
Scant Pomaderris	Pomaderris queenslandica	Transects	Yes-6/01/2025-10/01/2032	40hrs/6 ppl	No	No	Scant Pomaderris
Scrub Turpentine	Rhodamnia rubescens	Transects	Yes-6/01/2025-10/01/2033	40hrs/6 ppl	No	No	Scrub Turpentine

Common name	Scientific name	Threatened flora species surveys				Present	Further assessment required (BAM Subsections 5.2.5 and 5.2.6)
		Survey method (transects or grids)	**Timing of survey – within recommended period?** (BAM-C / TBDC)		**Effort** (hours & no. people)		
Slaty Red Gum	Eucalyptus glaucina	Transects	Yes-6/01/2025-10/01/2028	40hrs/6 ppl	No	No	Slaty Red Gum
Small-flower Grevillea	Grevillea parviflora subsp. parviflora	Transects	Yes-6/01/2025-10/01/2038	40hrs/6 ppl	Yes	No	Small-flower Grevillea
Spider orchid	Dendrobium melaleucaphilum	N/A	N/A	N/A	Assumed	No	Spider orchid
Trailing Woodruff	Asperula asthenes	N/A	N/A	N/A	Assumed	No	Trailing Woodruff
White-flowered Wax Plant	Cynanchum elegans	N/A	N/A	N/A	Assumed	No	White-flowered Wax Plant

5.4 Area or count, and location of suitable habitat for a species credit species (a species polygon)

Suitable habitat (species polygons) for all species credit species confirmed to be present on the subject land was mapped based on the PCT associations, habitat constraints, features or microhabitats and species polygon requirements listed in the TBDC (NSW OEH 2018b) and species-specific survey guidelines published by the department. For species assessed by area, the mapped species polygon is included in Figures 11-63. For species assessed by count, the observed locations and a 30m buffer around these is shown in Figure 14. A summary of the suitable habitat assessed at the site for each species is included in Table 19, with EPBC listed species summarised in Table 20.

Table 19 Results for present species (recorded within the subject land)

Common name	**Scientific name**	**Biodiversity risk weighting** (BAM-C & TBDC*)	**SAII entity** (BAM-C & TBDC)	**Habitat constraints / microhabitats present on the subject land / vegetation zone**	**Abundance – No. individual plants present on subject land** (flora with unit of measure of count)	**Extent (ha) of suitable habitat present on site** (flora or fauna with unit of measure of area)	**TBDC species specific recommendations e.g. buffers, general comments** (where relevant)	**Habitat condition** (vegetation integrity score for each vegetation zone in the polygon – area species only)
Austral Toadflax	Thesium australe	Moderate	FALSE		N/A	1.2		
Barking Owl	Ninox connivens	High	FALSE		N/A	0.3		
Bar-tailed Godwit (baueri) (Breeding)	Limosa lapponica baueri	High	FALSE		N/A	0.04		
Beach Stone-curlew (Breeding)	Esacus magnirostris	Very High	TRUE		N/A	1.2		
Black-eyed Susan	Tetratheca juncea	High	FALSE		N/A	0.3		
Brush-tailed Phascogale	Phascogale tapoatafa	High	FALSE		N/A	1.2		
Bush Stone-curlew	Burhinus grallarius	High	FALSE		N/A	1.2		

Common name	**Scientific name**	**Biodiversity risk weighting** (BAM-C & TBDC*)	**SAII entity**** **(**BAM-C & TBDC)	**Habitat constraints / microhabitats present on the subject land / vegetation zone**	**Abundance – No. individual plants present on subject land** (flora with unit of measure of count)	**Extent (ha) of suitable habitat present on site** (flora or fauna with unit of measure of area)	**TBDC species specific recommendations e.g. buffers, general comments** (where relevant**)**	**Habitat condition** (vegetation integrity score for each vegetation zone in the polygon – area species only)
Charmhaven Apple	Angophora inopina	High	FALSE		N/A	0.26		
Common Planigale	Planigale maculata	High	FALSE		N/A	1.2		
Curlew Sandpiper (Breeding)	Calidris ferruginea	Very High	TRUE		N/A	0.04		
Eastern Australian Underground Orchid	Rhizanthella slateri	Very High	TRUE		N/A	0.3		
Eastern Curlew (Breeding)	Numenius madagascariensis	Very High	TRUE		N/A	0.04		
Eastern Osprey (Breeding)	Pandion cristatus	Moderate	FALSE		N/A	0.3		

Common name	**Scientific name**	**Biodiversity risk weighting** (BAM-C & TBDC*)	**SAII entity**** **(**BAM-C & TBDC)	**Habitat constraints / microhabitats present on the subject land / vegetation zone**	**Abundance – No. individual plants present on subject land** (flora with unit of measure of count)	**Extent (ha) of suitable habitat present on site** (flora or fauna with unit of measure of area)	**TBDC species specific recommendations e.g. buffers, general comments** (where relevant**)**	**Habitat condition** (vegetation integrity score for each vegetation zone in the polygon – area species only)
Eastern Pygmy-possum	Cercartetus nanus	High	FALSE		N/A	0.3		
Emu population in the New South Wales North Coast Bioregion and Port Stephens local government area	Dromaius novaehollandiae - endangered population	High	FALSE		N/A	0.3		
Gang-gang Cockatoo (Breeding)	Callocephalon fimbriatum	High	FALSE		N/A	0.3		
Giant Barred Frog	Mixophyes iteratus	Moderate	FALSE		N/A	0.3		
Great Knot (Breeding)	Calidris tenuirostris	High	FALSE		N/A	0.04		

Common name	**Scientific name**	**Biodiversity risk weighting** (BAM-C & TBDC*)	**SAII entity**** **(**BAM-C & TBDC)	**Habitat constraints / microhabitats present on the subject land / vegetation zone**	**Abundance – No. individual plants present on subject land** (flora with unit of measure of count)	**Extent (ha) of suitable habitat present on site** (flora or fauna with unit of measure of area)	**TBDC species specific recommendations e.g. buffers, general comments** (where relevant**)**	**Habitat condition** (vegetation integrity score for each vegetation zone in the polygon – area species only)
Greater Sand-plover (Breeding)	Charadrius leschenaultii	High	FALSE		N/A	0.04		
Green and Golden Bell Frog	Litoria aurea	High	FALSE		N/A	0.3		
Green-thighed Frog	Litoria brevipalmata	Moderate	FALSE		N/A	0.3		
Grey-headed Flying-fox (Breeding)	Pteropus poliocephalus	High	FALSE		N/A	0.3		
Koala	Phascolarctos cinereus	High	FALSE		N/A	0.3		
Large Bent-winged Bat (Breeding)	Miniopterus orianae oceanensis	Very High	TRUE		N/A	0.3		
Leafless Tongue Orchid	Cryptostylis hunteriana	Moderate	FALSE		N/A	1.2		

Common name	**Scientific name**	**Biodiversity risk weighting** (BAM-C & TBDC*)	**SAII entity**** (BAM-C & TBDC)	**Habitat constraints / microhabitats present on the subject land / vegetation zone**	**Abundance – No. individual plants present on subject land** (flora with unit of measure of count)	**Extent (ha) of suitable habitat present on site** (flora or fauna with unit of measure of area)	**TBDC species specific recommendations e.g. buffers, general comments** (where relevant)	**Habitat condition** (vegetation integrity score for each vegetation zone in the polygon – area species only)
Lesser Sand-plover (Breeding)	Charadrius mongolus	High	FALSE		N/A	0.04		
Little Bent-winged Bat (Breeding)	Miniopterus australis	Very High	TRUE		N/A	0.3		
Little Eagle (Breeding)	Hieraaetus morphnoides	Moderate	FALSE		N/A	0.3		
Long-nosed Potoroo	Potorous tridactylus	High	FALSE		N/A	1.2		
Magenta Lilly Pilly	Syzygium paniculatum	High	FALSE		5	N/A		
Mahony's Toadlet	Uperoleia mahonyi	High	FALSE		N/A	3.2		
Manning Yellow Solanum	Solanum sulphureum	High	FALSE		N/A	0.3		

Common name	**Scientific name**	**Biodiversity risk weighting** (BAM-C & TBDC*)	**SAII entity**** **(**BAM-C & TBDC)	**Habitat constraints / microhabitats present on the subject land / vegetation zone**	**Abundance – No. individual plants present on subject land** (flora with unit of measure of count)	**Extent (ha) of suitable habitat present on site** (flora or fauna with unit of measure of area)	**TBDC species specific recommendations e.g. buffers, general comments** (where relevant**)**	**Habitat condition** (vegetation integrity score for each vegetation zone in the polygon – area species only)
Masked Owl	Tyto novaehollandiae	High	FALSE		N/A	1.2		
Maundia triglochinoides	Maundia triglochinoides	High	FALSE		N/A	0.04		
Netted Bottle Brush	Callistemon linearifolius	Moderate	FALSE		10	N/A		
Noah's False Chickweed	Lindernia alsinoides	High	FALSE		N/A	1.2		
Pale Yellow Doubletail	Diuris flavescens	Very High	TRUE		N/A	0.3		
Pale-headed Snake	Hoplocephalus bitorquatus	High	FALSE		N/A	1.2		
Parma Wallaby	Notamacropus parma	High	FALSE		N/A	1.2		
Powerful Owl	Ninox strenua	High	FALSE		N/A	0.3		
Pterostylis chaetophora	Pterostylis chaetophora	High	FALSE		N/A	0.3		

Common name	**Scientific name**	**Biodiversity risk weighting** (BAM-C & TBDC*)	**SAII entity**** **(**BAM-C & TBDC)	**Habitat constraints / microhabitats present on the subject land / vegetation zone**	**Abundance – No. individual plants present on subject land** (flora with unit of measure of count)	**Extent (ha) of suitable habitat present on site** (flora or fauna with unit of measure of area)	**TBDC species specific recommendations e.g. buffers, general comments** (where relevant**)**	**Habitat condition** (vegetation integrity score for each vegetation zone in the polygon – area species only)
Red Helmet Orchid	Corybas dowlingii	High	FALSE		N/A	0.3		
Red Knot (Breeding)	Calidris canutus	High	FALSE		N/A	0.04		
Red-backed Button-quail	Turnix maculosus	High	FALSE		N/A	0.3		
Rhizanthella slateri (Rupp) M.A. Clem. & Cribb in the Great Lakes local government area	Rhizanthella slateri - endangered population	Very High	TRUE		N/A	0.3		
Rough Doubletail	Diuris praecox	Moderate	FALSE		N/A	1.2		
Sanderling (Breeding)	Calidris alba	High	FALSE		N/A	0.04		

Common name	**Scientific name**	**Biodiversity risk weighting** (BAM-C & TBDC*)	**SAII entity**** **(**BAM-C & TBDC)	**Habitat constraints / microhabitats present on the subject land / vegetation zone**	**Abundance – No. individual plants present on subject land** (flora with unit of measure of count)	**Extent (ha) of suitable habitat present on site** (flora or fauna with unit of measure of area)	**TBDC species specific recommendations e.g. buffers, general comments** (where relevant**)**	**Habitat condition** (vegetation integrity score for each vegetation zone in the polygon – area species only)
Small-flower Grevillea	Grevillea parviflora subsp. parviflora	High	FALSE		N/A	0.3		
South-eastern Glossy Black-Cockatoo (Breeding)	Calyptorhynchus lathami lathami	High	FALSE		N/A	0.3		
Southern Greater Glider	Petauroides volans	High	FALSE		N/A	0.3		
Southern Myotis	Myotis macropus	High	FALSE		N/A	0.3		
Spider orchid	Dendrobium melaleucaphilum	High	FALSE		N/A	1.2		
Square-tailed Kite (Breeding)	Lophoictinia isura	Moderate	FALSE		N/A	0.3		
Squirrel Glider	Petaurus norfolcensis	High	FALSE		N/A	0.3		

Common name	**Scientific name**	**Biodiversity risk weighting** (BAM-C & TBDC*)	**SAII entity**** **(**BAM-C & TBDC)	**Habitat constraints / microhabitats present on the subject land / vegetation zone**	**Abundance – No. individual plants present on subject land** (flora with unit of measure of count)	**Extent (ha) of suitable habitat present on site** (flora or fauna with unit of measure of area)	**TBDC species specific recommendations e.g. buffers, general comments** (where relevant**)**	**Habitat condition** (vegetation integrity score for each vegetation zone in the polygon – area species only)
Stephens' Banded Snake	Hoplocephalus stephensii	High	FALSE		N/A	0.3		
Stuttering Frog	Mixophyes balbus	Very High	TRUE		N/A	0.3		
Trailing Woodruff	Asperula asthenes	High	FALSE		N/A	0.3		
Wallum Froglet	Crinia tinnula	Moderate	FALSE		N/A	1.2		
White-bellied Sea-Eagle (Breeding)	Haliaeetus leucogaster	High	FALSE		N/A	0.3		
White-flowered Wax Plant	Cynanchum elegans	High	FALSE		N/A	1.2		

Table 20 Results for EPBC Act listed species present (recorded within the subject land)

Common name	**Scientific name**	**Abundance – No. individual plants present on subject land** (flora with unit of measure as count)	**Extent (ha) of suitable habitat present on site** (flora or fauna with unit of measure as area)
Austral Toadflax	Thesium australe	N/A	1.2
Bar-tailed Godwit (baueri) (Breeding)	Limosa lapponica baueri	N/A	0.04
Black-eyed Susan	Tetratheca juncea	N/A	0.3
Charmhaven Apple	Angophora inopina	N/A	0.26
Curlew Sandpiper (Breeding)	Calidris ferruginea	N/A	0.04
Eastern Australian Underground Orchid	Rhizanthella slateri	N/A	0.3
Eastern Curlew (Breeding)	Numenius madagascariensis	N/A	0.04
Gang-gang Cockatoo (Breeding)	Callocephalon fimbriatum	N/A	0.3
Giant Barred Frog	Mixophyes iteratus	N/A	0.3
Great Knot (Breeding)	Calidris tenuirostris	N/A	0.04
Greater Sand-plover (Breeding)	Charadrius leschenaultii	N/A	0.04
Green and Golden Bell Frog	Litoria aurea	N/A	0.3
Grey-headed Flying-fox (Breeding)	Pteropus poliocephalus	N/A	0.3
Koala	Phascolarctos cinereus	N/A	0.3
Leafless Tongue Orchid	Cryptostylis hunteriana	N/A	1.2

Common name	**Scientific name**	**Abundance – No. individual plants present on subject land** (flora with unit of measure as count)	**Extent (ha) of suitable habitat present on site** (flora or fauna with unit of measure as area)
Lesser Sand-plover (Breeding)	Charadrius mongolus	N/A	0.04
Long-nosed Potoroo	Potorous tridactylus	N/A	1.2
Magenta Lilly Pilly	Syzygium paniculatum	5	N/A
Mahony's Toadlet	Uperoleia mahonyi	N/A	3.2
Manning Yellow Solanum	Solanum sulphureum	N/A	0.3
Pale Yellow Doubletail	Diuris flavescens	N/A	0.3
Parma Wallaby	Notamacropus parma	N/A	1.2
Red Knot (Breeding)	Calidris canutus	N/A	0.04
Rough Doubletail	Diuris praecox	N/A	1.2
Small-flower Grevillea	Grevillea parviflora subsp. parviflora	N/A	0.3
South-eastern Glossy Black-Cockatoo (Breeding)	Calyptorhynchus lathami lathami	N/A	0.3
Southern Greater Glider	Petauroides volans	N/A	0.3
Stuttering Frog	Mixophyes balbus	N/A	0.3
Trailing Woodruff	Asperula asthenes	N/A	0.3
White-flowered Wax Plant	Cynanchum elegans	N/A	1.2

6. Identifying prescribed impacts

Prescribed impacts are the impacts on biodiversity values which are not related to, or are in addition to, native vegetation clearing and habitat loss (Section 6.7 of the BAM). In general, these types of impacts identify habitat or features of the environment that are irreplaceable. Assessment of prescribed biodiversity impacts are outlined and addressed in Table 21 below.

Table 21 Prescribed impacts identified

Feature	Present	Description of feature characteristics and location	Threatened entities that use, are likely to use, or are part of the habitat feature. Where relevant, threatened species or fauna that are part of a TEC or EC, that are at risk of vehicle strike
Karst, caves, crevices, cliffs, rocks or other geological features of significance	☐Yes / ☒No	No karst, caves, crevices, cliffs and other features of geological significance will be impacted by the proposed development.	
Human-made structures	☐Yes / ☒No☐	No human-made structures likely to provide habitat for threatened species will be impacted by the proposed development.	
Non-native vegetation	☒Yes / ☐No☐	Non-native vegetation within the study area was composed primarily of introduced pasture grasses and exotic weeds. This vegetation type is well represented within the wider landscape and is unlikely to provide significant habitat resources for a specific resident population of threatened fauna or flora.	
Habitat connectivity	☐Yes / ☒No	The proposed development is unlikely to result in inducing vegetation fragmentation or impacting the connectivity of different areas of habitat.	
Waterbodies, water quality and hydrological processes	☒Yes / ☒No	No waterbodies or waterways present within the study area are likely to provide significant habitat for aquatic threatened species. Recommendations have been made within Table 22 to ensure that predevelopment flows will be maintained for any potential river crossings and to reduce the potential impacts to water quality arising during the construction phase	

Feature	Present	Description of feature characteristics and location	Threatened entities that use, are likely to use, or are part of the habitat feature. Where relevant, threatened species or fauna that are part of a TEC or EC, that are at risk of vehicle strike
Vehicle strikes	☒Yes / ☐No	The proposed development could result in increased vehicle strikes within the local area. However, roads are residential access only at low speeds and are unlikely to significantly increase pressure on species or the risk of fatalities which would be associated with high-speed arterial roads	

Stage 2: Impact assessment (biodiversity values and prescribed impacts)

7. Avoid and minimise impacts

7.1 Avoid and minimise direct and indirect impacts

7.1.1 Project location and Project Design

The proposed development was designed having regards to constraints mapping. As part of the layout of the proposed subdivision the location of each of the building envelopes was determined by reference to the various constraints.

The location of building envelopes was chosen having regards to either existing development consents or areas of existing clearing with corresponding poor condition vegetation.

The location of sites for building envelopes also sought to identify relatively flat, free draining sites, located above the flood controls.

These sites were chosen on the basis that the size of the APZ could be reduced as far as possible. With each of the site an area has been identified for an EMA to support the dwelling. Where possible the applicant has sought to locate the EMA with the APZ.

As with the location of the building envelopes the access roads have been designed to seek to minimise direct and indirect impacts. Where possible the road network seeks to rely on existing roads and existing access tracks. The road pavements have been designed to seek to minimise the width of the roads but still seeking to comply with the requirements for Planning for Bushfire Protection. Finally, the alignments have sought to minimise the amount of cut and fill and battering required to construct the roads to seek to minimise direct impacts.

Each of the proposed lots is above the 40-hectare minimum lot size. The lot layout has been designed so that most of the direct and indirect impacts will likely occur on the perimeter of the lot so that the balance of each of the lots can be protected through biodiversity stewardship sites.

7.2 Avoid and minimise prescribed impacts

7.2.1 Project location and Project design

The location of the building envelopes and the access roads has been designed to avoid and minimise the prescribed impacts identified in Table 21 above.

7.3 Other measures considered

N/A

7.4 Summary of measures to avoid and minimise impacts

The table below documents the measures to avoid and minimise direct, indirect and prescribed impacts.

Table 22 Avoidance and minimisation measures for direct, indirect and prescribed impacts

Action	Outcome (Describe the outcome of implementing the measure, with reference to specific entities identified in Sections 4 and 5)	Timing	Responsibility
Clearing of native vegetation	Where possible, construction works should avoid any impact to mature trees. Where unavoidable, works should minimise impacts to mature trees as follows: • clearing limits will be clearly marked to prevent unnecessary clearing beyond the extent of the development footprint. Tree clearing and disturbance will be limited to the development site; • where a tree must be disturbed the priority should be given to pruning rather than clearing; and • the clearing of any trees should be undertaken in a manner that avoids damaging adjacent vegetation i.e. all trees should be felled into disturbed areas when feasible.	Prior to and during vegetation clearing	Construction site manager
Inadvertent impact on biodiversity values	Priority will be given during construction to avoid any inadvertent impact to significant biodiversity values within the study area. Avoidance measures should include the following: • all material stockpiles, vehicle parking and machinery storage will be located within cleared areas proposed for clearing, and not in areas of native vegetation that are to be retained; • establishment of wet down areas to reduce dust generation during construction; • implementation of temporary stormwater controls during construction and to ensure that discharges to the drainage channels are consistent with existing conditions; and • temporary erosion and sediment controls (e.g. silt fences, sediment traps) should be installed prior to construction to avoid disturbance and degradation of soils and nearby features (e.g. water ways, adjacent habitat and vegetation). These should conform to the specifications in Soils and Construction 'Blue Book'	Prior to and during vegetation clearing	Construction site manager

Action	Outcome (Describe the outcome of implementing the measure, with reference to specific entities identified in Sections 4 and 5)	Timing	Responsibility
	(Landcom, 2004) and should be maintained throughout the construction process until soil is successfully stabilised.		
Clearing of fauna habitat, resulting in fauna injury and/or mortality	A suitably qualified and experienced ecologist should be engaged to supervise removal of all significant habitat features as displayed in Figure 8.1 and maintain a vegetation clearance register which should include the location, type, size of felled habitat trees and any contact with resident fauna. The supervising ecologist will work co-operatively with the plant operator to develop an adaptive clearance methodology that should minimise impacts to potential resident fauna whilst being conducted according to safe work methods. The adaptive clearance methodology should include the following key aspects: • seeking consultation with a suitably qualified ecologist to determine the best time to schedule clearance works to avoid nesting and breeding times for resident fauna; • preclearance surveys completed on the morning of any clearance works to determine if any nesting birds or canopy dwelling mammals are within the clearance footprint; • clearing utilising a 'soft felling' technique in which trees are 'nudged' by machinery and fauna given time to leave (overnight), before slowly felling the tree the following day; • if fauna are identified within the proposed clearing area prior to clearing, or after 'nudging' the tree, operations will cease until the fauna has moved to a safe location or has been relocated. If fauna flee into a habitat tree demarcated for removal this tree should be left to fell until the following day; • any captured displaced fauna relocated to the nearest area of appropriate habitat. If arboreal, the fauna to be placed inside an	Prior to and during vegetation clearing	Construction site manager

Action	Outcome (Describe the outcome of implementing the measure, with reference to specific entities identified in Sections 4 and 5)	Timing	Responsibility
	artificial nest box and relocated. If the displaced fauna is nocturnal relocation to occur during dusk; and • all hollow logs and felled trees would be inspected by the ecologist before relocation into areas of similar adjacent habitat All habitat tree felling activities and results to be summarised in a tree clearance report by the supervising ecologist, including fauna injuries. Any animals injured during construction should be taken immediately to the Tea Gardens Veterinary Hospital (Open 9am-5pm weekdays) for treatment. Any animals suspected to require rehabilitation would be delivered post-veterinary care to an appropriate animal rehabilitator associated with Wildlife in Need of Care (phone # 1300 946 295). All fauna sightings/captures would be recorded and uploaded to the NSW Wildlife Atlas.		
Salvage of significant habitat features	Habitat salvage within the development footprint should be undertaken prior to and during clearance activities, with the salvage methodology including the following key aspect: Tree limbs containing natural hollows should be relocated and restored for use by fauna in the nearest adjacent area of similar habitat by a suitably qualified ecologist. Where natural hollows cannot be relocated, an artificial nest box should be installed onto a tree in the nearest adjacent area of similar habitat by a suitably qualified ecologist at a ratio of 2:1. Where removal of woody debris is required: • dead trees and woody debris that are removed (diameter >10 cm) are to be placed in the nearest adjacent area of similar habitat by a suitably qualified ecologist	Prior to and during vegetation clearing	Construction site manager
Protection of natural water flow	Where crossings over a stream or river is required, the crossings shall be designed and constructed in a way that maintains pre-	Prior to and during	Construction site manager and

Action	Outcome (Describe the outcome of implementing the measure, with reference to specific entities identified in Sections 4 and 5)	Timing	Responsibility
	development flows and is developed in accordance with relevant DPI guidelines: • Water and DPI (Fisheries) guidelines, Policy and Guidelines for Fish Friendly Waterway Crossings (DPI 2004); and • Why Do Fish Need to Cross the Road? Fish Passage Requirements for Waterway Crossings (Fairfull and Witheridge, 2003).	vegetation clearing	suitably trained fauna handler
Minimise weed infestations	The following measures should be implemented to prevent exotic plant material from entering/exiting the study area: • no imported/exported material to be permitted unless it has been inspected and confirmed to be free of dirt and mud which may contain weed seeds and vegetative material such as bulbs, root fragment, tubers or rhizomes; and • vehicles and machinery to be clean of soils, vegetation and seeds that have been brushed off or washed down prior to entering the study area • A clean down register to be maintained at the entry of the study area	Prior to and during vegetation clearing	Site Manager

8. Impact assessment

8.1 Direct impacts

8.1.1 Residual direct impacts

Direct impacts arising from the proposed development include:

- Removal of 13.56 ha of native vegetation, including
  - 0.26 ha of Good condition PCT, 3431.
  - 0.91 ha of Moderate condition PCT, 3431.
  - 2.14 ha of Good condition PCT, 3250.
  - 0.47 ha of Poor condition PCT, 3250.
  - 0.01 ha of DNG condition PCT, 3250.
  - 3.25 ha of Good condition PCT, 3437.
  - 2.37 ha of Moderate condition PCT, 3437.
  - 1.47 ha of Poor condition PCT, 3437.
  - 0.26 ha of Moderate condition PCT, 3581.
  - 1.08 ha of Good condition PCT, 3583.
  - 0.52 ha of Moderate condition PCT, 3583.
  - 0.78 ha of Low condition PCT, 3583.
  - 0.91 ha of Moderate condition PCT, 4038.
- Removal of 13.56 ha ha of habitat.
- Removal of 0.04 ha of the Endangered Ecological Community “Swamp Oak Floodplain Forest of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions”.

These impacts will be permanent and will occur from the outset of the proposed development. Mitigation measures outlined in Section 8.4 will help to minimise the potential impacts on biodiversity values that will remain present within the subject land. A summary of the PCTs/zones directly impacted by the proposed development is shown in Table 23.

Table 23 Summary of residual direct impacts

Direct impact (Describe the impact on PCT/TEC/EC or threatened species and their habitat)	**BC Act status**	**EPBC Act status**	**SAII entity**	**Project phase/timing of impact** (e.g. construction, operation, rehabilitation)	**Extent** (ha, number of individuals)
Hunter Coast Foothills Apple Forest	Not Listed	Not Listed	False	Construction	0.3
Hunter Coast Lowland Scribbly Gum Forest	Not Listed	Not Listed	False	Construction	2.4
Hunter Coast Lowland Spotted Gum Dry Forest	Not Listed	Not Listed	False	Construction	7.1
Hunter Estuarine Melaleuca nodosa Scrub	Endangered	Not Listed	False	Construction	0.1
Lower North White Mahogany-Spotted Gum Moist Forest	Not Listed	Not Listed	False	Construction	1.2
Northern Foothills Blackbutt Grassy Forest	Not Listed	Not Listed	False	Construction	2.7
Angophora inopina	Vulnerable	Vulnerable	False	Construction	2.66
Asperula asthenes	Vulnerable	Vulnerable	False	Construction	2.8
Burhinus grallarius	Endangered	Not Listed	False	Construction	11.4
Calidris alba	Vulnerable	Not Listed	False	Construction	0.04
Calidris canutus	Not Listed	Endangered	False	Construction	0.04
Calidris ferruginea	Critically Endangered	Critically Endangered	True	Construction	0.04
Calidris tenuirostris	Vulnerable	Vulnerable	False	Construction	0.04
Callistemon linearifolius	Vulnerable	Not Listed	False	Construction	10
Callocephalon fimbriatum	Endangered	Endangered	False	Construction	11
Calyptorhynchus lathami lathami	Vulnerable	Vulnerable	False	Construction	12.6
Cercartetus nanus	Vulnerable	Not Listed	False	Construction	12.6

Direct impact (Describe the impact on PCT/TEC/EC or threatened species and their habitat)	**BC Act status**	**EPBC Act status**	**SAII entity**	**Project phase/timing of impact** (e.g. construction, operation, rehabilitation)	**Extent** (ha, number of individuals)
Charadrius leschenaultii	Vulnerable	Vulnerable	False	Construction	0.04
Charadrius mongolus	Vulnerable	Endangered	False	Construction	0.04
Corybas dowlingii	Endangered	Not Listed	False	Construction	10.2
Crinia tinnula	Vulnerable	Not Listed	False	Construction	11.4
Cryptostylis hunteriana	Vulnerable	Vulnerable	False	Construction	11.4
Cynanchum elegans	Endangered	Endangered	False	Construction	1.6
Dendrobium melaleucaphilum	Endangered	Not Listed	False	Construction	1.6
Diuris flavescens	Critically Endangered	Critically Endangered	True	Construction	1.2
Diuris praecox	Vulnerable	Vulnerable	False	Construction	11.4
Dromaius novaehollandiae - endangered population	Endangered Population	Not Listed	False	Construction	12.6
Esacus magnirostris	Critically Endangered	Not Listed	True	Construction	1.6
Grevillea parviflora subsp. parviflora	Vulnerable	Vulnerable	False	Construction	2.7
Haliaeetus leucogaster	Vulnerable	Not Listed	False	Construction	12.6
Hieraaetus morphnoides	Vulnerable	Not Listed	False	Construction	12.6
Hoplocephalus bitorquatus	Vulnerable	Not Listed	False	Construction	1.6
Hoplocephalus stephensii	Vulnerable	Not Listed	False	Construction	5.5
Limosa lapponica baueri	Not Listed	Vulnerable	False	Construction	0.04

Direct impact (Describe the impact on PCT/TEC/EC or threatened species and their habitat)	**BC Act status**	**EPBC Act status**	**SAII entity**	**Project phase/timing of impact** (e.g. construction, operation, rehabilitation)	**Extent** (ha, number of individuals)
Lindernia alsinoides	Endangered	Not Listed	False	Construction	1.6
Litoria aurea	Endangered	Vulnerable	False	Construction	11
Litoria brevipalmata	Vulnerable	Not Listed	False	Construction	2.8
Lophoictinia isura	Vulnerable	Not Listed	False	Construction	12.6
Maundia triglochinoides	Vulnerable	Not Listed	False	Construction	0.04
Miniopterus australis	Vulnerable	Not Listed	True	Construction	12.6
Miniopterus orianae oceanensis	Vulnerable	Not Listed	True	Construction	12.6
Mixophyes balbus	Endangered	Vulnerable	True	Construction	12.6
Mixophyes iteratus	Vulnerable	Vulnerable	False	Construction	5.5
Myotis macropus	Vulnerable	Not Listed	False	Construction	12.6
Ninox connivens	Vulnerable	Not Listed	False	Construction	12.6
Ninox strenua	Vulnerable	Not Listed	False	Construction	12.6
Notamacropus parma	Vulnerable	Vulnerable	False	Construction	9
Numenius madagascariensis	Not Listed	Critically Endangered	True	Construction	0.04
Pandion cristatus	Vulnerable	Not Listed	False	Construction	12.6
Petauroides volans	Endangered	Endangered	False	Construction	10.2
Petaurus norfolcensis	Vulnerable	Not Listed	False	Construction	12.6
Phascogale tapoatafa	Vulnerable	Not Listed	False	Construction	11.4
Phascolarctos cinereus	Endangered	Endangered	False	Construction	12.6

Direct impact (Describe the impact on PCT/TEC/EC or threatened species and their habitat)	**BC Act status**	**EPBC Act status**	**SAII entity**	**Project phase/timing of impact** (e.g. construction, operation, rehabilitation)	**Extent** (ha, number of individuals)
Planigale maculata	Vulnerable	Not Listed	False	Construction	11.4
Potorous tridactylus	Vulnerable	Vulnerable	False	Construction	4.3
Pteropus poliocephalus	Vulnerable	Vulnerable	False	Construction	12.6
Pterostylis chaetophora	Vulnerable	Not Listed	False	Construction	8.3
Rhizanthella slateri	Vulnerable	Endangered	True	Construction	5.5
Rhizanthella slateri - endangered population	Endangered Population	Not Listed	True	Construction	3.1
Solanum sulphureum	Endangered	Endangered	False	Construction	2.8
Syzygium paniculatum	Endangered	Vulnerable	False	Construction	10
Tetratheca juncea	Vulnerable	Vulnerable	False	Construction	1.2
Thesium australe	Vulnerable	Vulnerable	False	Construction	1.6
Turnix maculosus	Vulnerable	Not Listed	False	Construction	2.8
Tyto novaehollandiae	Vulnerable	Not Listed	False	Construction	11.4
Uperoleia mahonyi	Endangered	Endangered	False	Construction	9.8
Xenus cinereus	Vulnerable	Vulnerable	False	Construction	0.04

8.1.2 Change in vegetation integrity score

The table below documents change in vegetation integrity for residual direct impacts on native vegetation, TECs, threatened species and their habitat that were identified on the subject land.

Table 24 Impacts to vegetation integrity

Vegetation zone	PCT ID	Management zone	Area (ha)	Before development			After development			Change		
				Composition	Structure	Function	VI score	Composition	Structure	Function	VI score	Change in VI score
3241_GOOD	3241	MZ1	0.3	75	11.5	87.4	42.2	0	0	0	0	-42.2
3241_MOD	3241	MZ2	0.9	71	5.8	50.3	27.4	0	0	0	0	-27.4
3250_GOOD	3250	MZ3	2.1	85.8	32.6	92.3	63.7	0	0	0	0	-63.7
3250_POOR	3250	MZ4	0.5	49.4	11	34.3	26.5	0	0	0	0	-26.5
3437_GOOD	3437	MZ5	3.2	81.3	29.7	66	54.2	0	0	0	0	-54.2
3437_MOD	3437	MZ6	2.4	92.5	14.6	53.5	41.7	0	0	0	0	-41.7
3437_POOR	3437	MZ7	1.5	83.1	10.4	63.2	37.9	0	0	0	0	-37.9
3581_MOD	3581	MZ8	0.3	74.2	39.8	42.6	50.1	0	0	0	0	-50.1
3583_GOOD	3583	MZ9	1.1	86.8	50.3	54.9	62.1	0	0	0	0	-62.1
3583_MOD	3583	MZ10	0.5	71.6	34	52.7	50.5	0	0	0	0	-50.5
3583_POOR	3583	MZ11	0.8	43	6.1	40.4	22	0	0	0	0	-22
3250_DNG	3250	MZ12	0.1	58.7	14.1	31.6	29.7	0	0	0	0	-29.7
4038_GOOD	4038	MZ13	0.1	72.9	10.3	65	36.5	0	0	0	0	-36.5

For the purpose of this BDAR all vegetation integrity scores after development are assumed to be zero (0). Proposed management actions to maintain the integrity of the remaining vegetation and prevent further decline are however set out in Table 26.

8.2 Indirect impacts

Table below provides a summary of residual indirect impacts likely to occur on native vegetation, threatened entities and their habitat beyond the development footprint.

Table 25 Summary of residual indirect impacts

Indirect impact (Describe impact, e.g. transport of weeds and pathogens from the site to adjacent vegetation)	**Impacted entities** (PCT/threatened entity and their habitats and where relevant, EPBC Act listing)	**Extent** (ha or zone reference)	**Frequency**	**Duration** (long-term/ short-term/ medium-term)	**Project phase/ timing of impact** (e.g. construction, operation, rehabilitation)	**Likelihood and consequences**
Transport of weeds and pathogens from the site to adjacent vegetation				long-term	construction, operation	Likely
Increased runoff from the site to adjacent vegetation				long-term	construction, operation	Likely
Increased noise impacts				short-term	construction	Likely
Increased dust impacts				short-term	construction	Likely

8.3 Prescribed impacts

8.3.1 Non-native vegetation

8.3.1.1 Nature

Clearing of or disturbance to non-native vegetation may occur, however all non-native vegetation on site is comprised of weedy exotic vegetation with little biodiversity value.

8.3.1.2 Extent

Small areas of non-native vegetation occur across the site.

8.3.1.3 Duration

Impacts to non-native vegetation will occur primarily during the construction phase.

8.3.1.4 Consequences

Consequences of impacts to non-native vegetation will be minimal

8.3.2 Vehicle Strikes

8.3.2.1 Nature

The proposed development could result in increased vehicle strikes within the local area. However, roads are residential access only at low speeds and are unlikely to significantly increase pressure on species or the risk of fatalities which would be associated with high-speed arterial roads.

8.3.2.2 Extent

Access tracks occur throughout the site and the potential for increased impacts of vehicle strikes on native fauna occurs in all adjacent areas. A number of species, assumed to be present at the site, including Koalas and Owls, are known to be vulnerable to vehicle strikes

8.3.2.3 Duration

Increased likelihood of vehicle strikes will occur throughout construction and operation phases.

8.3.2.4 Consequences

Consequences of increased vehicle strikes to threatened or protected native fauna species is likely be minimal, given the residential nature and low vehicle speeds of the proposed roads .

8.4 Mitigating residual impacts – management measures and implementation

Proposed mitigation and management measures to address residual impacts are summarised in Table 26 below.

Table 26 Summary of proposed mitigation and management measures for residual impacts (direct, indirect and prescribed)

Mitigation measure (specify if none proposed and ensure an adaptive management strategy is developed and addressed in Section 1.1)	**Method/technique**	**Timing**	**Frequency**	**Responsibility**	**Likely efficacy** (including risk of failure)	**MNES** (when relevant)
Weed and pathogen monitoring and treatment during the construction and initial establishment period.	Monitor the condition of the edge vegetation and for signs of pathogens and weed infestation. Where necessary carry out weed control on the edges. Isolate and treat any pathogen outbreaks identified during the monitoring period.	Throughout the construction period and during the establishment period	Prior to and during vegetation clearing Subsequent monitoring and should be conducted in late September and early October each year. Should be carried out for a period of 5 years following the completion of construction	Site Manager then Owner		
Reduce runoff from the site to adjacent vegetation	The conceptual stormwater management plan identifies that due to the minimal increase in impervious areas it	Throughout the construction period and	erosion and sediment controls should be	Site Manager then Owner		

Mitigation measure (specify if none proposed and ensure an adaptive management strategy is developed and addressed in Section 1.1)	**Method/technique**	**Timing**	**Frequency**	**Responsibility**	**Likely efficacy** (including risk of failure)	**MNES** (when relevant)
	is anticipated that there will be negligible changes to flows (quality and quantity) discharging from the site. The driveway swale design convey water along the road to one of the proposed culverts then to a lawful point of discharge. During construction temporary erosion and sediment controls will be installed prior to construction to avoid disturbance and degradation of soils and nearby features. These should conform to the specifications in Soils and Construction 'Blue Book'. The typical culvert sediment and erosion control plan requires the installation of a sediment fence and outlet protection as part of the proposed development.	during the establishment period and ongoing	subject to annual maintenance during late September and early October to coincide with the requirements relating to weed and pathogen monitoring and treatment			
Limiting construction hours of operation and noise from construction	Hours of operation for construction activities. Conditions of approval that limit noise.	Throughout the construction period		Site Manager		
Reducing dust impacts from construction	Establishment of wet down areas to reduce dust generation during construction	Throughout the		Site Manager		

Mitigation measure (specify if none proposed and ensure an adaptive management strategy is developed and addressed in Section 1.1)	**Method/technique**	**Timing**	**Frequency**	**Responsibility**	**Likely efficacy** (including risk of failure)	**MNES** (when relevant)
		construction period				

8.5 Adaptive management strategy for uncertain impacts (where relevant)

No adaptive management strategies are proposed for the proposed development.

9. Serious and irreversible impacts

9.1 Assessment for serious and irreversible impacts on biodiversity values

Table below outlines entities at risk of an SAII relevant to the proposed development.

Table 27 Entities at risk of an SAII

Common name	Scientific name	Reason for inclusion in assessment
Curlew Sandpiper (Breeding)	Calidris ferruginea	Predicted to occur and assumed present.
Pale Yellow Doubletail	Diuris flavescens	Predicted to occur and assumed present.
Sand Doubletail	Diuris arenaria	
Beach Stone-curlew (Breeding)	Esacus magnirostris	Predicted to occur and assumed present.
Little Bent-winged Bat (Breeding)	Miniopterus australis	Predicted to occur and assumed present.
Large Bent-winged Bat (Breeding)	Miniopterus orianae oceanensis	Predicted to occur and assumed present.
Stuttering Frog	Mixophyes balbus	Predicted to occur and assumed present.
Eastern Australian Underground Orchid	Rhizanthella slateri	Predicted to occur and assumed present.
Rhizanthella slateri (Rupp) M.A. Clem. & Cribb in the Great Lakes local government area	Rhizanthella slateri - endangered population	Predicted to occur and assumed present.

9.1.1 Additional impact assessment provisions for TECs at risk of an SAII

No TECs at risk of an SAII were observed on site.

9.1.2 Additional impact assessment provisions for threatened species at risk of an SAII

Threatened species at risk of an SAII at the site are discussed below. Figure 11-62 show the extent of species polygons for threatened species at risk of an SAII within the subject land.

9.1.2.1 Calidris ferruginea

1. Actions to avoid and minimise direct and indirect impacts

Refer to section 7 of the BDAR on avoid and minimise impacts that relate to this threatened species at risk of an SAII.

2. Current status

Table 28 Current status – *Calidris ferruginea*

Criteria	Data/ information	Data sources	Details of data deficiency, assumptions, reasons for low confidence in information (e.g. TBDC indicates data is unknown or deficient)
Evidence of rapid decline (Principle 1)			
Change in population size in NSW in the past 10 years or 3 generations (indicate whether as a direct estimate of the population or if indicated by an index or surrogate)	Population reduction of >= 80% in 10 years or 3 generations.	BioNet TBDC	
Evidence of small population size (Principle 2)			
Current population size in NSW			
Decline in species' population size in 3 years or one generation			
Number or percentage of mature individuals in each subpopulation or whether the species is likely to undergo extreme fluctuations			
Evidence of limited geographic range (Principle 3)			
Extent of occurrence (ha)			
Area of occupancy (ha)			
Number of threat-defined locations			
Whether the species' population is likely to undergo extreme fluctuations			

9.1.2.2 Diuris flavescens

1. Actions to avoid and minimise direct and indirect impacts

Refer to section 7 of the BDAR on avoid and minimise impacts that relate to this threatened species at risk of an SAII.

2. Current status

Table 29 Current status – *Diuris flavescens*

Criteria	Data/ information	Data sources	Details of data deficiency, assumptions, reasons for low confidence in information (e.g. TBDC indicates data is unknown or deficient)
Evidence of rapid decline (Principle 1)			
Change in population size in NSW in the past 10 years or 3 generations (indicate whether as a direct estimate of the population or if indicated by an index or surrogate)			
Evidence of small population size (Principle 2)			
Current population size in NSW			
Decline in species' population size in 3 years or one generation			
Number or percentage of mature individuals in each subpopulation or whether the species is likely to undergo extreme fluctuations			
Evidence of limited geographic range (Principle 3)			
Extent of occurrence (ha)	< 100km^2	*Diuris flavescens* - critically endangered species listing	
Area of occupancy (ha)	8 – 12km^2	*Diuris flavescens* - critically endangered species listing	

Criteria	Data/ information	Data sources	Details of data deficiency, assumptions, reasons for low confidence in information (e.g. TBDC indicates data is unknown or deficient)
Number of threat-defined locations			
Whether the species' population is likely to undergo extreme fluctuations			

9.1.2.3 Diuris arenaria

1. Actions to avoid and minimise direct and indirect impacts

Refer to section 7 of the BDAR on avoid and minimise impacts that relate to this threatened species at risk of an SAII.

2. Current status

Table 30 Current status – *Diuris arenaria*

Criteria	Data/ information	Data sources	Details of data deficiency, assumptions, reasons for low confidence in information (e.g. TBDC indicates data is unknown or deficient)
Evidence of rapid decline (Principle 1)			
Change in population size in NSW in the past 10 years or 3 generations (indicate whether as a direct estimate of the population or if indicated by an index or surrogate)			
Evidence of small population size (Principle 2)			
Current population size in NSW			
Decline in species' population size in 3			

Criteria	Data/ information	Data sources	Details of data deficiency, assumptions, reasons for low confidence in information (e.g. TBDC indicates data is unknown or deficient)
years or one generation			
Number or percentage of mature individuals in each subpopulation or whether the species is likely to undergo extreme fluctuations			
Evidence of limited geographic range (Principle 3)			
Extent of occurrence (ha)			
Area of occupancy (ha)			
Number of threat-defined locations	known from only 3 main populations	Diuris arenaria - endangered species listing	
Whether the species' population is likely to undergo extreme fluctuations			

9.1.2.4 Esacus magnirostris

1. Actions to avoid and minimise direct and indirect impacts

Refer to section 7 of the BDAR on avoid and minimise impacts that relate to this threatened species at risk of an SAII.

2. Current status

Table 31 Current status – *Esacus magnirostris*

Criteria	Data/ information	Data sources	Details of data deficiency, assumptions, reasons for low confidence in information (e.g. TBDC indicates data is unknown or deficient)
Evidence of rapid decline (Principle 1)			
Change in population size in NSW in the past 10 years or 3 generations (indicate whether as a direct estimate of the population or if indicated by an index or surrogate)			
Evidence of small population size (Principle 2)			
Current population size in NSW	16 individuals known across 8 sites	Rohweder 2003	
Decline in species' population size in 3 years or one generation			
Number or percentage of mature individuals in each subpopulation or whether the species is likely to undergo extreme fluctuations			
Evidence of limited geographic range (Principle 3)			
Extent of occurrence (ha)			
Area of occupancy (ha)			
Number of threat-defined locations			
Whether the species' population is likely to undergo extreme fluctuations			

9.1.2.5 Miniopterus australis

1. Actions to avoid and minimise direct and indirect impacts

Refer to section 7 of the BDAR on avoid and minimise impacts that relate to this threatened species at risk of an SAII.

2. Current status

Table 32 Current status – *Miniopterus australis*

Criteria	Data/ information	Data sources	Details of data deficiency, assumptions, reasons for low confidence in information (e.g. TBDC indicates data is unknown or deficient)
Evidence of rapid decline (Principle 1)			
Change in population size in NSW in the past 10 years or 3 generations (indicate whether as a direct estimate of the population or if indicated by an index or surrogate)			
Evidence of small population size (Principle 2)			
Current population size in NSW			
Decline in species' population size in 3 years or one generation			
Number or percentage of mature individuals in each subpopulation or whether the species is likely to undergo extreme fluctuations			
Evidence of limited geographic range (Principle 3)			
Extent of occurrence (ha)			
Area of occupancy (ha)			
Number of threat-defined locations			
Whether the species' population is likely to			

Criteria	Data/ information	Data sources	Details of data deficiency, assumptions, reasons for low confidence in information (e.g. TBDC indicates data is unknown or deficient)
undergo extreme fluctuations			
Unlikely to respond to management (Principle 4)			
Non-responding attributes	Caves and other similar structures.	TBDC	

9.1.2.6 Miniopterus orianae oceanensis

1. Actions to avoid and minimise direct and indirect impacts

Refer to section 7 of the BDAR on avoid and minimise impacts that relate to this threatened species at risk of an SAII.

2. Current status

Table 33 Current status – *Miniopterus orianae oceanensis*

Criteria	Data/ information	Data sources	Details of data deficiency, assumptions, reasons for low confidence in information (e.g. TBDC indicates data is unknown or deficient)
Evidence of rapid decline (Principle 1)			
Change in population size in NSW in the past 10 years or 3 generations (indicate whether as a direct estimate of the population or if indicated by an index or surrogate)			
Evidence of small population size (Principle 2)			
Current population size in NSW			
Decline in species' population size in 3			

Criteria	Data/ information	Data sources	Details of data deficiency, assumptions, reasons for low confidence in information (e.g. TBDC indicates data is unknown or deficient)
years or one generation			
Number or percentage of mature individuals in each subpopulation or whether the species is likely to undergo extreme fluctuations			
Evidence of limited geographic range (Principle 3)			
Extent of occurrence (ha)			
Area of occupancy (ha)			
Number of threat-defined locations			
Whether the species' population is likely to undergo extreme fluctuations			
Unlikely to respond to management (Principle 4)			
Non-responding attributes	Caves and other similar structures.	TBDC	

9.1.2.7 Mixophyes balbus

1. Actions to avoid and minimise direct and indirect impacts

Refer to section 7 of the BDAR on avoid and minimise impacts that relate to this threatened species at risk of an SAII.

2. Current status

Table 34 Current status – *Mixophyes balbus*

Criteria	Data/ information	Data sources	Details of data deficiency, assumptions, reasons for low confidence in information (e.g. TBDC indicates data is unknown or deficient)
Evidence of rapid decline (Principle 1)			
Change in population size in NSW in the past 10 years or 3 generations (indicate whether as a direct estimate of the population or if indicated by an index or surrogate)			
Evidence of small population size (Principle 2)			
Current population size in NSW			
Decline in species' population size in 3 years or one generation			
Number or percentage of mature individuals in each subpopulation or whether the species is likely to undergo extreme fluctuations			
Evidence of limited geographic range (Principle 3)			
Extent of occurrence (ha)			
Area of occupancy (ha)			
Number of threat-defined locations			
Whether the species' population is likely to undergo extreme fluctuations			
Unlikely to respond to management (Principle 4)			
Threats beyond control	Chytrid fungus	TBDC	

9.1.2.8 Rhizanthella slateri

1. Actions to avoid and minimise direct and indirect impacts

Refer to section 7 of the BDAR on avoid and minimise impacts that relate to this threatened species at risk of an SAII.

2. Current status

Table 35 Current status – *Rhizanthella slateri*

Criteria	Data/ information	Data sources	Details of data deficiency, assumptions, reasons for low confidence in information (e.g. TBDC indicates data is unknown or deficient)
Evidence of rapid decline (Principle 1)			
Change in population size in NSW in the past 10 years or 3 generations (indicate whether as a direct estimate of the population or if indicated by an index or surrogate)			
Evidence of small population size (Principle 2)			
Current population size in NSW	only a few individuals known from fewer than 10 locations	*Rhizanthella slateri* - vulnerable species listing	*Rhizanthella slateri* is difficult to detect, it is usually located when the soil is disturbed, and there may well be more locations of the species within its known range.
Decline in species' population size in 3 years or one generation			
Number or percentage of mature individuals in each subpopulation or whether the species is likely to undergo extreme fluctuations			
Evidence of limited geographic range (Principle 3)			
Extent of occurrence (ha)			

Criteria	Data/ information	Data sources	Details of data deficiency, assumptions, reasons for low confidence in information (e.g. TBDC indicates data is unknown or deficient)
Area of occupancy (ha)			
Number of threat-defined locations			
Whether the species' population is likely to undergo extreme fluctuations			

3. Impacts assessment

Table 36 Impacts assessment – *Calidris ferruginea*

Impact	Data / information	Data sources	Details of data deficiency, assumptions or reasons for low confidence in information (e.g. TBDC indicates data is unknown or deficient)
Number of individuals (mature and immature) present in the subpopulation on the subject land			
Number of individuals (mature and immature) present as a percentage of total NSW population (%)			
Number of individuals (mature and immature) to be impacted by the proposal			
Individuals (mature and immature) to be impacted by the proposal as a percentage of total NSW population (%)			
Area of habitat to be impacted (ha) (for species measured by area only)	0.04 ha	Mapped species polygon	Assumed present, no surveys undertaken for this species

Impact	Data / information	Data sources	Details of data deficiency, assumptions or reasons for low confidence in information (e.g. TBDC indicates data is unknown or deficient)
Area of the species' geographic range to be impacted by the proposal (ha)			
Area of the species' geographic range to be impacted as a percentage of the total area or extent of occupancy (%)			
Individuals impacted	Choose an item.		
Viability of a fragmented population (see below)			

Table 37 Impacts assessment – *Diuris flavescens*

Impact	Data / information	Data sources	Details of data deficiency, assumptions or reasons for low confidence in information (e.g. TBDC indicates data is unknown or deficient)
Number of individuals (mature and immature) present in the subpopulation on the subject land			
Number of individuals (mature and immature) present as a percentage of total NSW population (%)			
Number of individuals (mature and immature) to be impacted by the proposal			
Individuals (mature and immature) to be impacted by the proposal as a percentage of total NSW population (%)			

Impact	Data / information	Data sources	Details of data deficiency, assumptions or reasons for low confidence in information (e.g. TBDC indicates data is unknown or deficient)
Area of habitat to be impacted (ha) (for species measured by area only)	1.41 ha	Mapped species polygon	Assumed present, no surveys undertaken for this species
Area of the species' geographic range to be impacted by the proposal (ha)			
Area of the species' geographic range to be impacted as a percentage of the total area or extent of occupancy (%)			
Individuals impacted	Choose an item.		
Viability of a fragmented population (see below)			

Table 38 Impacts assessment – *Diuris arenaria*

Impact	Data / information	Data sources	Details of data deficiency, assumptions or reasons for low confidence in information (e.g. TBDC indicates data is unknown or deficient)
Number of individuals (mature and immature) present in the subpopulation on the subject land			
Number of individuals (mature and immature) present as a percentage of total NSW population (%)			
Number of individuals (mature and immature) to be impacted by the proposal			
Individuals (mature and immature) to be impacted by the proposal as a			

Impact	Data / information	Data sources	Details of data deficiency, assumptions or reasons for low confidence in information (e.g. TBDC indicates data is unknown or deficient)
percentage of total NSW population (%)			
Area of habitat to be impacted (ha) (for species measured by area only)	7.77 ha	Mapped species polygon	Assumed present, no surveys undertaken for this species
Area of the species' geographic range to be impacted by the proposal (ha)			
Area of the species' geographic range to be impacted as a percentage of the total area or extent of occupancy (%)			
Individuals impacted	Choose an item.		
Viability of a fragmented population (see below)			

Table 39 Impacts assessment – *Esacus magnirostris*

Impact	Data / information	Data sources	Details of data deficiency, assumptions or reasons for low confidence in information (e.g. TBDC indicates data is unknown or deficient)
Number of individuals (mature and immature) present in the subpopulation on the subject land			
Number of individuals (mature and immature) present as a percentage of total NSW population (%)			
Number of individuals (mature and immature) to be impacted by the proposal			
Individuals (mature and immature) to be impacted			

Impact	Data / information	Data sources	Details of data deficiency, assumptions or reasons for low confidence in information (e.g. TBDC indicates data is unknown or deficient)
by the proposal as a percentage of total NSW population (%)			
Area of habitat to be impacted (ha) (for species measured by area only)	1.65 ha	Mapped species polygon	Assumed present, no surveys undertaken for this species
Area of the species' geographic range to be impacted by the proposal (ha)			
Area of the species' geographic range to be impacted as a percentage of the total area or extent of occupancy (%)			
Individuals impacted	Choose an item.		
Viability of a fragmented population (see below)			

Table 40 Impacts assessment – *Miniopterus australis*

Impact	Data / information	Data sources	Details of data deficiency, assumptions or reasons for low confidence in information (e.g. TBDC indicates data is unknown or deficient)
Number of individuals (mature and immature) present in the subpopulation on the subject land			
Number of individuals (mature and immature) present as a percentage of total NSW population (%)			
Number of individuals (mature and immature) to be impacted by the proposal			

Impact	Data / information	Data sources	Details of data deficiency, assumptions or reasons for low confidence in information (e.g. TBDC indicates data is unknown or deficient)
Individuals (mature and immature) to be impacted by the proposal as a percentage of total NSW population (%)			
Area of habitat to be impacted (ha) (for species measured by area only)	13.56 ha	Mapped species polygon	Assumed present, no surveys undertaken for this species
Area of the species' geographic range to be impacted by the proposal (ha)			
Area of the species' geographic range to be impacted as a percentage of the total area or extent of occupancy (%)			
Individuals impacted	Choose an item.		
Viability of a fragmented population (see below)			

Table 41 Impacts assessment – *Miniopterus orianae oceanensis*

Impact	Data / information	Data sources	Details of data deficiency, assumptions or reasons for low confidence in information (e.g. TBDC indicates data is unknown or deficient)
Number of individuals (mature and immature) present in the subpopulation on the subject land			
Number of individuals (mature and immature) present as a percentage of total NSW population (%)			
Number of individuals (mature and immature) to			

Impact	Data / information	Data sources	Details of data deficiency, assumptions or reasons for low confidence in information (e.g. TBDC indicates data is unknown or deficient)
be impacted by the proposal			
Individuals (mature and immature) to be impacted by the proposal as a percentage of total NSW population (%)			
Area of habitat to be impacted (ha) (for species measured by area only)	13.56 ha	Mapped species polygon	Assumed present, no surveys undertaken for this species
Area of the species' geographic range to be impacted by the proposal (ha)			
Area of the species' geographic range to be impacted as a percentage of the total area or extent of occupancy (%)			
Individuals impacted	Choose an item.		
Viability of a fragmented population (see below)			

Table 42 Impacts assessment – *Mixophyes balbus*

Impact	Data / information	Data sources	Details of data deficiency, assumptions or reasons for low confidence in information (e.g. TBDC indicates data is unknown or deficient)
Number of individuals (mature and immature) present in the subpopulation on the subject land			
Number of individuals (mature and immature) present as a percentage of total NSW population (%)			

Impact	Data / information	Data sources	Details of data deficiency, assumptions or reasons for low confidence in information (e.g. TBDC indicates data is unknown or deficient)
Number of individuals (mature and immature) to be impacted by the proposal			
Individuals (mature and immature) to be impacted by the proposal as a percentage of total NSW population (%)			
Area of habitat to be impacted (ha) (for species measured by area only)	13.52 ha	Mapped species polygon	Assumed present, no surveys undertaken for this species
Area of the species' geographic range to be impacted by the proposal (ha)			
Area of the species' geographic range to be impacted as a percentage of the total area or extent of occupancy (%)			
Individuals impacted	Choose an item.		
Viability of a fragmented population (see below)			

Table 43 Impacts assessment – *Rhizanthella slateri*

Impact	Data / information	Data sources	Details of data deficiency, assumptions or reasons for low confidence in information (e.g. TBDC indicates data is unknown or deficient)
Number of individuals (mature and immature) present in the subpopulation on the subject land			
Number of individuals (mature and immature)			

Impact	Data / information	Data sources	Details of data deficiency, assumptions or reasons for low confidence in information (e.g. TBDC indicates data is unknown or deficient)
present as a percentage of total NSW population (%)			
Number of individuals (mature and immature) to be impacted by the proposal			
Individuals (mature and immature) to be impacted by the proposal as a percentage of total NSW population (%)			
Area of habitat to be impacted (ha) (for species measured by area only)	5.35 ha	Mapped species polygon	Assumed present, no surveys undertaken for this species
Area of the species' geographic range to be impacted by the proposal (ha)			
Area of the species' geographic range to be impacted as a percentage of the total area or extent of occupancy (%)			
Individuals impacted	Choose an item.		
Viability of a fragmented population (see below)			

10. Impact summary

10.1 Determine an offset requirement for impacts

10.1.1 Impacts on native vegetation and TECs or ECs (ecosystem credits)

Impacts to native vegetation which require an offset are summarised in Table 44 below.

Table 44 Impacts that require an offset – ecosystem credits

Vegetation zone	PCT name	TEC	Impact area (ha)	Current VI score	Future VI score	Change in VI score	Biodiversity risk weighting	Number of ecosystem credits required
3241_GOOD	Lower North White Mahogany-Spotted Gum Moist Forest	Not a TEC	0.3	42.2	0	-42.2	1.5	5
3241_MOD	Lower North White Mahogany-Spotted Gum Moist Forest	Not a TEC	0.9	27.4	0	-27.4	1.5	9
3250_DNG	Northern Foothills Blackbutt Grassy Forest	Not a TEC	0.1	29.7	0	-29.7	1.5	1
3250_GOOD	Northern Foothills Blackbutt Grassy Forest	Not a TEC	2.1	63.7	0	-63.7	1.5	50
3250_POOR	Northern Foothills Blackbutt Grassy Forest	Not a TEC	0.5	26.5	0	-26.5	1.5	5
3437_GOOD	Hunter Coast Lowland Spotted Gum Dry Forest	Not a TEC	3.2	54.2	0	-54.2	1.75	76

Vegetation zone	PCT name	TEC	Impact area (ha)	Current VI score	Future VI score	Change in VI score	Biodiversity risk weighting	Number of ecosystem credits required
3437_MOD	Hunter Coast Lowland Spotted Gum Dry Forest	Not a TEC	2.4	41.7	0	-41.7	1.75	44
3437_POOR	Hunter Coast Lowland Spotted Gum Dry Forest	Not a TEC	1.5	37.9	0	-37.9	1.75	25
3581_MOD	Hunter Coast Foothills Apple Forest	Not a TEC	0.3	50.1	0	-50.1	1.5	6
3583_GOOD	Hunter Coast Lowland Scribbly Gum Forest	Not a TEC	1.1	62.1	0	-62.1	1.75	30
3583_MOD	Hunter Coast Lowland Scribbly Gum Forest	Not a TEC	0.5	50.5	0	-50.5	1.75	11
3583_POOR	Hunter Coast Lowland Scribbly Gum Forest	Not a TEC	0.8	22	0	-22	1.75	8
4038_GOOD	Hunter Estuarine Melaleuca nodosa Scrub	Swamp Oak Floodplain Forest of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions	0.1	36.5	0	-36.5	2	2
							Total credits	272

10.1.2 Impacts on threatened species and their habitat (species credits)

Impacts to native vegetation which require an offset are summarised in Table 45 below.

Table 45 Impacts that require an offset – species credits

Common name	Scientific name	BC Act status	EPBC Act status	Loss of habitat (ha) or individuals	Biodiversity risk weighting	Number of species credits required
Austral Toadflax	*Thesium australe*	Vulnerable	Vulnerable	1.6	1.5	33
Barking Owl	*Ninox connivens*	Vulnerable	Not Listed	12.6	2	290
Bar-tailed Godwit (baueri) (Breeding)	*Limosa lapponica baueri*	Not Listed	Vulnerable	0.04	2	1
Beach Stone-curlew (Breeding)	*Esacus magnirostris*	Critically Endangered	Not Listed	1.6	3	65
Black-eyed Susan	*Tetratheca juncea*	Vulnerable	Vulnerable	1.2	2	18
Brush-tailed Phascogale	*Phascogale tapoatafa*	Vulnerable	Not Listed	11.4	2	272
Bush Stone-curlew	*Burhinus grallarius*	Endangered	Not Listed	11.4	2	272
Charmhaven Apple	*Angophora inopina*	Vulnerable	Vulnerable	2.66	2	63
Common Planigale	*Planigale maculata*	Vulnerable	Not Listed	11.4	2	272
Curlew Sandpiper (Breeding)	*Calidris ferruginea*	Critically Endangered	Critically Endangered	0.04	3	1
Eastern Australian Underground Orchid	*Rhizanthella slateri*	Vulnerable	Endangered	5.5	3	187
Eastern Curlew (Breeding)	*Numenius madagascariensis*	Not Listed	Critically Endangered	0.04	3	1
Eastern Osprey (Breeding)	*Pandion cristatus*	Vulnerable	Not Listed	12.6	1.5	219
Eastern Pygmy-possum	*Cercartetus nanus*	Vulnerable	Not Listed	12.6	2	290
Emu population in the New South Wales North Coast Bioregion and Port Stephens local government area	*Dromaius novaehollandiae - endangered population*	Endangered Population	Not Listed	12.6	2	290

Common name	Scientific name	BC Act status	EPBC Act status	Loss of habitat (ha) or individuals	Biodiversity risk weighting	Number of species credits required
Gang-gang Cockatoo (Breeding)	*Callocephalon fimbriatum*	Endangered	Endangered	11	2	247
Giant Barred Frog	*Mixophyes iteratus*	Vulnerable	Vulnerable	5.5	1.5	95
Great Knot (Breeding)	*Calidris tenuirostris*	Vulnerable	Vulnerable	0.04	2	1
Greater Sand-plover (Breeding)	*Charadrius leschenaultii*	Vulnerable	Vulnerable	0.04	2	1
Green and Golden Bell Frog	*Litoria aurea*	Endangered	Vulnerable	11	2	247
Green-thighed Frog	*Litoria brevipalmata*	Vulnerable	Not Listed	2.8	1.5	47
Grey-headed Flying-fox (Breeding)	*Pteropus poliocephalus*	Vulnerable	Vulnerable	12.6	2	290
Koala	*Phascolarctos cinereus*	Endangered	Endangered	12.6	2	290
Large Bent-winged Bat (Breeding)	*Miniopterus orianae oceanensis*	Vulnerable	Not Listed	12.6	3	435
Leafless Tongue Orchid	*Cryptostylis hunteriana*	Vulnerable	Vulnerable	11.4	1.5	205
Lesser Sand-plover (Breeding)	*Charadrius mongolus*	Vulnerable	Endangered	0.04	2	1
Little Bent-winged Bat (Breeding)	*Miniopterus australis*	Vulnerable	Not Listed	12.6	3	435
Little Eagle (Breeding)	*Hieraaetus morphnoides*	Vulnerable	Not Listed	12.6	1.5	219
Long-nosed Potoroo	*Potorous tridactylus*	Vulnerable	Vulnerable	4.3	2	107
Magenta Lilly Pilly	*Syzygium paniculatum*	Endangered	Vulnerable	10	2	20
Mahony's Toadlet	*Uperoleia mahonyi*	Endangered	Endangered	9.8	2	229
Manning Yellow Solanum	*Solanum sulphureum*	Endangered	Endangered	2.8	2	61
Masked Owl	*Tyto novaehollandiae*	Vulnerable	Not Listed	11.4	2	272
Maundia triglochinoides	*Maundia triglochinoides*	Vulnerable	Not Listed	0.04	2	1

Common name	Scientific name	BC Act status	EPBC Act status	Loss of habitat (ha) or individuals	Biodiversity risk weighting	Number of species credits required
Netted Bottle Brush	*Callistemon linearifolius*	Vulnerable	Not Listed	10	1.5	15
Noah's False Chickweed	*Lindernia alsinoides*	Endangered	Not Listed	1.6	2	43
Pale Yellow Doubletail	*Diuris flavescens*	Critically Endangered	Critically Endangered	1.2	3	28
Pale-headed Snake	*Hoplocephalus bitorquatus*	Vulnerable	Not Listed	1.6	2	43
Parma Wallaby	*Notamacropus parma*	Vulnerable	Vulnerable	9	2	216
Powerful Owl	*Ninox strenua*	Vulnerable	Not Listed	12.6	2	290
Pterostylis chaetophora	*Pterostylis chaetophora*	Vulnerable	Not Listed	8.3	2	183
Red Helmet Orchid	*Corybas dowlingii*	Endangered	Not Listed	10.2	2	234
Red Knot (Breeding)	*Calidris canutus*	Not Listed	Endangered	0.04	2	1
Red-backed Button-quail	*Turnix maculosus*	Vulnerable	Not Listed	2.8	2	61
Rhizanthella slateri (Rupp) M.A. Clem. & Cribb in the Great Lakes local government area	*Rhizanthella slateri - endangered population*	Endangered Population	Not Listed	3.1	3	104
Rough Doubletail	*Diuris praecox*	Vulnerable	Vulnerable	11.4	1.5	205
Sanderling (Breeding)	*Calidris alba*	Vulnerable	Not Listed	0.04	2	1
Small-flower Grevillea	*Grevillea parviflora subsp. parviflora*	Vulnerable	Vulnerable	2.7	2	64
South-eastern Glossy Black-Cockatoo (Breeding)	*Calyptorhynchus lathami lathami*	Vulnerable	Vulnerable	12.6	2	290
Southern Greater Glider	*Petauroides volans*	Endangered	Endangered	10.2	2	234
Southern Myotis	*Myotis macropus*	Vulnerable	Not Listed	12.6	2	290

Common name	Scientific name	BC Act status	EPBC Act status	Loss of habitat (ha) or individuals	Biodiversity risk weighting	Number of species credits required
Spider orchid	*Dendrobium melaleucaphilum*	Endangered	Not Listed	1.6	2	43
Square-tailed Kite (Breeding)	*Lophoictinia isura*	Vulnerable	Not Listed	12.6	1.5	219
Squirrel Glider	*Petaurus norfolcensis*	Vulnerable	Not Listed	12.6	2	290
Stephens' Banded Snake	*Hoplocephalus stephensii*	Vulnerable	Not Listed	5.5	2	125
Stuttering Frog	*Mixophyes balbus*	Endangered	Vulnerable	12.6	3	435
Terek Sandpiper (Breeding)	*Xenus cinereus*	Vulnerable	Vulnerable	0.04	2	1
Trailing Woodruff	*Asperula asthenes*	Vulnerable	Vulnerable	2.8	2	61
Wallum Froglet	*Crinia tinnula*	Vulnerable	Not Listed	11.4	1.5	205
White-bellied Sea-Eagle (Breeding)	*Haliaeetus leucogaster*	Vulnerable	Not Listed	12.6	2	290
White-flowered Wax Plant	*Cynanchum elegans*	Endangered	Endangered	1.6	2	43
					Total credits	9491

10.1.3 Proposed Offset Strategy.

Of the entire 446.6 ha property, approximately 17.08 ha would be included in the development footprint. Of the remainder, it is proposed that approximately 324.6 ha would be set aside as an offset under the NSW Biodiversity Offset Scheme (see Figure 63). This proposed Biodiversity Stewardship site would be used to generate credits to offset the credit liability of the development site. Indirect and prescribed impacts that remain after measures to avoid, minimise and mitigate have been applied, would also be offset using this proposed offset strategy.

11. Biodiversity credit report

A summary of ecosystem credit liability for the proposal is provided in Table 46 below, with species credits summarised in Table 47. All credit reports are included as Appendix H.

11.1 Ecosystem credits

Table 46 Ecosystem credit class and matching credit profile

Ecosystem credit	Attributes shared with matching credits						
	PCT name	**PCT vegetation class**	**PCT vegetation formation**	**Associated TEC or EC**	**Offset trading group** (BAM Section 10.2, Tables 4 & 5)	**Hollow bearing trees present?**	**IBRA subregion** (in which proposal is located)
14	3241-Lower North White Mahogany-Spotted Gum Moist Forest	Northern Hinterland Wet Sclerophyll Forests	Wet Sclerophyll Forests (Grassy sub-formation)		Northern Hinterland Wet Sclerophyll Forests <50%	No	Karuah Manning
56	3250-Northern Foothills Blackbutt Grassy Forest	Northern Hinterland Wet Sclerophyll Forests	Wet Sclerophyll Forests (Grassy sub-formation)		Northern Hinterland Wet Sclerophyll Forests <50%	Yes	Karuah Manning
145	3437-Hunter Coast Lowland Spotted Gum Dry Forest	Hunter-Macleay Dry Sclerophyll Forests	Dry Sclerophyll Forests (Shrub/grass sub-formation)		Hunter-Macleay Dry Sclerophyll Forests >=50% and <70%	Yes	Karuah Manning
6	3581-Hunter Coast Foothills Apple Forest	Sydney Coastal Dry Sclerophyll Forests	Dry Sclerophyll Forests (Shrubby sub-formation)		Sydney Coastal Dry Sclerophyll Forests <50%	No	Karuah Manning

Ecosystem credit	Attributes shared with matching credits						
	PCT name	**PCT vegetation class**	**PCT vegetation formation**	**Associated TEC or EC**	**Offset trading group** (BAM Section 10.2, Tables 4 & 5)	**Hollow bearing trees present?**	**IBRA subregion** (in which proposal is located)
49	3583-Hunter Coast Lowland Scribbly Gum Forest	Sydney Coastal Dry Sclerophyll Forests	Dry Sclerophyll Forests (Shrubby sub-formation)		Sydney Coastal Dry Sclerophyll Forests >=50% and <70%	Yes	Karuah Manning
2	4038-Hunter Estuarine Melaleuca nodosa Scrub	Coastal Floodplain Wetlands	Forested Wetlands	Swamp Oak Floodplain Forest of the New South Wales North Coast, Sydney Basin and South-East Corner Bioregions	TEC	No	Karuah Manning

11.2 Species credits

Table 47 Species credit class and matching credit profile

Species credit	Attributes shared with matching credits				
	Name of threatened species	**Kingdom**	**BC Act status**	**EPBC Act status**	**IBRA region**
272	Burhinus grallarius / Bush Stone-curlew	Animalia	Endangered	Not Listed	Karuah Manning
1	Calidris alba / Sanderling	Animalia	Vulnerable	Not Listed	Karuah Manning

Species credit	Attributes shared with matching credits				
	Name of threatened species	Kingdom	BC Act status	EPBC Act status	IBRA region
1	Calidris canutus / Red Knot	Animalia	Not Listed	Endangered	Karuah Manning
1	Calidris ferruginea / Curlew Sandpiper	Animalia	Critically Endangered	Critically Endangered	Karuah Manning
1	Calidris tenuirostris / Great Knot	Animalia	Vulnerable	Vulnerable	Karuah Manning
247	Callocephalon fimbriatum / Gang-gang Cockatoo	Animalia	Endangered	Endangered	Karuah Manning
290	Calyptorhynchus lathami lathami / South-eastern Glossy Black-Cockatoo	Animalia	Vulnerable	Vulnerable	Karuah Manning
290	Cercartetus nanus / Eastern Pygmy-possum	Animalia	Vulnerable	Not Listed	Karuah Manning
1	Charadrius leschenaultii / Greater Sand-plover	Animalia	Vulnerable	Vulnerable	Karuah Manning
1	Charadrius mongolus / Lesser Sand-plover	Animalia	Vulnerable	Endangered	Karuah Manning
205	Crinia tinnula / Wallum Froglet	Animalia	Vulnerable	Not Listed	Karuah Manning
290	Dromaius novaehollandiae - endangered population / Emu population in the New South Wales North Coast Bioregion and Port Stephens local government area	Animalia	Endangered Population	Not Listed	Karuah Manning

Species credit	Attributes shared with matching credits				
	Name of threatened species	Kingdom	BC Act status	EPBC Act status	IBRA region
65	Esacus magnirostris / Beach Stone-curlew	Animalia	Critically Endangered	Not Listed	Karuah Manning
290	Haliaeetus leucogaster / White-bellied Sea-Eagle	Animalia	Vulnerable	Not Listed	Karuah Manning
219	Hieraaetus morphnoides / Little Eagle	Animalia	Vulnerable	Not Listed	Karuah Manning
43	Hoplocephalus bitorquatus / Pale-headed Snake	Animalia	Vulnerable	Not Listed	Karuah Manning
125	Hoplocephalus stephensii / Stephens' Banded Snake	Animalia	Vulnerable	Not Listed	Karuah Manning
1	Limosa lapponica baueri / Bar-tailed Godwit (baueri)	Animalia	Not Listed	Vulnerable	Karuah Manning
247	Litoria aurea / Green and Golden Bell Frog	Animalia	Endangered	Vulnerable	Karuah Manning
47	Litoria brevipalmata / Green-thighed Frog	Animalia	Vulnerable	Not Listed	Karuah Manning
219	Lophoictinia isura / Square-tailed Kite	Animalia	Vulnerable	Not Listed	Karuah Manning
435	Miniopterus australis / Little Bent-winged Bat	Animalia	Vulnerable	Not Listed	Karuah Manning
435	Miniopterus orianae oceanensis / Large Bent-winged Bat	Animalia	Vulnerable	Not Listed	Karuah Manning

Species credit	Attributes shared with matching credits				
	Name of threatened species	Kingdom	BC Act status	EPBC Act status	IBRA region
435	Mixophyes balbus / Stuttering Frog	Animalia	Endangered	Vulnerable	Karuah Manning
95	Mixophyes iteratus / Giant Barred Frog	Animalia	Vulnerable	Vulnerable	Karuah Manning
290	Myotis macropus / Southern Myotis	Animalia	Vulnerable	Not Listed	Karuah Manning
290	Ninox connivens / Barking Owl	Animalia	Vulnerable	Not Listed	Karuah Manning
290	Ninox strenua / Powerful Owl	Animalia	Vulnerable	Not Listed	Karuah Manning
216	Notamacropus parma / Parma Wallaby	Animalia	Vulnerable	Vulnerable	Karuah Manning
1	Numenius madagascariensis / Eastern Curlew	Animalia	Not Listed	Critically Endangered	Karuah Manning
219	Pandion cristatus / Eastern Osprey	Animalia	Vulnerable	Not Listed	Karuah Manning
234	Petauroides volans / Southern Greater Glider	Animalia	Endangered	Endangered	Karuah Manning
290	Petaurus norfolcensis / Squirrel Glider	Animalia	Vulnerable	Not Listed	Karuah Manning
272	Phascogale tapoatafa / Brush-tailed Phascogale	Animalia	Vulnerable	Not Listed	Karuah Manning

Species credit	Attributes shared with matching credits				
	Name of threatened species	Kingdom	BC Act status	EPBC Act status	IBRA region
290	Phascolarctos cinereus / Koala	Animalia	Endangered	Endangered	Karuah Manning
272	Planigale maculata / Common Planigale	Animalia	Vulnerable	Not Listed	Karuah Manning
107	Potorous tridactylus / Long-nosed Potoroo	Animalia	Vulnerable	Vulnerable	Karuah Manning
290	Pteropus poliocephalus / Grey-headed Flying-fox	Animalia	Vulnerable	Vulnerable	Karuah Manning
61	Turnix maculosus / Red-backed Button-quail	Animalia	Vulnerable	Not Listed	Karuah Manning
272	Tyto novaehollandiae / Masked Owl	Animalia	Vulnerable	Not Listed	Karuah Manning
229	Uperoleia mahonyi / Mahony's Toadlet	Animalia	Endangered	Endangered	Karuah Manning
1	Xenus cinereus / Terek Sandpiper	Animalia	Vulnerable	Vulnerable	Karuah Manning
63	Angophora inopina / Charmhaven Apple	Plantae	Vulnerable	Vulnerable	Karuah Manning
61	Asperula asthenes / Trailing Woodruff	Plantae	Vulnerable	Vulnerable	Karuah Manning
15	Callistemon linearifolius / Netted Bottle Brush	Plantae	Vulnerable	Not Listed	Karuah Manning
234	Corybas dowlingii / Red Helmet Orchid	Plantae	Endangered	Not Listed	Karuah Manning

Species credit	Attributes shared with matching credits				
	Name of threatened species	Kingdom	BC Act status	EPBC Act status	IBRA region
205	Cryptostylis hunteriana / Leafless Tongue Orchid	Plantae	Vulnerable	Vulnerable	Karuah Manning
43	Cynanchum elegans / White-flowered Wax Plant	Plantae	Endangered	Endangered	Karuah Manning
43	Dendrobium melaleucaphilum / Spider orchid	Plantae	Endangered	Not Listed	Karuah Manning
28	Diuris flavescens / Pale Yellow Doubletail	Plantae	Critically Endangered	Critically Endangered	Karuah Manning
205	Diuris praecox / Rough Doubletail	Plantae	Vulnerable	Vulnerable	Karuah Manning
64	Grevillea parviflora subsp. parviflora / Small-flower Grevillea	Plantae	Vulnerable	Vulnerable	Karuah Manning
43	Lindernia alsinoides / Noah's False Chickweed	Plantae	Endangered	Not Listed	Karuah Manning
1	Maundia triglochinoides / Maundia triglochinoides	Plantae	Vulnerable	Not Listed	Karuah Manning
183	Pterostylis chaetophora / Pterostylis chaetophora	Plantae	Vulnerable	Not Listed	Karuah Manning
104	Rhizanthella slateri - endangered population / Rhizanthella slateri (Rupp) M.A. Clem. & Cribb in the	Plantae	Endangered Population	Not Listed	Karuah Manning

Species credit	Attributes shared with matching credits				
	Name of threatened species	Kingdom	BC Act status	EPBC Act status	IBRA region
	Great Lakes local government area				
187	Rhizanthella slateri / Eastern Australian Underground Orchid	Plantae	Vulnerable	Endangered	Karuah Manning
61	Solanum sulphureum / Manning Yellow Solanum	Plantae	Endangered	Endangered	Karuah Manning
20	Syzygium paniculatum / Magenta Lilly Pilly	Plantae	Endangered	Vulnerable	Karuah Manning
18	Tetratheca juncea / Black-eyed Susan	Plantae	Vulnerable	Vulnerable	Karuah Manning

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NSW OEH (2018b) BioNet Threatened Biodiversity Data Collection. Accessed online at https://atlaseditor.bionet.nsw.gov.au/UI_Modules/TSM_/Default.aspx (Accessed on 01/05/2025)

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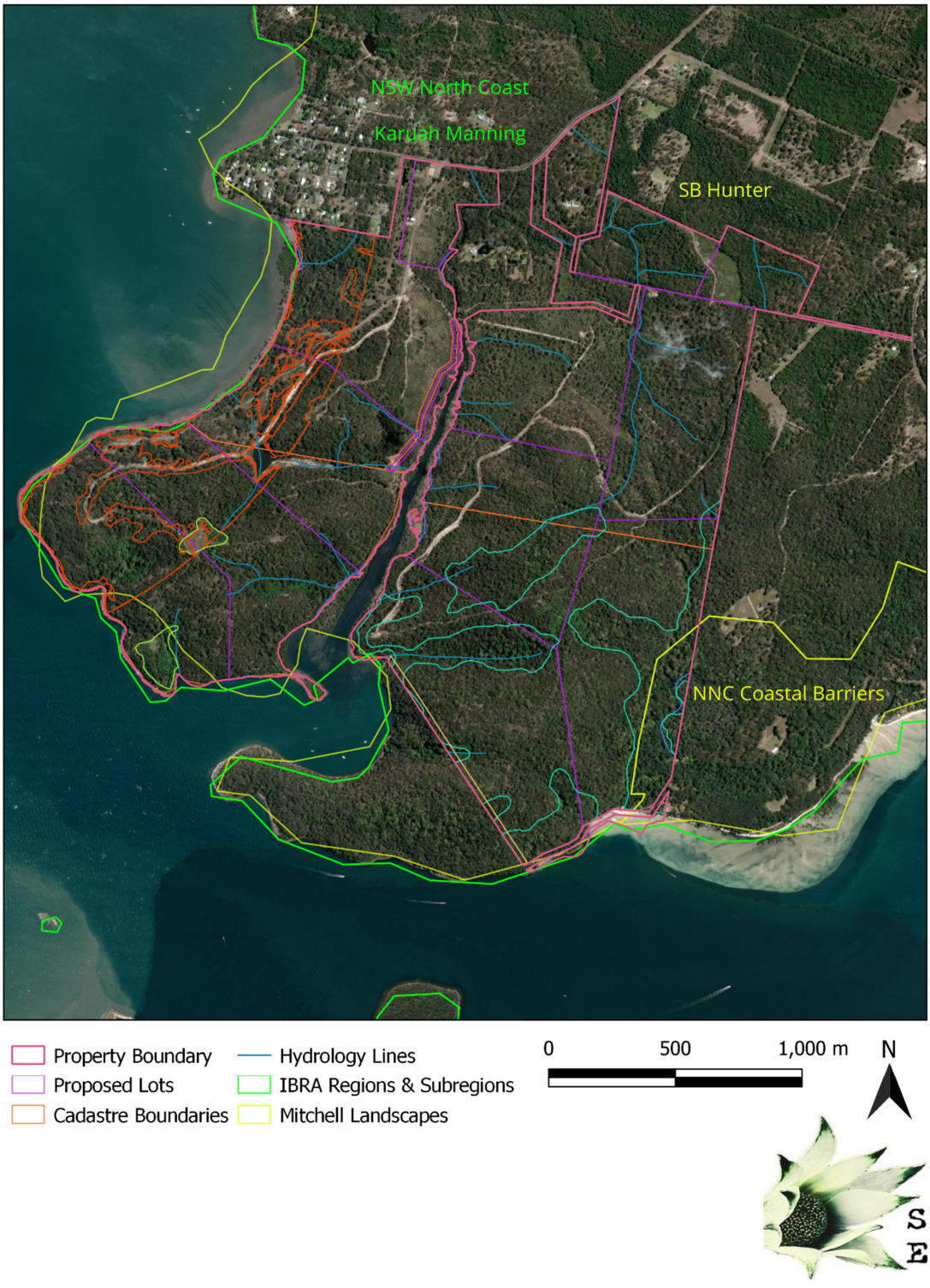
13. Figures

Figure 1 Site Map



Data Sources: Cadastral &Topographical data - State Government of NSW and Spatial Services (DCS) 2023; Imagery - Google Maps Satellite
Map Produced by Somerville Ecology 2025

Figure 2 Location Map

Data Sources: Cadastral &Topographical data - State Government of NSW and Spatial Services (DCS) 2023; Imagery - Google Maps Satellite
Map Produced by Somerville Ecology 2025

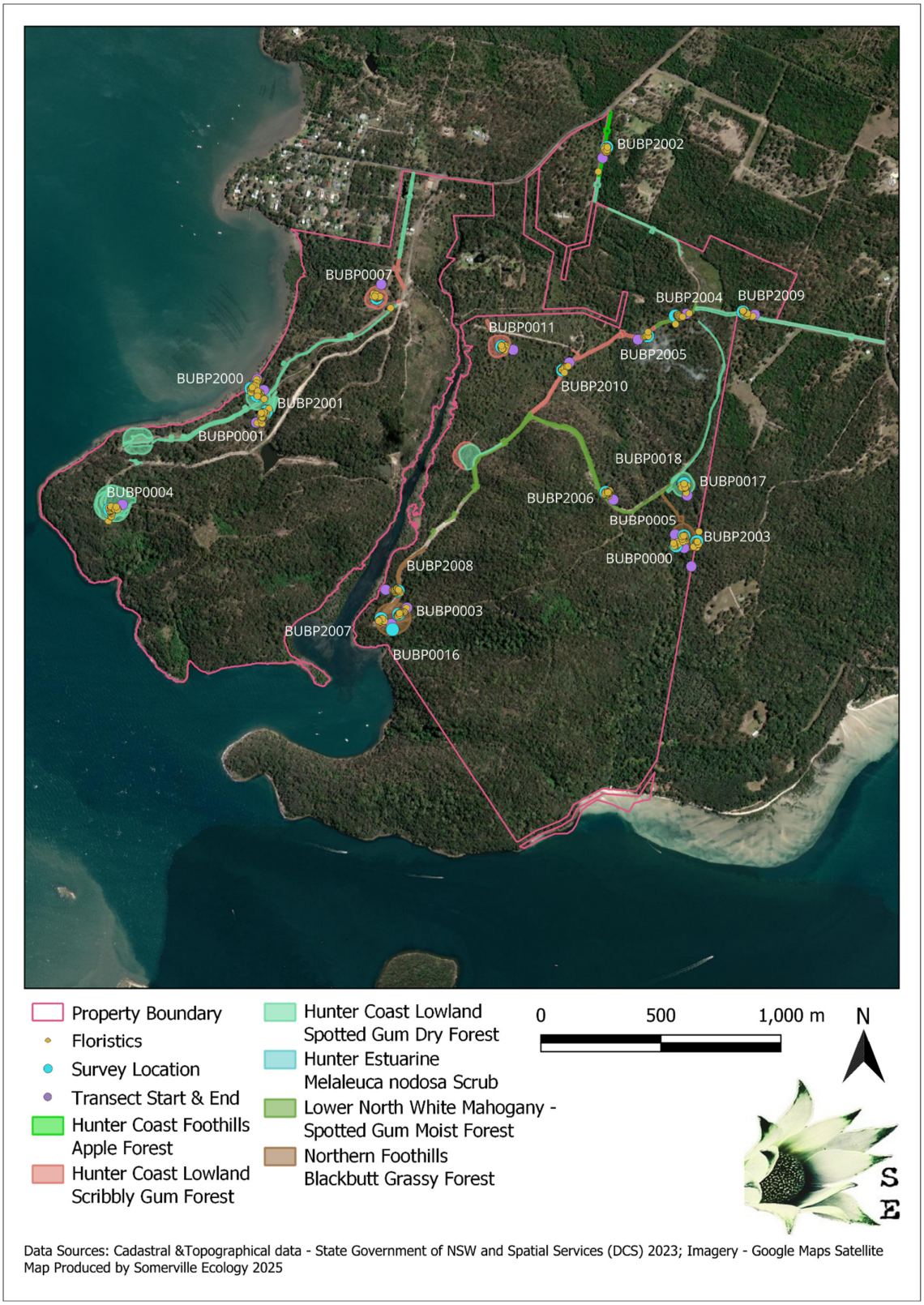
Figure 3 Development layout

Data Sources: Cadastral &Topographical data - State Government of NSW and Spatial Services (DCS) 2023; Imagery - Google Maps Satellite
Map Produced by Somerville Ecology 2025

Figure 4 Biodiversity Values Map

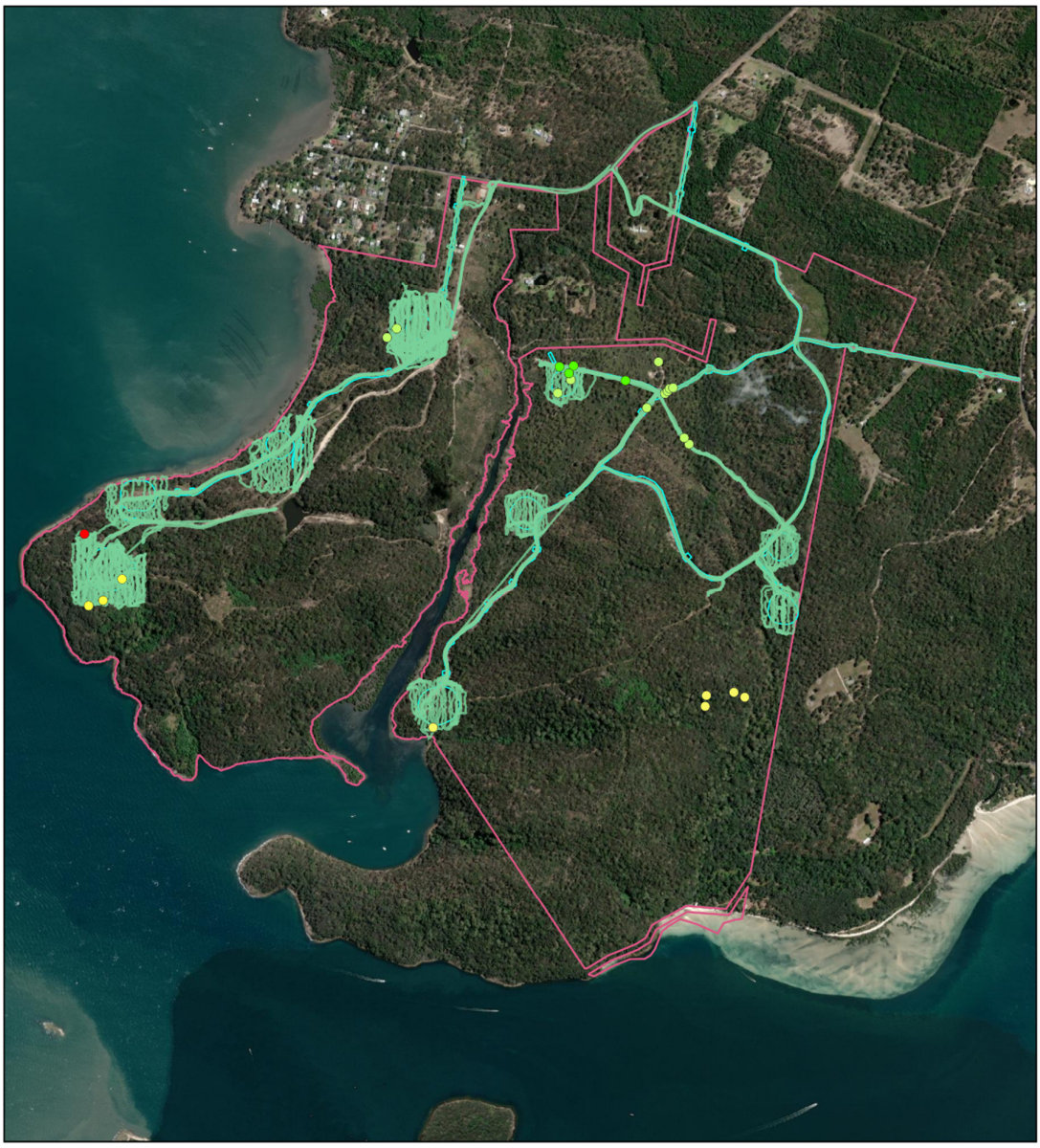
Data Sources: Cadastral &Topographical data - State Government of NSW and Spatial Services (DCS) 2023; Imagery - Google Maps Satellite
Map Produced by Somerville Ecology 2025

Figure 5 Ecosystem survey locations



Data Sources: Cadastral &Topographical data - State Government of NSW and Spatial Services (DCS) 2023; Imagery - Google Maps Satellite
Map Produced by Somerville Ecology 2025

Figure 6 Threatened species survey locations



Data Sources: Cadastral &Topographical data - State Government of NSW and Spatial Services (DCS) 2023; Imagery - Google Maps Satellite
Map Produced by Somerville Ecology 2025

Figure 7 Native vegetation extent

Figure 8 Plant community types

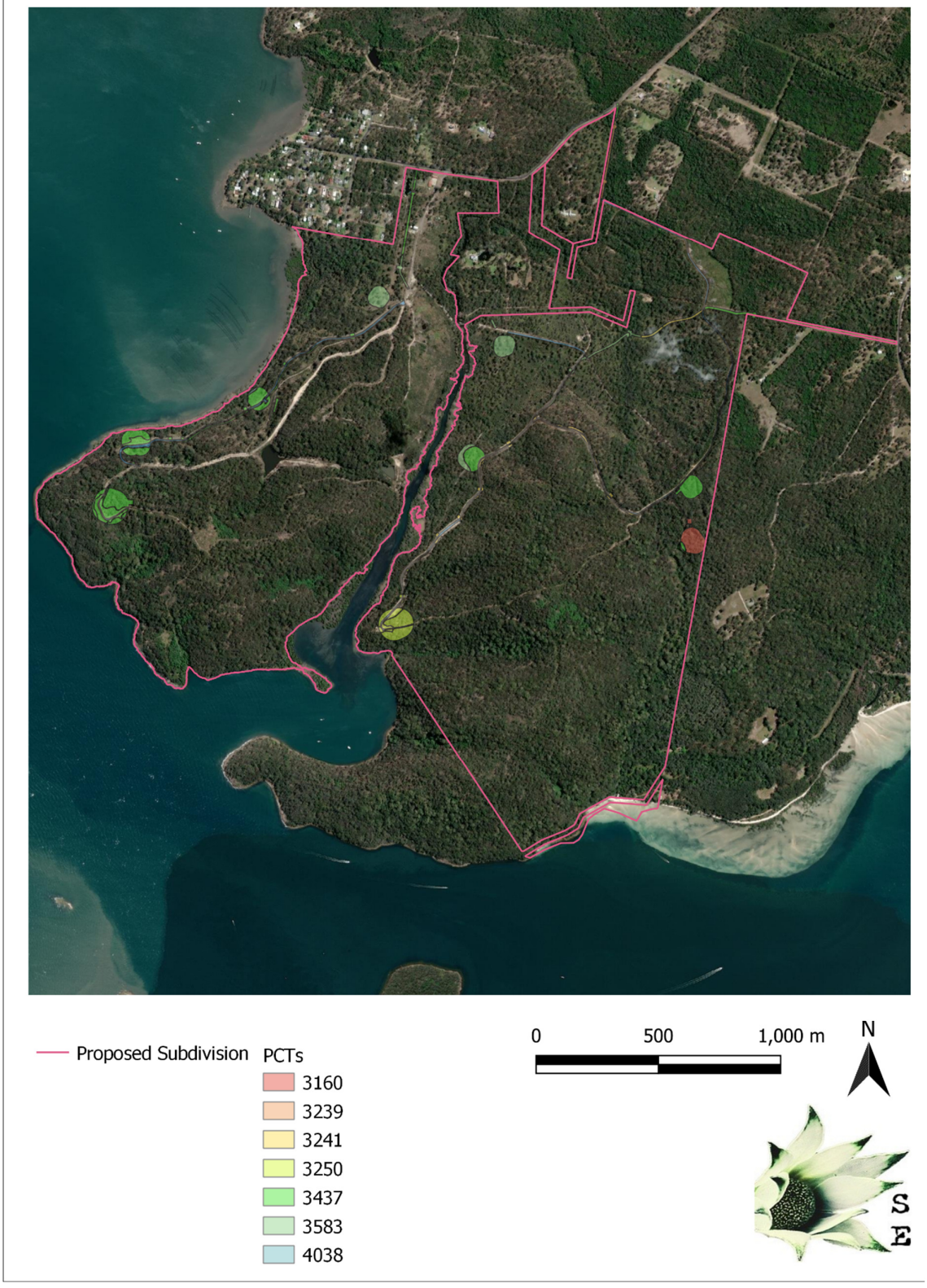
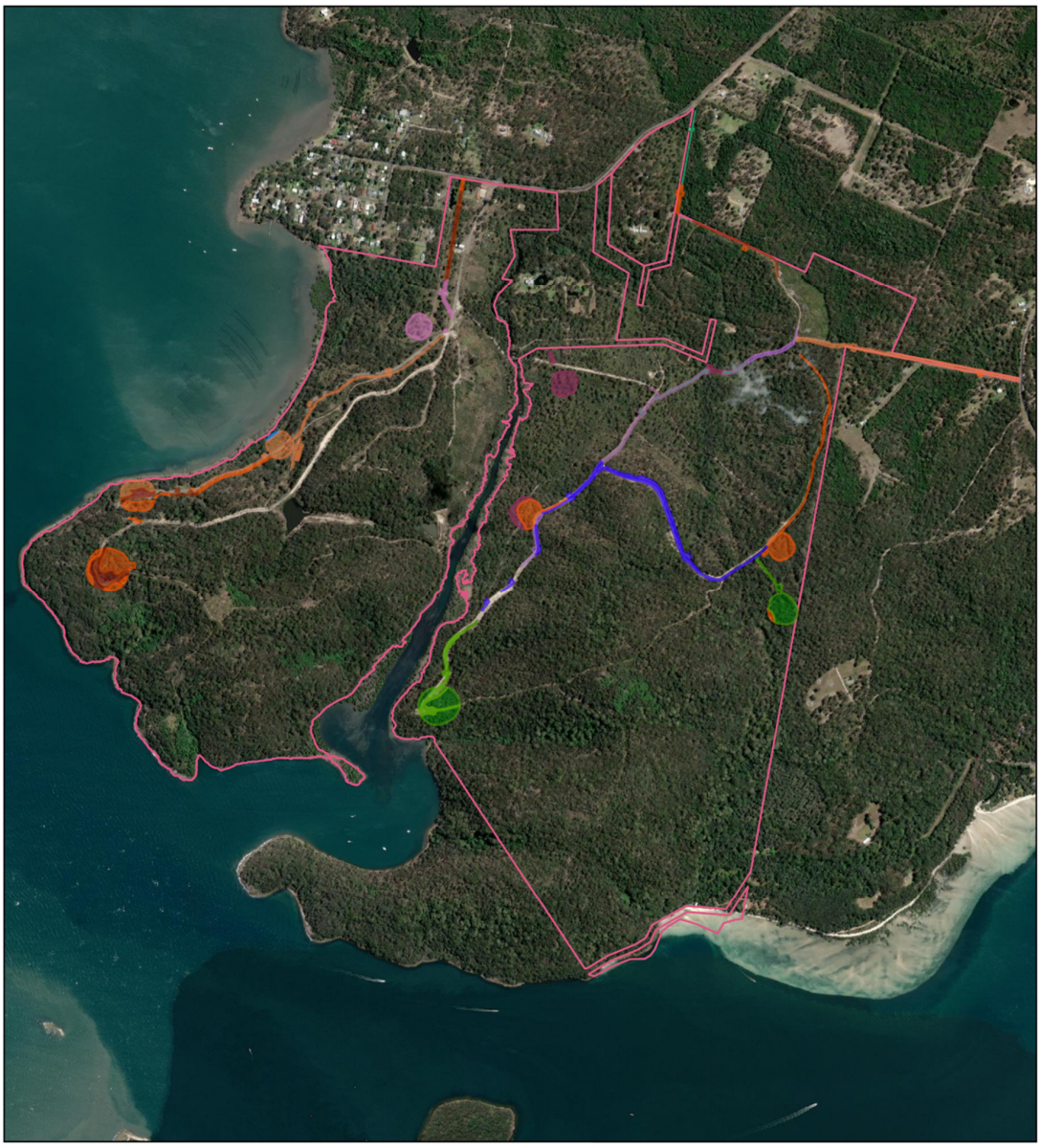


Figure 9 Threatened ecological communities and ecological communities

Figure 10 Vegetation zones



Data Sources: Cadastral &Topographical data - State Government of NSW and Spatial Services (DCS) 2023; Imagery - Google Maps Satellite
Map Produced by Somerville Ecology 2025

Figure 11 Candidate species credit species - *Angophora inopina*

Data Sources: Cadastral &Topographical data - State Government of NSW and Spatial Services (DCS) 2023; Imagery - Google Maps Satellite
Map Produced by Somerville Ecology 2025

Figure 12 Candidate species credit species - *Asperula asthenes*

Data Sources: Cadastral &Topographical data - State Government of NSW and Spatial Services (DCS) 2023; Imagery - Google Maps Satellite
Map Produced by Somerville Ecology 2025

Figure 13 Candidate species credit species - *Burhinus grallarius*

Figure 14 Candidate species credit species - *Callistemon linearifolius*

Figure 15 Candidate species credit species records - *Callocephalon fimbriatum*

Figure 16 **Candidate species credit species records - *Calyptorhynchus lathami subsp. lathami***

Figure 17 Candidate species credit species records - *Cercartetus nanus*

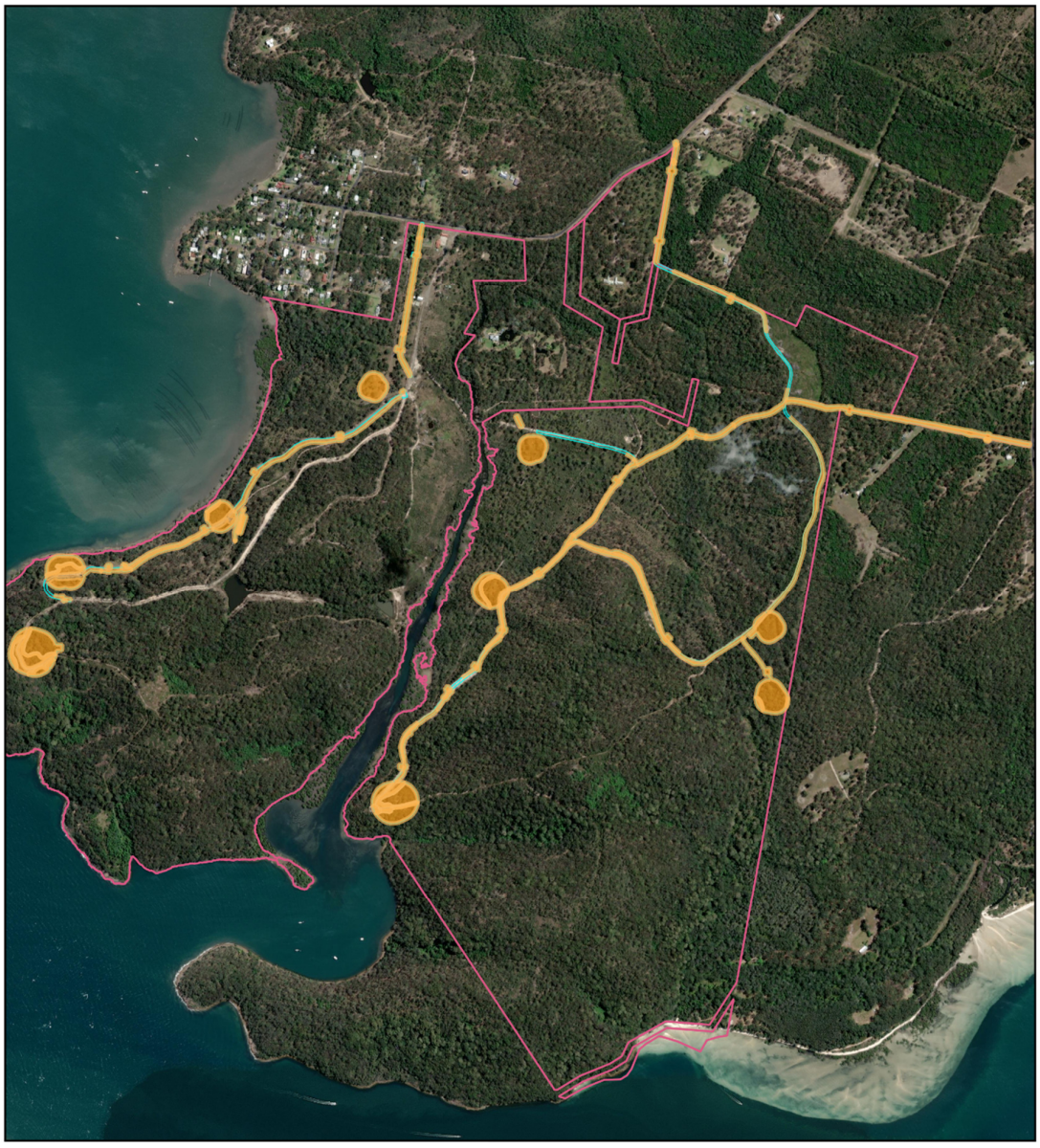


Figure 18 Candidate species credit species - *Corybas dowlingii*

Data Sources: Cadastral &Topographical data - State Government of NSW and Spatial Services (DCS) 2023; Imagery - Google Maps Satellite
Map Produced by Somerville Ecology 2025

Figure 19 Candidate species credit species - *Crinia tinnula*

Figure 20 Candidate species credit species - *Cryptostylis hunteriana*

Data Sources: Cadastral &Topographical data - State Government of NSW and Spatial Services (DCS) 2023; Imagery - Google Maps Satellite
Map Produced by Somerville Ecology 2025

Figure 21 Candidate species credit species - *Cynanchum elegans*

Data Sources: Cadastral &Topographical data - State Government of NSW and Spatial Services (DCS) 2023; Imagery - Google Maps Satellite
Map Produced by Somerville Ecology 2025

Figure 22 Candidate species credit species - *Dendrobium melaleucaphilum*

Data Sources: Cadastral &Topographical data - State Government of NSW and Spatial Services (DCS) 2023; Imagery - Google Maps Satellite
Map Produced by Somerville Ecology 2025

Figure 23 Candidate species credit species - *Diuris arenaria*

Data Sources: Cadastral &Topographical data - State Government of NSW and Spatial Services (DCS) 2023; Imagery - Google Maps Satellite
Map Produced by Somerville Ecology 2025

Figure 24 Candidate species credit species - *Diuris flavescens*

Data Sources: Cadastral &Topographical data - State Government of NSW and Spatial Services (DCS) 2023; Imagery - Google Maps Satellite
Map Produced by Somerville Ecology 2025

Figure 25 Candidate species credit species - *Diuris praecox*

Figure 26 Candidate species credit species - *Dromaius novaehollandiae*

Figure 27 Candidate species credit species - *Esacus magnirostris*

Figure 28 Candidate species credit species - *Grevillea parviflora subsp. parviflora*

Figure 29 Candidate species credit species - *Haliaeetus leucogaster*

Figure 30 Candidate species credit species - *Hieraaetus morphnoides*

Figure 31 Candidate species credit species - *Hoplocephalus bitorquatus*

Figure 32 Candidate species credit species - *Lindernia alsinoides*

Data Sources: Cadastral &Topographical data - State Government of NSW and Spatial Services (DCS) 2023; Imagery - Google Maps Satellite
Map Produced by Somerville Ecology 2025

Figure 33 Candidate species credit species - *Litoria aurea*

Figure 34 Candidate species credit species - *Litoria brevipalmata*

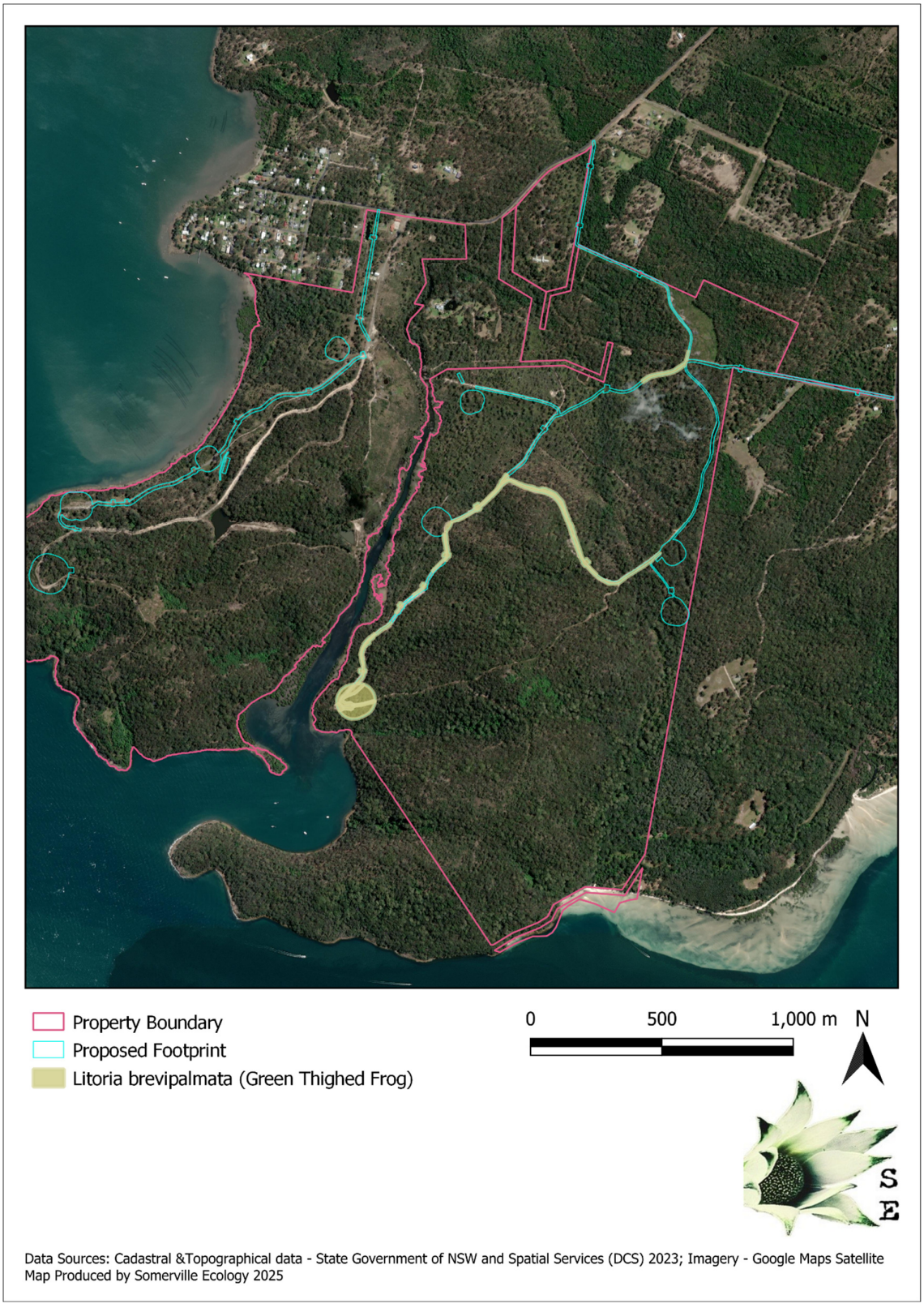


Figure 35 Candidate species credit species - *Lophoictinia isura*

Data Sources: Cadastral &Topographical data - State Government of NSW and Spatial Services (DCS) 2023; Imagery - Google Maps Satellite
Map Produced by Somerville Ecology 2025

Figure 36 Candidate species credit species - *Maundia triglochinoides*

Data Sources: Cadastral &Topographical data - State Government of NSW and Spatial Services (DCS) 2023; Imagery - Google Maps Satellite
Map Produced by Somerville Ecology 2025

Figure 37 Candidate species credit species - *Miniopterus australis*

Data Sources: Cadastral &Topographical data - State Government of NSW and Spatial Services (DCS) 2023; Imagery - Google Maps Satellite
Map Produced by Somerville Ecology 2025

Figure 38 Candidate species credit species - *Miniopterus orianae subsp. oceanensis*

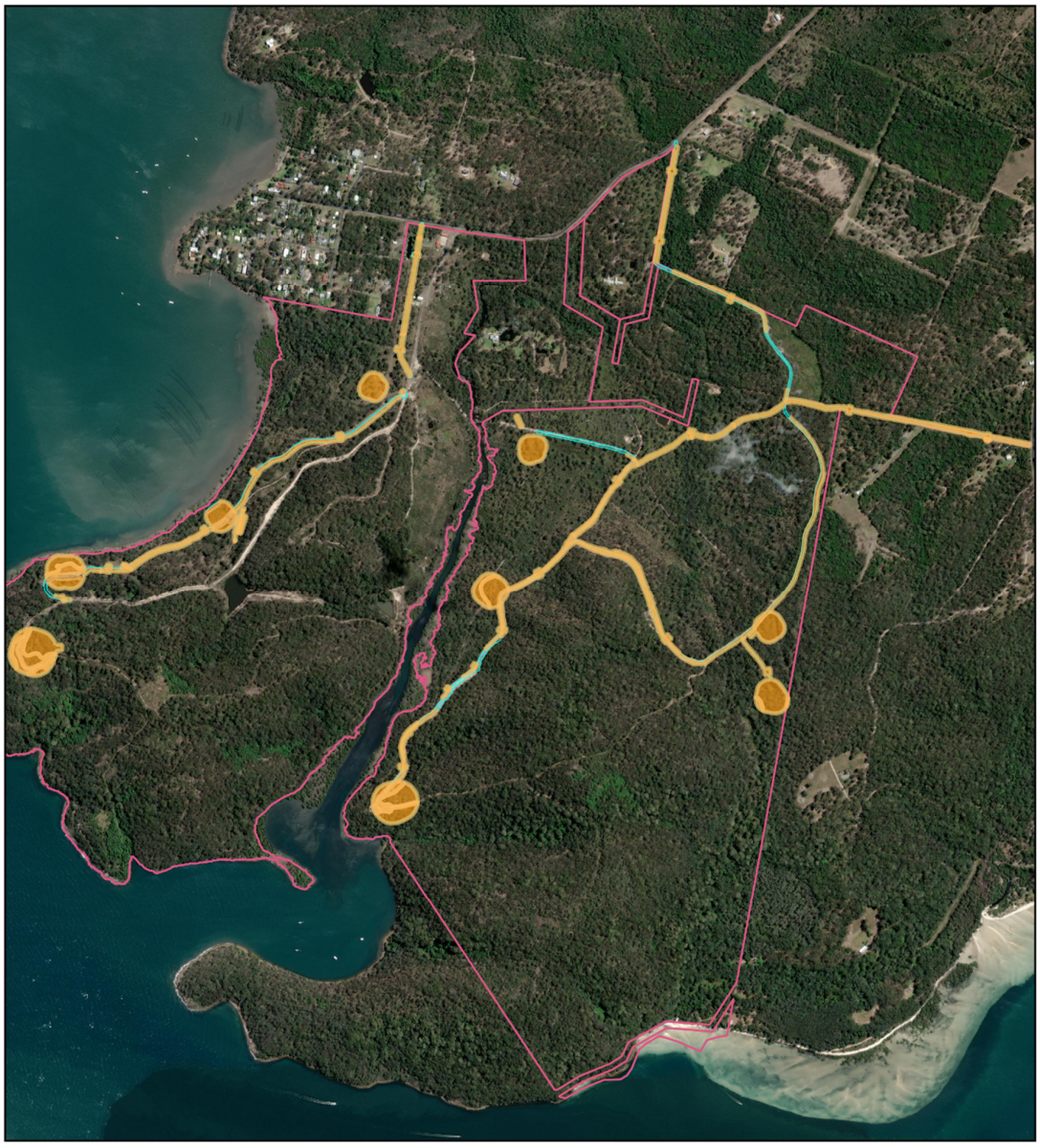


Figure 39 Candidate species credit species - *Mixophyes balbus*

Data Sources: Cadastral &Topographical data - State Government of NSW and Spatial Services (DCS) 2023; Imagery - Google Maps Satellite
Map Produced by Somerville Ecology 2025

Figure 40 Candidate species credit species records - *Mixophyes iteratus*

Data Sources: Cadastral &Topographical data - State Government of NSW and Spatial Services (DCS) 2023; Imagery - Google Maps Satellite
Map Produced by Somerville Ecology 2025

Figure 41 Candidate species credit species - *Myotis macropus*

Figure 42 Candidate species credit species - *Ninox connivens*

Data Sources: Cadastral &Topographical data - State Government of NSW and Spatial Services (DCS) 2023; Imagery - Google Maps Satellite
Map Produced by Somerville Ecology 2025

Figure 43 Candidate species credit species - *Ninox strenua*

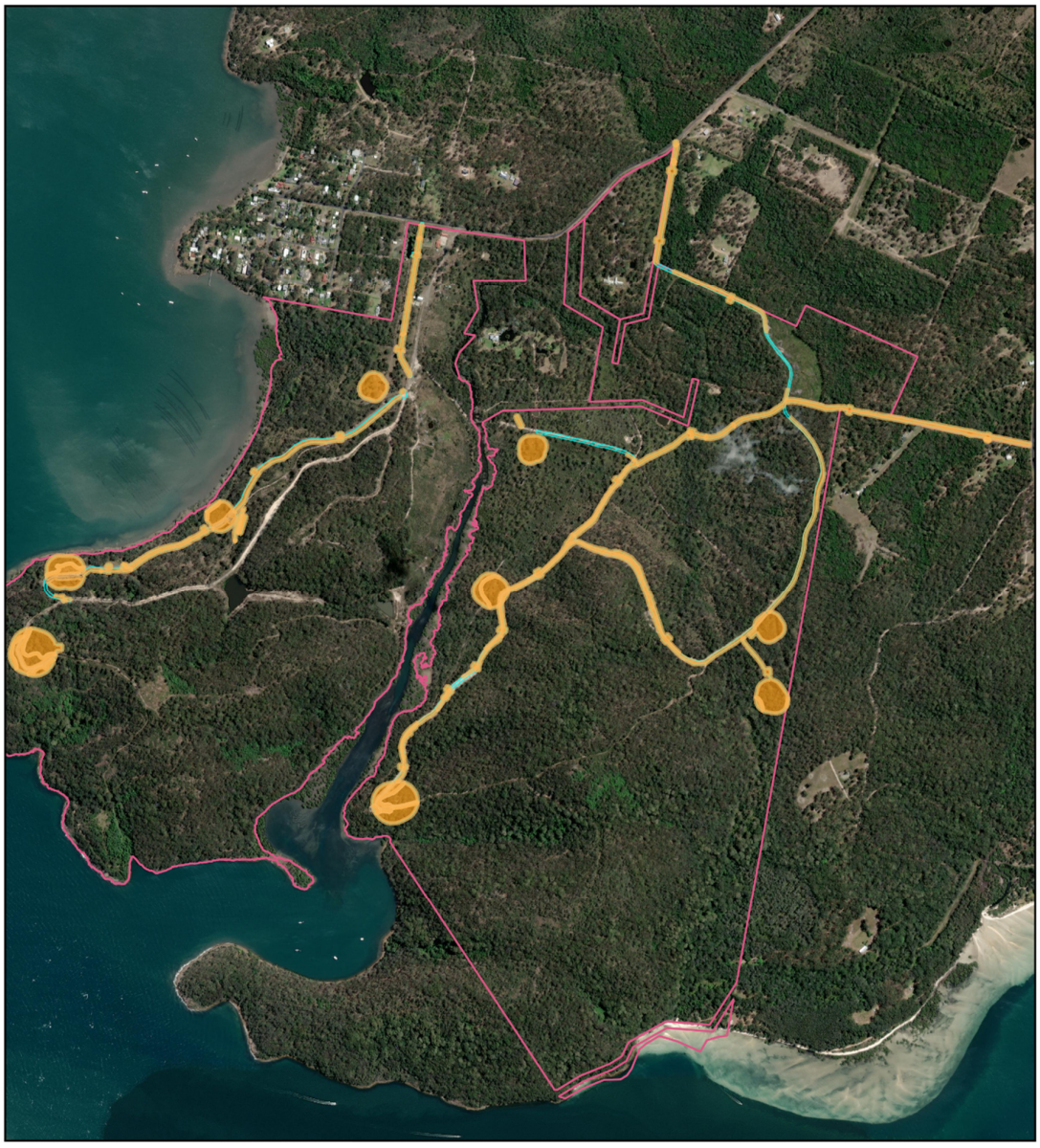


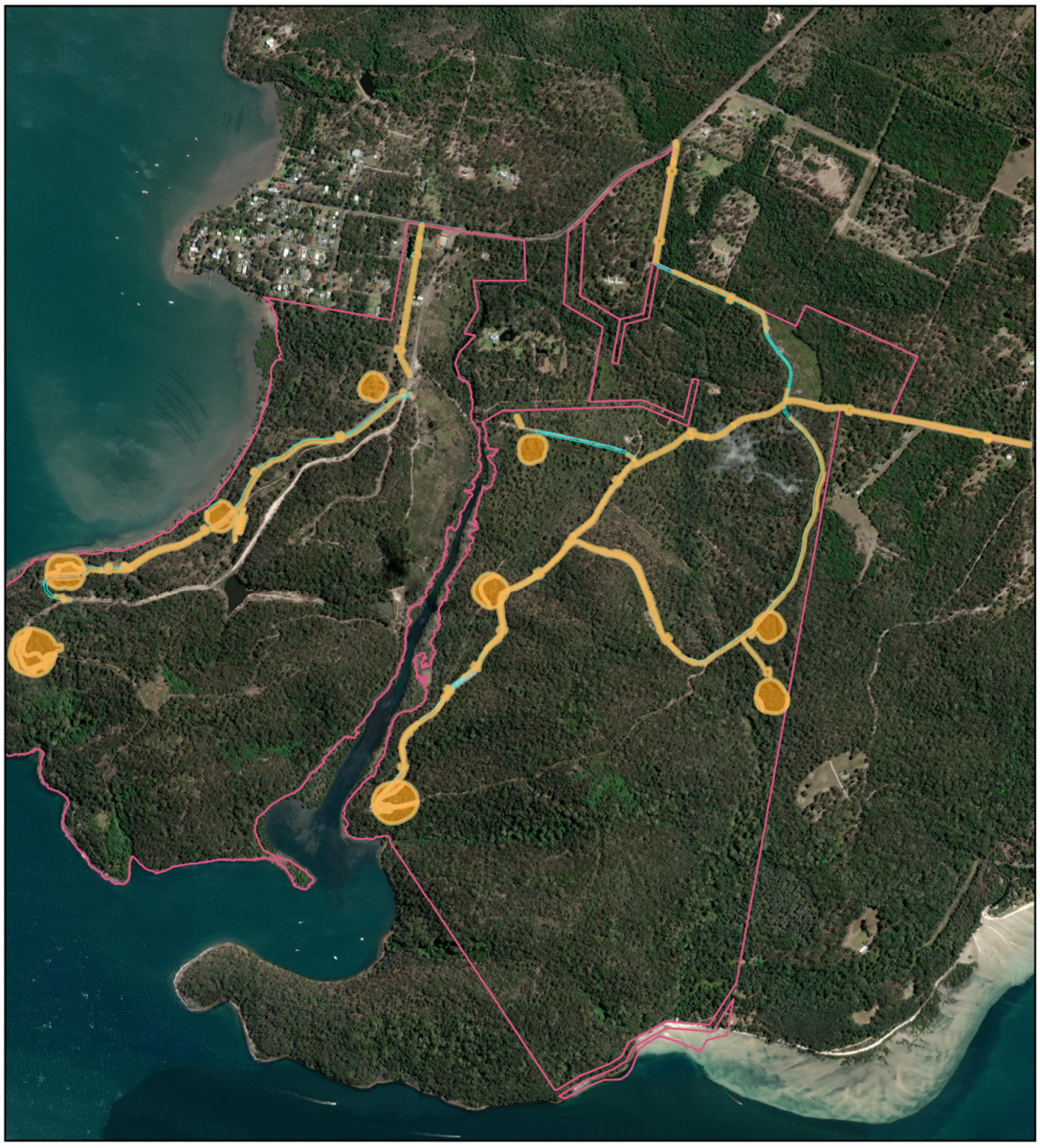
Figure 44 Candidate species credit species - *Notamacropus parma*

Data Sources: Cadastral &Topographical data - State Government of NSW and Spatial Services (DCS) 2023; Imagery - Google Maps Satellite
Map Produced by Somerville Ecology 2025

Figure 45 Candidate species credit species - *Pandion cristatus*

Figure 46 Candidate species credit species - *Petauroides volans*

Figure 47 Candidate species credit species - *Petaurus norfolcensis*



Data Sources: Cadastral &Topographical data - State Government of NSW and Spatial Services (DCS) 2023; Imagery - Google Maps Satellite
Map Produced by Somerville Ecology 2025

Figure 48 Candidate species credit species - *Phascogale tapoatafa*

Data Sources: Cadastral &Topographical data - State Government of NSW and Spatial Services (DCS) 2023; Imagery - Google Maps Satellite
Map Produced by Somerville Ecology 2025

Figure 49 Candidate species credit species - *Phascolarctos cinereus*

Data Sources: Cadastral &Topographical data - State Government of NSW and Spatial Services (DCS) 2023; Imagery - Google Maps Satellite
Map Produced by Somerville Ecology 2025

Figure 50 Candidate species credit species - *Planigale maculata*

Figure 51 Candidate species credit species - *Potorous tridactylus*

Figure 52 Candidate species credit species - *Pteropus poliocephalus*

Data Sources: Cadastral &Topographical data - State Government of NSW and Spatial Services (DCS) 2023; Imagery - Google Maps Satellite
Map Produced by Somerville Ecology 2025

Figure 53 Candidate species credit species - *Pterostylis chaetophora*

Data Sources: Cadastral &Topographical data - State Government of NSW and Spatial Services (DCS) 2023; Imagery - Google Maps Satellite
Map Produced by Somerville Ecology 2025

Figure 54 Candidate species credit species - *Rhizanthella slateri*

Data Sources: Cadastral &Topographical data - State Government of NSW and Spatial Services (DCS) 2023; Imagery - Google Maps Satellite
Map Produced by Somerville Ecology 2025

Figure 55 Candidate species credit species - *Solanum sulphureum*

Data Sources: Cadastral &Topographical data - State Government of NSW and Spatial Services (DCS) 2023; Imagery - Google Maps Satellite
Map Produced by Somerville Ecology 2025

Figure 56 Candidate species credit species - *Syzygium paniculatum*

Figure 57 Candidate species credit species - *Tetratheca juncea*

Data Sources: Cadastral &Topographical data - State Government of NSW and Spatial Services (DCS) 2023; Imagery - Google Maps Satellite
Map Produced by Somerville Ecology 2025

Figure 58 Candidate species credit species - *Thesium australe*

Data Sources: Cadastral &Topographical data - State Government of NSW and Spatial Services (DCS) 2023; Imagery - Google Maps Satellite
Map Produced by Somerville Ecology 2025

Figure 59 Candidate species credit species - *Turnix maculosus*

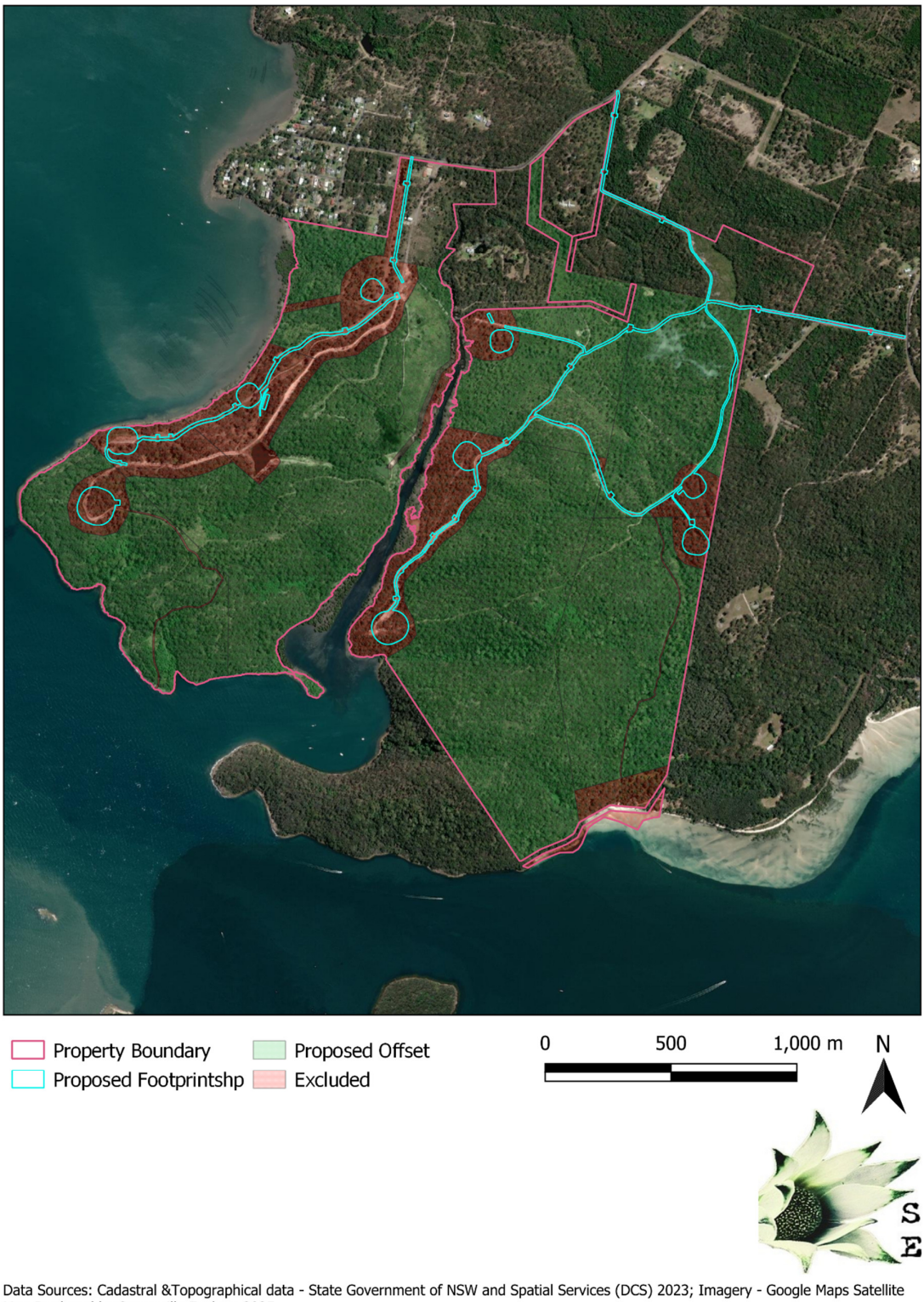
Figure 60 Candidate species credit species - *Tyto novaehollandiae*

Figure 61 Candidate species credit species – *Tyto tenebricosa*

Data Sources: Cadastral &Topographical data - State Government of NSW and Spatial Services (DCS) 2023; Imagery - Google Maps Satellite
Map Produced by Somerville Ecology 2025

Figure 62 Candidate species credit species - *Uperoleia mahonyi*

Figure 63 Proposed Biodiversity Offset Strategy



Appendix A: BDAR requirements compliance

Table 48 Assessment of compliance with BDAR minimum information requirements

BDAR section	BAM ref.	BAM requirement	Page reference(s) in the BDAR
Introduction	Chapters 2 and 3	**Information**	
		Introduction to the biodiversity assessment including:	–
		× brief description of the proposal	<**Error! Reference source not found.**>
		× identification of subject land boundary, including: × operational footprint × construction footprint indicating clearing associated with temporary/ancillary construction facilities and infrastructure	<**Error! Reference source not found.**>
		× general description of the subject land	<**Error! Reference source not found.**>
		× sources of information used in the assessment, including reports and spatial data	<**Error! Reference source not found.**>
		× identification and justification for entering the BOS	<**Error! Reference source not found.**>
		Maps and tables	
•		× Map of the subject land boundary showing the final proposal footprint, including the construction footprint for any clearing associated with temporary/ancillary construction facilities and infrastructure	<**Error! Reference source not found.**>

BDAR section	BAM ref.	BAM requirement	Page reference(s) in the BDAR
•			

BDAR section	BAM ref.	BAM requirement	Page reference(s) in the BDAR
Landscape	Sections 3.1 and 3.2, Appendix E	**Information**	
		Identification of site context components and landscape features, including:	–
		× general description of subject land topographic and hydrological setting, geology and soils	<**Error! Reference source not found.**>
		× per cent native vegetation cover in the assessment area (as described in BAM Section 3.2)	
		× IBRA bioregions and subregions (as described in BAM Subsection 3.1.3(2.))	<**Error! Reference source not found.**>
		× rivers and streams classified according to stream order (as described in BAM Subsection 3.1.3(3.) and Appendix E)	<**Error! Reference source not found.**>
		× wetlands within, adjacent to and downstream of the site (as described in BAM Subsection 3.1.3(3.))	<**Error! Reference source not found.**>
		× connectivity of different areas of habitat (as described in BAM Subsection 3.1.3(5–6.))	<**Error! Reference source not found.**>
		× karst, caves, crevices, cliffs, rocks and other geological features of significance and for vegetation clearing proposals, soil hazard features (as described in BAM Subsections 3.1.3(7.) and 3.1.3(12.))	<**Error! Reference source not found.**>
		× areas of outstanding biodiversity value occurring on the subject land and assessment area (as described in BAM Subsection 3.1.3(8–9.))	<**Error! Reference source not found.**>
		× any additional landscape features identified in any SEARs for the proposal	<**Error! Reference source not found.**>
		× NSW (Mitchell) landscape on which the subject land occurs	<**Error! Reference source not found.**>

BDAR section	BAM ref.	BAM requirement	Page reference(s) in the BDAR
		× details of field reconnaissance undertaken to confirm the extent and condition of landscape features and native vegetation cover (as described in Operational Manual Stage 1 Section 2.4)	<**Error! Reference source not found.**>
		Maps and tables	
		× Site Map × Property boundary × Boundary of subject land × Cadastre of subject land (including labelling of Lot and DP or section plan if relevant) × Landscape features identified in BAM Subsection 3.1.3	<**Error! Reference source not found.**>
		× Location Map × Digital aerial photography at 1:1,000 scale or finer × Boundary of subject land × Assessment area (i.e. the subject land and either 1500 m buffer area or 500 m buffer for linear development) × Landscape features identified in BAM Subsection 3.1.3 × Additional detail (e.g. local government area boundaries) relevant at this scale	<**Error! Reference source not found.**>
		Landscape features identified in BAM Subsection 3.1.3 and to be shown on the Site Map and/or Location Map include:	–
		× IBRA bioregions and subregions × rivers, streams and estuaries × wetlands and important wetlands × connectivity of different areas of habitat × karst, caves, crevices, cliffs, rocks and other geological features of significance and if required, soil hazard features × areas of outstanding biodiversity value occurring on the subject land and assessment area × any additional landscape features identified in any SEARs for the proposal × NSW (Mitchell) landscape on which the subject land occurs	<**Error! Reference source not found.** & **Error! Reference source not found.**>
		Data	
		× All report maps as separate jpeg files	–

BDAR section	BAM ref.	BAM requirement	Page reference(s) in the BDAR
		Individual digital shape files of:	–
		× subject land boundary	–
		× assessment area (i.e. subject land and 1500 m buffer area) boundary	–
		× cadastral boundary of subject land	–
		× areas of native vegetation cover	–
		× landscape features	–

BDAR section	BAM ref.	BAM requirement	Page reference(s) in the BDAR
Native vegetation	Chapter 4, Appendix A and Appendix H	**Information**	
		× Identify native vegetation extent within the subject land, including cleared areas and evidence to support differences between mapped vegetation extent and aerial imagery (as described in BAM Section 4.1(1–3.) and Subsection 4.1.1)	<**Error! Reference source not found.** & **Error! Reference source not found.**>
		× Provide justification for all parts of the subject land that do not contain native vegetation (as described in BAM Subsection 4.1.2)	<**Error! Reference source not found.**>
		× Review of existing information on native vegetation including references to previous vegetation maps of the subject land and assessment area (described in BAM Section 4.1(3.) and Subsection 4.1.1)	<**Error! Reference source not found.**>
		× Describe the systematic field-based floristic vegetation survey undertaken in accordance with BAM Section 4.2	<**Error! Reference source not found.**>
		× Where relevant, describe the use of more appropriate local data, provide reasons that support the use of more appropriate local data and include the written confirmation from the decision-maker that they support the use of more appropriate local data (as described in BAM Subsection 1.4.2 and Appendix A)	<Insert relevant reference & Appendix G>
		For each PCT within the subject land, describe:	–
		× PCT name and ID	<**Error! Reference source not found.** & **Error! Reference source not found.**>
		× vegetation class	<**Error! Reference source not found.**>

BDAR section	BAM ref.	BAM requirement	Page reference(s) in the BDAR
		× extent (ha) within subject land	<**Error! Reference source not found.**>
		× evidence used to identify a PCT including any analyses undertaken, references/sources, existing vegetation maps (BAM Section 4.2(1–3.))	<**Error! Reference source not found.**>
		× plant species relied upon for identification of the PCT and relative abundance of each species	<Insert relevant reference and Appendix G>
		× if relevant, TEC status including evidence used to determine vegetation is the TEC (BAM Subsection 4.2.2(1–2.))	<**Error! Reference source not found.** & **Error! Reference source not found.**>
		× estimate of per cent cleared value of PCT (BAM Subsection 4.2.1(5.))	<**Error! Reference source not found.**>
		Describe the vegetation integrity assessment of the subject land, including:	–
		× identification and mapping of vegetation zones (as described in BAM Subsection 4.3.1)	<**Error! Reference source not found.** & **Error! Reference source not found.**>
		× description of vegetation zones within the subject land (as described in Operational Manual Stage 1 Table 2 and Subsection 3.3.2)	<**Error! Reference source not found.** & **Error! Reference source not found.**>
		× area (ha) of each vegetation zone	<**Error! Reference source not found.**>

BDAR section	BAM ref.	BAM requirement	Page reference(s) in the BDAR
		× assessment of patch size (as described in BAM Subsection 4.3.2)	<**Error! Reference source not found.**>
		× survey effort (i.e. number of vegetation integrity survey plots) as described in BAM Subsection 4.3.4(1–2.)	<**Error! Reference source not found.**>
		× use of relevant benchmark data from BioNet Vegetation Classification (as described in BAM Subsection 4.3.3(5.))	<**Error! Reference source not found.**>
		Where use of more appropriate local benchmark data is proposed (as described in BAM Subsection 1.4.2, BAM Subsection 4.3.3(5.) and BAM Appendix A):	–
		× identify the PCT or vegetation class for which local benchmark data will be applied × identify published sources of local benchmark data (if benchmarks obtained from published sources) × describe methods of local benchmark data collection (if reference plots used to determine local benchmark data)	<**Error! Reference source not found.**>
		× provide justification for use of local data rather than BioNet Vegetation Classification benchmark values	<**Error! Reference source not found.**>
		× provide written confirmation from the decision-maker that they support the use of local benchmark data	<Appendix G>
		Maps and tables	
		× Map of native vegetation extent within the subject land at scale not greater than 1:10,000 including identification of all areas of native vegetation including areas that are ground cover only, cleared areas (as described in BAM Section 4.1(1–3.)) and all parts of the subject land that do not contain native vegetation (BAM Subsection 4.1.2)	<**Error! Reference source not found.**>
		× Map of PCTs within the subject land (as described in BAM Section 4.2(1.))	<**Error! Reference source not found.**>
		× Map of vegetation zones within the subject land (as described in BAM Subsection 4.3.1)	<**Error! Reference source not found.**>

BDAR section	BAM ref.	BAM requirement	Page reference(s) in the BDAR
		× Map the location of floristic vegetation survey plots and vegetation integrity survey plots relative to PCT boundaries	<**Error! Reference source not found.**>
		× Map of TEC distribution on the subject land and table of TEC listing, status and area (ha)	<**Error! Reference source not found.** & **Error! Reference source not found.**>
		× Map of patch size locations for each native vegetation zone and table of patch size areas (as described in BAM Subsection 4.3.2)	<**Error! Reference source not found.** & **Error! Reference source not found.**>
		Table of current vegetation integrity scores for each vegetation zone within the site and including:	–
		× composition condition score × structure condition score × function condition score × presence of hollow bearing trees	<**Error! Reference source not found.**>
		Data	
		× All report maps as separate jpeg files	–
		× Plot field data (MS Excel format)	
		× Plot field datasheets	<Appendix F>
		Digital shape files of:	–
		× PCT boundaries within subject land	–
		× TEC boundaries within subject land	–
		× vegetation zone boundaries within subject land	–
		× floristic vegetation survey and vegetation integrity plot locations	–
Threatened species	Chapter 5	**Information**	

BDAR section	BAM ref.	BAM requirement	Page reference(s) in the BDAR
		Identify ecosystem credit species likely to occur on the subject land, including:	–
		× list of ecosystem credit species derived from the BAM-C (as described in BAM Subsection 5.1.1 and Section 5.2(1.))	
		× justification and supporting evidence for exclusion of any ecosystem credit species based on geographic limitations, habitat constraints or vagrancy (as described in BAM Subsections 5.2.1 and 5.2.2)	<**Error! Reference source not found.**>
		× justification for addition of any ecosystem credit species to the list	<**Error! Reference source not found.**>
		Identify species credit species likely to occur on the subject land, including:	–
		× list of species credit species derived from the BAM-C (as described in BAM Subsection 5.1.1)	<**Error! Reference source not found.** & **Error! Reference source not found.**>
		× justification and supporting evidence for exclusions based on geographic limitations, habitat constraints or vagrancy (as described in BAM Subsections 5.2.1 and 5.2.2)	<**Error! Reference source not found.**>
		× justification and supporting evidence for exclusions based on degraded habitat constraints and/or microhabitats on which the species depends (as described in BAM Subsection 5.2.2)	<**Error! Reference source not found.**>
		× justification for addition of any species credit species to the list	<**Error! Reference source not found.**>
		From the list of candidate species credit species, identify:	–
		× species assumed present within the subject land (if relevant) (as described in BAM Subsection 5.2.4(2.a.)) × species present within the subject land on the basis of being identified on an important habitat map for a species (as described in BAM Subsection 5.2.4(2.d.)) × species for which targeted surveys are to be completed to determine species presence (BAM Subsection 5.2.4(2.b.))	<**Error! Reference source not found.** & **Error! Reference source not found.**>

BDAR section	BAM ref.	BAM requirement	Page reference(s) in the BDAR
		× species for which an expert report is to be used to determine species presence (BAM Subsection 5.2.4(2.c.))	
		Present the outcomes of species credit species assessments from:	–
		× threatened species survey (as described in BAM Section 5.2.4)	<**Error! Reference source not found.** & **Error! Reference source not found.**>
		× expert reports (if relevant) including justification for presence of the species and information used to make this determination (as described in BAM Subsection 5.2.4, Section 5.3, Box 3)	<**Error! Reference source not found.**>
		Where survey has been undertaken include detailed information on:	–
		× survey method and effort (as described in BAM Section 5.3)	<**Error! Reference source not found.** & **Error! Reference source not found.**>
		× justification of survey method and effort (e.g. citation of peer-reviewed literature) if approach differs from the department's taxa-specific survey guides or where no relevant guideline has been published	<**Error! Reference source not found.**>
		× timing of survey in relation to requirements in the TBDC or the department's taxa-specific survey guides. Where survey was undertaken outside these guides include justification for the timing of surveys	<**Error! Reference source not found.** & **Error! Reference source not found.** & **Error! Reference source not found.**>
		× survey personnel and relevant experience	<**Error! Reference source not found.** ii>

BDAR section	BAM ref.	BAM requirement	Page reference(s) in the BDAR
		× describe any limitations to surveys and how these were addressed/overcome	<**Error! Reference source not found.**>
		Where an expert report has been used in place of survey (as described in BAM Section 5.3, Box 3), include:	–
		× justification of the use of an expert report × identify the expert, provide evidence of their expert credentials and departmental approval of expert status × all requirements of Box 3 have been addressed in the expert report	<**Error! Reference source not found.**>
		Where use of local data is proposed (BAM Subsection 1.4.2):	–
		× identify relevant species × identify data to be amended × identify source of information for local data, e.g. published literature, additional survey data, etc. × justify use of local data in preference to VIS Classification or TBDC data	<**Error! Reference source not found.**>
		× provide written confirmation from the decision-maker that they support the use of local data	<Appendix G>
		Species polygon completed for species credit species present within the subject land (assumed present or determined on the basis of survey, expert report or important habitat map) ensuring that:	–
		× the unit of measure for each species is documented	<**Error! Reference source not found.** & **Error! Reference source not found.**>
		for species assessed by area:	–
		× the polygon includes the extent of suitable habitat for the target species within the subject land (as described in BAM Subsection 5.2.5)	<**Error! Reference source not found.**>
		× a description of, and evidence-based justification for, the habitat constraints, features or microhabitats used to map the species polygon including reference to information in the TBDC for that species and any buffers applied	<**Error! Reference source not found.**>
		for species assessed by counts of individuals:	–

BDAR section	BAM ref.	BAM requirement	Page reference(s) in the BDAR
		✕ the number of individual plants present on the subject land (as described in BAM Subsection 5.2.5(3.))	<**Error! Reference source not found.**>
		✕ the method used to derive this number (i.e. threatened species survey or expert report) and evidence-based justification for the approach taken	<**Error! Reference source not found.**>
		✕ the polygon includes all individuals located on the subject land with a buffer of 30 m around the individuals or groups of individuals on the subject land	<**Error! Reference source not found.**>
		✕ Identify the biodiversity risk weighting for each species credit species identified as present within the subject land (as described in BAM Section 5.4)	<**Error! Reference source not found.** & **Error! Reference source not found.**>
		Maps and tables	
		✕ Table showing ecosystem credit species in accordance with BAM Subsection 5.1.1, and identifying:	
		✕ the ecosystem credit species removed from the list	<**Error! Reference source not found.**>
		✕ the sensitivity to gain class of each species	<**Error! Reference source not found.**>
		✕ Table detailing species credit species in accordance with BAM Section 5.2 and identifying:	<**Error! Reference source not found.** & **Error! Reference source not found.**>
		✕ the species credit species removed from the list of species because the species is considered vagrant, out of geographic range or the habitat or microhabitat features are not present	<**Error! Reference source not found.** & **Error! Reference**

BDAR section	BAM ref.	BAM requirement	Page reference(s) in the BDAR
			source not found.>
		× the candidate species credit species not recorded on the subject land as determined by targeted survey, expert report or important habitat map	<**Error! Reference source not found.** & **Error! Reference source not found.**>
		× Table detailing species credit species recorded or assumed as present within the subject land, habitat constraints or microhabitats associated with the species, counts of individuals (flora)/extent of suitable habitat (flora and fauna) (as described in BAM Subsection 5.2.6) and biodiversity risk weighting (BAM Section 5.4)	<**Error! Reference source not found.** & **Error! Reference source not found.** & **Error! Reference source not found.**>
		× Map indicating the GPS coordinates of all individuals of each species recorded within the subject land and the species polygon for each species (as described in BAM Subsection 5.2.5)	<**Error! Reference source not found.**>
		Data	
		× Digital shape files of suitable habitat identified for survey for each candidate species credit species	–
		× Survey locations including GPS coordinates of any plots, transects, grids	
		× Digital shape files of each species polygon including GPS coordinates of located individuals	–
		× Species polygon map in jpeg format	–
		× Expert reports and any supporting data used to support conclusions of the expert report	
		× Field datasheets detailing survey information including prevailing conditions, date, time, equipment used, etc.	

BDAR section	BAM ref.	BAM requirement	Page reference(s) in the BDAR
Prescribed impacts	Chapter 6	**Information**	
		Identify potential prescribed biodiversity impacts on threatened entities, including:	–
		× karst, caves, crevices, cliffs, rocks and other geological features of significance (as described in BAM Subsection 6.1.1) × occurrences of human-made structures and non-native vegetation (as described in BAM Subsection 6.1.2) × corridors or other areas of connectivity linking habitat for threatened entities (as described in BAM Subsection 6.1.3) × waterbodies or any hydrological processes that sustain threatened entities (as described in BAM Subsection 6.1.4)	<**Error! Reference source not found.**>
		× protected animals that may use the proposed wind farm development site as a flyway or migration route (as described in BAM Subsection 6.1.5)	<**Error! Reference source not found.**>
		× where the proposed development may result in vehicle strike on threatened fauna or on animals that are part of a threatened ecological community (as described in BAM Subsection 6.1.6)	<**Error! Reference source not found.**>
		× Identify a list of threatened entities that may be dependent upon or may use habitat features associated with any of the prescribed impacts	
		× Describe the importance of habitat features to the species including, where relevant, impacts on life cycle or movement patterns (e.g. Subsection 6.1.3)	<6>
		Where the proposed development is for a wind farm:	–
		× identify a candidate list of protected animals that may use the development site as a flyway or migration route, including: resident threatened aerial species, resident raptor species and nomadic and migratory species that are likely to fly over the proposal area (as described in BAM Subsection 6.1.5)	<**Error! Reference source not found.**>
		× provide details of targeted survey for candidate species of wind farm developments undertaken in accordance with BAM Subsection 6.1.5(2–3.)	<**Error! Reference source not found.**>
		× predict the habitual flight paths for nomadic and migratory species likely to fly over the subject land and map the likely habitat for resident threatened aerial and raptor species (BAM Subsection 6.1.5(4.))	<**Error! Reference source not found.** & **Error! Reference**

BDAR section	BAM ref.	BAM requirement	Page reference(s) in the BDAR
			source not found.>

BDAR section	BAM ref.	BAM requirement	Page reference(s) in the BDAR
		Where the proposal may result in vehicle strike:	–
		× identify a list of threatened fauna or protected fauna species that are part of a TEC and at risk of vehicle strike due to the proposal	<**Error! Reference source not found.**>
		Maps and tables	
		× Map showing location of any prescribed impact features (i.e. karst, caves, crevices, cliffs, rocks, human-made structures, etc.)	<**Error! Reference source not found.** & **Error! Reference source not found.**>
		× Map showing location of potential vehicle strike locations	<**Error! Reference source not found.**>
		× Maps of habitual flight paths for nomadic and migratory species likely to fly over the site and maps of likely habitat for threatened aerial species resident on the site (for wind farm developments only)	<**Error! Reference source not found.** & **Error! Reference source not found.**>
		Data	
		× Digital shape files of prescribed impact feature locations	–
		× Prescribed impact features map in jpeg format	–
Avoid and minimise impacts	Chapter 7	**Information**	
		Demonstration of efforts to avoid and minimise impacts on biodiversity values (including prescribed impacts) associated with the proposal location in accordance with Chapter 7, including an analysis of alternative:	–
		× modes or technologies that would avoid or minimise impacts on biodiversity values and justification for selecting the proposed mode or technology	<**Error! Reference source not found.** & **Error! Reference**

BDAR section	BAM ref.	BAM requirement	Page reference(s) in the BDAR
			source not found.>
		× routes that would avoid or minimise impacts on biodiversity values and justification for selecting the proposed route	<**Error! Reference source not found.** & **Error! Reference source not found.**>
		× alternative locations that would avoid or minimise impacts on biodiversity values and justification for selecting the proposed location	<**Error! Reference source not found.** & **Error! Reference source not found.**>
		× alternative sites within a property on which the proposal is located that would avoid or minimise impacts on biodiversity values and justification for selecting the proposed site	<**Error! Reference source not found.** & **Error! Reference source not found.**>
		× Describe efforts to avoid and minimise impacts (including prescribed impacts) to biodiversity values through proposal design (as described in BAM Sections 7.1 and 7.2)	<**Error! Reference source not found.** & **Error! Reference source not found.**>
		× Identification of any other site constraints that the proponent has considered in determining the location and design of the proposal (as described in BAM Subsection 7.2.1(3.))	<**Error! Reference source not found.**>
		× Detail measures or options considered but not implemented because they are not feasible and/or practical (e.g. due to site constraints)	<**Error! Reference source not found.**>
		Maps and tables	

BDAR section	BAM ref.	BAM requirement	Page reference(s) in the BDAR
		× Table of measures to be implemented to avoid and minimise the impacts of the proposal, including action, outcome, timing and responsibility	<**Error! Reference source not found.**>
		× Map of alternative footprints considered to avoid or minimise impacts on biodiversity values; and of the final proposal footprint, including construction and operation	<**Error! Reference source not found.**>
		× Maps demonstrating indirect impact zones where applicable	<**Error! Reference source not found.**>
		Data	
		Digital shape files of:	–
		× alternative and final proposal footprint	–
		× direct and indirect impact zones	–
		× Maps in jpeg format	–
Assessment of impacts	Chapter 8, Sections 8.1 and 8.2	**Information**	
		× Determine the impacts on native vegetation and threatened species habitat, including a description of direct impacts of clearing of native vegetation, threatened ecological communities and threatened species habitat (as described in BAM Section 8.1)	<**Error! Reference source not found.**>
		Assessment of indirect impacts on vegetation and threatened species and their habitat including (as described in BAM Section 8.2):	–
		× description of the nature, extent, frequency, duration and timing of indirect impacts of the proposal	<**Error! Reference source not found.**>
		× documenting the consequences to vegetation and threatened species and their habitat including evidence-based justifications	<**Error! Reference source not found.**>
		× reporting any limitations or assumptions, etc. made during the assessment	<**Error! Reference source not found.**>

BDAR section	BAM ref.	BAM requirement	Page reference(s) in the BDAR
		× identification of the threatened entities and their habitat likely to be affected	<**Error! Reference source not found.**>
		Assessment of prescribed biodiversity impacts (as described in BAM Section 8.3) including:	–
		assessment of the nature, extent frequency, duration and timing of impacts on the habitat of threatened species or ecological communities associated with:	–
		× karst, caves, crevices, cliffs, rocks and other features of geological significance	<**Error! Reference source not found.**>
		× human-made structures	<**Error! Reference source not found.**>
		× non-native vegetation	<**Error! Reference source not found.**>
		× connectivity of different areas of habitat of threatened species that facilitates the movement of those species across their range	<**Error! Reference source not found.**>
		× movement of threatened species that maintains their life cycle	<**Error! Reference source not found.**>
		× water quality, waterbodies and hydrological processes that sustain threatened species and threatened ecological communities	<**Error! Reference source not found.**>
		× assessment of the impacts of wind turbine strikes on protected animals	<**Error! Reference source not found.**>
		× assessment of the impacts of vehicle strikes on threatened species of animals or on animals that are part of a TEC	<**Error! Reference source not found.**>
		× evaluate the consequences of prescribed impacts	<**Error! Reference source not found.**>

BDAR section	BAM ref.	BAM requirement	Page reference(s) in the BDAR
		× describe impacts that are uncertain	<**Error! Reference source not found.** & **Error! Reference source not found.**>
		× document limitations to data, assumptions and predictions	<**Error! Reference source not found.** & **Error! Reference source not found.**>
		Maps and tables	
		× Table showing change in vegetation integrity score for each vegetation zone as a result of identified impacts	<**Error! Reference source not found.**>
		Data	
		N/A	–
Mitigation and management of impacts	Chapter 8, Sections 8.4 and 8.5	**Information**	
		Identification of measures to mitigate or manage impacts in accordance with the recommendations in BAM Sections 8.4 and 8.5 including:	–
		× techniques, timing, frequency and responsibility × identify measures for which there is risk of failure × evaluate the risk and consequence of any residual impacts	<**Error! Reference source not found.**>
		× document any adaptive management strategy proposed	<**Error! Reference source not found.**>
		Identification of measures for mitigating impacts related to:	–
		× displacement of resident fauna (as described in BAM Subsection 8.4.1(2.)) × indirect impacts on native vegetation and habitat (as described in BAM Subsection 8.4.1(3.))	<**Error! Reference source not found.**>

BDAR section	BAM ref.	BAM requirement	Page reference(s) in the BDAR
		× mitigating prescribed biodiversity impacts (as described in BAM Subsection 8.4.2)	
		× Details of the adaptive management strategy proposed to monitor and respond to impacts on biodiversity values that are uncertain (BAM Section 8.5)	<**Error! Reference source not found.**>
		Maps and tables	
		× Table of measures to be implemented before, during and after construction to mitigate and manage impacts of the proposal, including action, outcome, timing and responsibility	<**Error! Reference source not found.**>
		Data	
		N/A	–
Impact summary	Chapter 9	**Information**	
		Identification and assessment of impacts on TECs and threatened species that are at risk of a serious and irreversible impacts (SAII, in accordance with BAM Section 9.1) including:	–
		× addressing all criteria in Subsection 9.1.1 for each TEC listed as at risk of an SAII present on the subject land	<**Error! Reference source not found.** & **Error! Reference source not found.**>
		× for each TEC, report the extent of the TEC in NSW	<**Error! Reference source not found.**>
		× addressing all criteria in Subsection 9.1.2 for each threatened species at risk of an SAII present on the subject land	<**Error! Reference source not found.** & **Error! Reference source not found.**>
		× for each threatened species, report the population size in NSW	<**Error! Reference source not found.**>

BDAR section	BAM ref.	BAM requirement	Page reference(s) in the BDAR
		× documenting assumptions made and/or limitations to information × documenting all sources of data, information, references used or consulted × clearly justifying why any criteria could not be addressed	<**Error! Reference source not found.**–**Error! Reference source not found.**>
		× Identification of impacts requiring offset in accordance with BAM Section 9.2	<**Error! Reference source not found.** & **Error! Reference source not found.**>
		× Identification of impacts not requiring offset in accordance with BAM Subsection 9.2.1(3.)	<**Error! Reference source not found.**>
		× Identification of areas not requiring assessment in accordance with BAM Section 9.3	<**Error! Reference source not found.**>
		Maps and tables	
		× Map showing the extent of TECs at risk of an SAII within the subject land	<**Error! Reference source not found.**>
		× Map showing location of threatened species at risk of an SAII within the subject land	<**Error! Reference source not found.**>
		Map showing location of:	–
		× impacts requiring offset	<**Error! Reference source not found.**>
		× impacts not requiring offset	<**Error! Reference source not found.**>
		× areas not requiring assessment	<**Error! Reference source not found.**>

BDAR section	BAM ref.	BAM requirement	Page reference(s) in the BDAR
		Data	
		Digital shape files of:	–
		× extent of TECs at risk of an SAII within the subject land	–
		× location of threatened species at risk of an SAII within the subject land	–
		× boundary of impacts requiring offset	–
		× boundary of impacts not requiring offset	–
		× boundary of areas not requiring assessment	–
		× Maps in jpeg format	–
Impact summary	Chapter 10	**Information**	
		Ecosystem credits and species credits that measure the impact of the development on biodiversity values, including:	–
		× future vegetation integrity score for each vegetation zone within the subject land (Equation 25 and Equation 26 in BAM Appendix H) × change in vegetation integrity score (BAM Subsection 8.1.1) × number of required ecosystem credits for the direct impacts of the proposal on each vegetation zone within the subject land (BAM Subsection 10.1.2)	<**Error! Reference source not found.**>
		× biodiversity risk weighting for each	<**Error! Reference source not found.** & **Error! Reference source not found.**>
		× number of required species credits for each candidate threatened species that is directly impacted on by the proposal (BAM Subsection 10.1.3)	<**Error! Reference source not found.**>
		Maps and tables	
		× Table of PCTs requiring offset and the number of ecosystem credits required	<**Error! Reference source not found.**>

BDAR section	BAM ref.	BAM requirement	Page reference(s) in the BDAR
		× Table of threatened species requiring offset and the number of species credits required	<**Error! Reference source not found.**>
		Data	
		× Submitted proposal in the BAM Calculator	–
Biodiversity credit report	Chapter 10	**Information**	
		× Description of credit classes for ecosystem credits and species credits at the development or clearing site or land to be biodiversity certified (BAM Section 10.2)	<**Error! Reference source not found.** & **Error! Reference source not found.**>
		× BAM credit report in pdf format	<Appendix H>
		Maps and tables	
		× Table of credit class and matching credit profile	<**Error! Reference source not found.**>
		Data	
		× BAM credit report in pdf format	<Appendix H>

Appendix B: Vegetation survey data

Table 49 Vegetation survey data and locations

plot	pct	area	patchsize	condition class	zone	easting	northing	bearing	compTree	compShrub	compGrass	compForbs	compFerns	compOther	strucTree	strucShrub	strucGrass	strucForbs	strucFerns	strucOther	funLargeTrees	funHollowtrees	funLitterCover	funLenFallenLogs	funTreeStem5to9	funTreeStem10to19	funTreeStem20to29	funTreeStem30to49	funTreeStem50to79	funTreeRegen	funHighThreatExotic	Plot-based vegetation survey2	Vegetation integrity survey2
BUBP2004	3241	0.3	1000	GOOD	56	413597	6385001	63	5	8	15	10	1	4	7.9	8.5	15.6	0.6	0.1	0.4	1	0	27.0	50.0	1	1	1	1	1	1	0.2	Yes	Yes
BUBP2006	3241	0.9	1000	MOD	56	413314	6384267	137	5	9	13	7	0	4	7.3	6.5	10.2	1.1	0.0	0.5	0	0	12.8	180.0	1	1	1	1	0	1	0.4	Yes	Yes
BUBP0005	3250	2.1	1000	GOOD	56	413642	6384086	158	6	11	13	10	1	9	31.7	6.9	26.0	0.9	0.1	1.6	1	0	43.0	50.0	1	1	1	1	1	1	0.1	Yes	Yes
BUBP0003	3250	2.1	1000	GOOD	56	412455	6383751	49	3	10	9	9	1	9	30.0	2.5	21.6	1.1	0.8	2.4	1	2	57.0	35.0	1	1	1	1	0	1	0.1	Yes	Yes
BUBP2007	3250	0.5	1000	POOR	56	412383	6383732	123	3	7	8	3	1	4	4.6	16.2	3.4	0.3	0.2	0.5	0	0	24.0	10.0	1	1	1	1	0	1	0.7	Yes	Yes
BUBP0017	3437	3.2	1000	GOOD	56	413640	6384306	142	5	10	11	7	1	5	30.4	6.8	16.9	0.8	0.1	0.3	1	0	55.0	30.0	1	1	1	1	1	1	0.0	Yes	Yes
BUBP2011	3437	3.2	1000	GOOD	56	412760	6384426	195	5	8	15	5	0	2	38.0	7.9	31.5	0.4	0.0	0.1	1	1	54.0	16.0	1	1	1	1	1	1	0.0	Yes	Yes
BUBP2001	3437	2.4	1000	MOD	56	411857	6384655	70	4	8	13	11	1	4	6.0	27.0	35.0	1.5	0.1	0.7	0	0	12.0	36.0	1	1	1	1	0	1	0.3	Yes	Yes
BUBP2009	3437	2.4	1000	MOD	56	413880	6385020	66	6	12	12	10	0	4	6.7	4.6	5.2	1.3	0.0	0.4	0	0	33.0	45.0	1	1	1	1	0	1	30.0	Yes	Yes
BUBP0004	3437	1.5	1000	POOR	56	411246	6384177	71	3	15	7	10	1	8	2.4	15.3	7.4	1.0	0.1	1.5	0	0	49.0	60.0	1	1	1	1	0	1	0.7	Yes	Yes
BUBP2002	3581	0.3	1000	MOD	56	413307	6385701	182	3	11	9	8	1	5	25.2	32.6	5.0	1.5	0.1	1.1	0	0	41.0	0.0	1	1	1	1	0	1	2.0	Yes	Yes
BUBP0011	3583	1.1	1000	GOOD	56	412875	6384867	97	3	16	13	8	2	4	25.4	18.2	34.2	0.7	0.2	0.2	2	4	42.0	15.0	1	1	1	1	1	1	0.0	Yes	Yes
BUBP2005	3583	0.5	1000	MOD	56	413484	6384916	233	3	13	12	4	1	3	5.2	13.1	48.1	0.5	0.2	0.5	0	0	20.0	51.0	1	1	1	1	0	1	0.0	Yes	Yes
BUBP0007	3583	0.8	1000	POOR	56	412352	6385063	9	3	5	10	7	0	1	13.0	1.6	9.8	0.5	0.0	1.0	1	1	30.0	0.0	1	1	1	1	0	1	1.8	Yes	Yes
BUBP2003	3250	0.1	1000	DNG	56	413695	6384062	170	2	7	13	8	1	3	0.8	6.3	21.4	0.8	0.2	0.3	0	0	18.0	0.0	1	1	1	1	0	1	0.0	Yes	Yes

plot	pct	area	patchsize	condition class	zone	easting	northing	bearing	compTree	compShrub	compGrass	compForbs	compFerns	compOther	strucTree	strucShrub	strucGrass	strucForbs	strucFerns	strucOther	funLargeTrees	funHollowtrees	funLitterCover	funLenFallenLogs	funTreeStem5to9	funTreeStem10to19	funTreeStem20to29	funTreeStem30to49	funTreeStem50to79	funTreeRegen	funHighThreatExotic	Plot-based vegetation survey?	Vegetation integrity survey?
BUBP2000	4038	0.1	1000	GOOD	56	411831	6384685	18	5	5	6	3	0	2	4.2	50.2	2.1	0.2	0.0	0.4	0	0	47.0	65.0	1	1	1	1	0	1	0.0	Yes	Yes

Appendix C: Credit reports

BAM Biodiversity Credit Report (Variations)

Proposal Details

Assessment Id

00052993/BAAS18098/24/00052994

Proposal Name

Bundabah

BAM data last updated *

28/10/2024

Assessor Name

Michael Somerville

Assessor Number

BAAS18098

BAM Data version *

Current classification (live - default) (80)

Proponent Name(s)

Report Created

23/06/2025

BAM Case Status

Finalised

Assessment Revision

2

BOS entry trigger

BOS Threshold: Biodiversity Values Map

Assessment Type

Part 4 Developments (General)

Date Finalised

23/06/2025

* 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		
Esacus magnirostris / Beach Stone-curlew		
Diuris flavescens / Pale Yellow Doubletail		
Miniopterus australis / Little Bent-winged Bat		
Miniopterus orianae oceanensis / Large Bent-winged Bat		
Mixophyes balbus / Stuttering Frog		
Rhizanthella slateri - endangered population / Rhizanthella slateri (Rupp) M.A. Clem. & Cribb in the Great Lakes local government area		

Rhizanthella slateri / Eastern Australian Underground Orchid
Calidris ferruginea / Curlew Sandpiper
Numenius madagascariensis / Eastern Curlew

Additional Information for Approval

PCT Outside Ibra Added

None added

PCTs With Customized Benchmarks

PCT
No Changes

Predicted Threatened Species Not On Site

Name
No Changes

Ecosystem Credit Summary (Number and class of biodiversity credits to be retired)

Name of Plant Community Type/ID	Name of threatened ecological community	Area of impact	HBT Cr	No HBT Cr	Total credits to be retired
3241-Lower North White Mahogany-Spotted Gum Moist Forest	Not a TEC	1.2	0	14	14.00
3250-Northern Foothills Blackbutt Grassy Forest	Not a TEC	2.7	50	6	56.00
3437-Hunter Coast Lowland Spotted Gum Dry Forest	Not a TEC	7.1	76	69	145.00
3581-Hunter Coast Foothills Apple Forest	Not a TEC	0.3	0	6	6.00
3583-Hunter Coast Lowland Scribbly Gum Forest	Not a TEC	2.4	38	11	49.00

4038-Hunter Estuarine Melaleuca nodosa Scrub	Swamp Oak Floodplain Forest of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions	0.1	0	2	2.00

3241-Lower North White Mahogany-Spotted Gum Moist Forest

Like-for-like credit retirement options

Class	Trading group	Zone	HBT	Credits	IBRA region
Northern Hinterland Wet Sclerophyll Forests This includes PCT's: 3063, 3069, 3094, 3115, 3144, 3152, 3155, 3167, 3170, 3179, 3230, 3231, 3232, 3233, 3234, 3235, 3236, 3237, 3238, 3239, 3240, 3241, 3242, 3243, 3244, 3245, 3246, 3247, 3248, 3249, 3250, 3251, 3252, 3253, 3254, 3255, 3256, 3257, 3258, 3259, 3260, 3261, 3262, 3263, 3264, 3285, 4109	Northern Hinterland Wet Sclerophyll Forests <50%	3241_GOOD	No	5	Karuah Manning,Hunter, Macleay Hastings, Mummel Escarpment and Upper Hunter. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	Northern Hinterland Wet Sclerophyll Forests This includes PCT's: 3063, 3069, 3094, 3115, 3144, 3152, 3155, 3167, 3170, 3179, 3230, 3231, 3232, 3233, 3234, 3235, 3236, 3237, 3238, 3239, 3240, 3241, 3242, 3243, 3244, 3245, 3246, 3247, 3248, 3249, 3250, 3251, 3252, 3253, 3254, 3255, 3256, 3257, 3258, 3259, 3260, 3261, 3262, 3263, 3264, 3285, 4109	Northern Hinterland Wet Sclerophyll Forests <50%	3241_MOD	No	9	Karuah Manning,Hunter, Macleay Hastings, Mummel Escarpment and Upper Hunter. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
	Variation options					
	Formation	Trading group	Zone	HBT	Credits	IBRA region
	Wet Sclerophyll Forests (Grassy sub-formation)	Tier 4 or higher threat status	3241_GOOD	No	5	IBRA Region: NSW North Coast, or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
	Wet Sclerophyll Forests (Grassy sub-formation)	Tier 4 or higher threat status	3241_MOD	No	9	IBRA Region: NSW North Coast, or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
3250-Northern Foothills Blackbutt Grassy Forest	**Like-for-like credit retirement options**					
	Class	Trading group	Zone	HBT	Credits	IBRA region

Northern Hinterland Wet Sclerophyll Forests This includes PCT's: 3063, 3069, 3094, 3115, 3144, 3152, 3155, 3167, 3170, 3179, 3230, 3231, 3232, 3233, 3234, 3235, 3236, 3237, 3238, 3239, 3240, 3241, 3242, 3243, 3244, 3245, 3246, 3247, 3248, 3249, 3250, 3251, 3252, 3253, 3254, 3255, 3256, 3257, 3258, 3259, 3260, 3261, 3262, 3263, 3264, 3285, 4109	Northern Hinterland Wet Sclerophyll Forests <50%	3250_GOOD	Yes	50	Karuah Manning,Hunter, Macleay Hastings, Mummel Escarpment and Upper Hunter. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Northern Hinterland Wet Sclerophyll Forests This includes PCT's: 3063, 3069, 3094, 3115, 3144, 3152, 3155, 3167, 3170, 3179, 3230, 3231, 3232, 3233, 3234, 3235, 3236, 3237, 3238, 3239, 3240, 3241, 3242, 3243, 3244, 3245, 3246, 3247, 3248, 3249, 3250, 3251, 3252, 3253, 3254, 3255, 3256, 3257, 3258, 3259, 3260, 3261, 3262, 3263, 3264, 3285, 4109	Northern Hinterland Wet Sclerophyll Forests <50%	3250_POOR	No	5	Karuah Manning,Hunter, Macleay Hastings, Mummel Escarpment and Upper Hunter. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

Northern Hinterland Wet Sclerophyll Forests This includes PCT's: 3063, 3069, 3094, 3115, 3144, 3152, 3155, 3167, 3170, 3179, 3230, 3231, 3232, 3233, 3234, 3235, 3236, 3237, 3238, 3239, 3240, 3241, 3242, 3243, 3244, 3245, 3246, 3247, 3248, 3249, 3250, 3251, 3252, 3253, 3254, 3255, 3256, 3257, 3258, 3259, 3260, 3261, 3262, 3263, 3264, 3285, 4109	Northern Hinterland Wet Sclerophyll Forests <50%	3250_DNG	No	1	Karuah Manning,Hunter, Macleay Hastings, Mummel Escarpment and Upper Hunter. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

Variation options

Formation	Trading group	Zone	HBT	Credits	IBRA region
Wet Sclerophyll Forests (Grassy sub-formation)	Tier 4 or higher threat status	3250_GOOD	Yes (including artificial)	50	IBRA Region: NSW North Coast, or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Wet Sclerophyll Forests (Grassy sub-formation)	Tier 4 or higher threat status	3250_POOR	No	5	IBRA Region: NSW North Coast, or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	Wet Sclerophyll Forests (Grassy sub-formation)	Tier 4 or higher threat status	3250_DNG	No	1	IBRA Region: NSW North Coast, or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
3437-Hunter Coast Lowland Spotted Gum Dry Forest	**Like-for-like credit retirement options**					
	Class	Trading group	Zone	HBT	Credits	IBRA region
	Hunter-Macleay Dry Sclerophyll Forests This includes PCT's: 1608, 3431, 3433, 3436, 3437, 3439, 3442, 3444, 3446	Hunter-Macleay Dry Sclerophyll Forests >=50% and <70%	3437_GOOD	Yes	76	Karuah Manning,Hunter, Macleay Hastings, Mummel Escarpment and Upper Hunter. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
	Hunter-Macleay Dry Sclerophyll Forests This includes PCT's: 1608, 3431, 3433, 3436, 3437, 3439, 3442, 3444, 3446	Hunter-Macleay Dry Sclerophyll Forests >=50% and <70%	3437_MOD	No	44	Karuah Manning,Hunter, Macleay Hastings, Mummel Escarpment and Upper Hunter. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
	Hunter-Macleay Dry Sclerophyll Forests This includes PCT's: 1608, 3431, 3433, 3436, 3437, 3439, 3442, 3444, 3446	Hunter-Macleay Dry Sclerophyll Forests >=50% and <70%	3437_POOR	No	25	Karuah Manning,Hunter, Macleay Hastings, Mummel Escarpment and Upper Hunter. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
	Variation options					

	Formation	Trading group	Zone	HBT	Credits	IBRA region
	Dry Sclerophyll Forests (Shrub/grass sub-formation)	Tier 3 or higher threat status	3437_GOOD	Yes (including artificial)	76	IBRA Region: NSW North Coast, or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
	Dry Sclerophyll Forests (Shrub/grass sub-formation)	Tier 3 or higher threat status	3437_MOD	No	44	IBRA Region: NSW North Coast, or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
	Dry Sclerophyll Forests (Shrub/grass sub-formation)	Tier 3 or higher threat status	3437_POOR	No	25	IBRA Region: NSW North Coast, or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
3581-Hunter Coast Foothills Apple Forest	**Like-for-like credit retirement options**					
	Class	Trading group	Zone	HBT	Credits	IBRA region
	Sydney Coastal Dry Sclerophyll Forests This includes PCT's: 1681, 3578, 3579, 3580, 3581, 3582, 3583, 3584, 3585, 3586, 3587, 3588, 3589, 3590, 3591, 3592, 3593, 3594, 3595, 3596, 3597, 3598	Sydney Coastal Dry Sclerophyll Forests <50%	3581_MOD	No	6	Karuah Manning,Hunter, Macleay Hastings, Mummel Escarpment and Upper Hunter. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
	Variation options					
	Formation	Trading group	Zone	HBT	Credits	IBRA region

	Dry Sclerophyll Forests (Shrubby sub-formation)	Tier 4 or higher threat status	3581_MOD	No	6	IBRA Region: NSW North Coast, or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
3583-Hunter Coast Lowland Scribbly Gum Forest	**Like-for-like credit retirement options**					
	Class	Trading group	Zone	HBT	Credits	IBRA region
	Sydney Coastal Dry Sclerophyll Forests This includes PCT's: 3583, 3592, 3594	Sydney Coastal Dry Sclerophyll Forests >=50% and <70%	3583_GOOD	Yes	30	Karuah Manning,Hunter, Macleay Hastings, Mummel Escarpment and Upper Hunter. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
	Sydney Coastal Dry Sclerophyll Forests This includes PCT's: 3583, 3592, 3594	Sydney Coastal Dry Sclerophyll Forests >=50% and <70%	3583_MOD	No	11	Karuah Manning,Hunter, Macleay Hastings, Mummel Escarpment and Upper Hunter. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
	Sydney Coastal Dry Sclerophyll Forests This includes PCT's: 3583, 3592, 3594	Sydney Coastal Dry Sclerophyll Forests >=50% and <70%	3583_POOR	Yes	8	Karuah Manning,Hunter, Macleay Hastings, Mummel Escarpment and Upper Hunter. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
	Variation options					

	Formation	Trading group	Zone	HBT	Credits	IBRA region
	Dry Sclerophyll Forests (Shrubby sub-formation)	Tier 3 or higher threat status	3583_GOOD	Yes (including artificial)	30	IBRA Region: NSW North Coast, or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
	Dry Sclerophyll Forests (Shrubby sub-formation)	Tier 3 or higher threat status	3583_MOD	No	11	IBRA Region: NSW North Coast, or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
	Dry Sclerophyll Forests (Shrubby sub-formation)	Tier 3 or higher threat status	3583_POOR	Yes (including artificial)	8	IBRA Region: NSW North Coast, or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
4038-Hunter Estuarine Melaleuca nodosa Scrub	**Like-for-like credit retirement options**					
	Class	Trading group	Zone	HBT	Credits	IBRA region
	Swamp Oak Floodplain Forest of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions This includes PCT's: 1731, 3962, 3963, 3985, 3987, 3993, 4016, 4023, 4026, 4027, 4028, 4030, 4035, 4038, 4040, 4048, 4049, 4050, 4056	-	4038_GOOD	No	2	Karuah Manning,Hunter, Macleay Hastings, Mummel Escarpment and Upper Hunter. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

BAM Biodiversity Credit Report (Variations)

4038-Hunter Estuarine Melaleuca nodosa Scrub	Variation options					
	Formation	Trading group	Zone	HBT	Credits	IBRA region
	Forested Wetlands	Tier 3 or higher threat status	4038_GOOD	No	2	IBRA Region: NSW North Coast, or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

Species Credit Summary

Species	Vegetation Zone/s	Area / Count	Credits
Angophora inopina / Charmhaven Apple	**3583_GOOD, 3583_MOD, 3581_MOD, 3583_POOR**	2.6	63.00
Asperula asthenes / Trailing Woodruff	**3241_GOOD, 3250_GOOD, 3241_MOD, 3250_POOR**	2.8	61.00
Burhinus grallarius / Bush Stone-curlew	**3250_GOOD, 3437_GOOD, 3437_MOD, 3583_GOOD, 3583_MOD, 3250_POOR, 3437_POOR, 3581_MOD, 3583_POOR**	11.4	272.00
Calidris alba / Sanderling	**4038_GOOD**	0.0	1.00
Calidris canutus / Red Knot	**4038_GOOD**	0.0	1.00
Calidris ferruginea / Curlew Sandpiper	**4038_GOOD**	0.0	1.00
Calidris tenuirostris / Great Knot	**4038_GOOD**	0.0	1.00
Callistemon linearifolius / Netted Bottle Brush	**3437_GOOD**	10.0	15.00

Callocephalon fimbriatum / Gang-gang Cockatoo	**3241_GOOD, 3437_GOOD, 3437_MOD, 3583_GOOD, 3583_MOD, 3241_MOD, 3437_POOR, 3581_MOD, 3583_POOR**	11.0	247.00
Calyptorhynchus lathami lathami / South-eastern Glossy Black-Cockatoo	**3241_GOOD, 3250_GOOD, 3437_GOOD, 3437_MOD, 3583_GOOD, 3583_MOD, 3241_MOD, 3250_POOR, 3437_POOR, 3581_MOD, 3583_POOR**	12.6	290.00
Cercartetus nanus / Eastern Pygmy-possum	**3241_GOOD, 3250_GOOD, 3437_GOOD, 3437_MOD, 3583_GOOD, 3583_MOD, 3241_MOD, 3250_POOR, 3437_POOR, 3581_MOD, 3583_POOR**	12.6	290.00
Charadrius leschenaultii / Greater Sand-plover	**4038_GOOD**	0.0	1.00
Charadrius mongolus / Lesser Sand-plover	**4038_GOOD**	0.0	1.00
Corybas dowlingii / Red Helmet Orchid	**3241_GOOD, 3250_GOOD, 3437_GOOD, 3437_MOD, 3241_MOD, 3250_POOR, 3437_POOR, 3581_MOD**	10.2	234.00
Crinia tinnula / Wallum Froglet	**3250_GOOD, 3437_GOOD, 3437_MOD, 3583_GOOD, 3583_MOD, 3250_POOR, 3437_POOR, 3581_MOD, 3583_POOR**	11.4	205.00

Cryptostylis hunteriana / Leafless Tongue Orchid	**3250_GOOD, 3437_GOOD, 3437_MOD, 3583_GOOD, 3583_MOD, 3250_POOR, 3437_POOR, 3581_MOD, 3583_POOR**	11.4	205.00
Cynanchum elegans / White-flowered Wax Plant	**3250_GOOD, 3250_POOR**	1.6	43.00
Dendrobium melaleucaphilum / Spider orchid	**3250_GOOD, 3250_POOR**	1.6	43.00
Diuris flavescens / Pale Yellow Doubletail	**3241_GOOD, 3241_MOD**	1.2	28.00
Diuris praecox / Rough Doubletail	**3250_GOOD, 3437_GOOD, 3437_MOD, 3583_GOOD, 3583_MOD, 3250_POOR, 3437_POOR, 3581_MOD, 3583_POOR**	11.4	205.00
Dromaius novaehollandiae - endangered population / Emu population in the New South Wales North Coast Bioregion and Port Stephens local government area	**3241_GOOD, 3250_GOOD, 3437_GOOD, 3437_MOD, 3583_GOOD, 3583_MOD, 3241_MOD, 3250_POOR, 3437_POOR, 3581_MOD, 3583_POOR**	12.6	290.00
Esacus magnirostris / Beach Stone-curlew	**3250_GOOD, 3250_POOR**	1.6	65.00
Grevillea parviflora subsp. parviflora / Small-flower Grevillea	**3583_GOOD, 3583_MOD, 3581_MOD, 3583_POOR**	2.7	64.00
Haliaeetus leucogaster / White-bellied Sea-Eagle	**3241_GOOD, 3250_GOOD, 3437_GOOD, 3437_MOD, 3583_GOOD, 3583_MOD, 3241_MOD, 3250_POOR, 3437_POOR, 3581_MOD, 3583_POOR**	12.6	290.00

Hieraaetus morphnoides / Little Eagle	**3241_GOOD, 3250_GOOD, 3437_GOOD, 3437_MOD, 3583_GOOD, 3583_MOD, 3241_MOD, 3250_POOR, 3437_POOR, 3581_MOD, 3583_POOR**	12.6	219.00
Hoplocephalus bitorquatus / Pale-headed Snake	**3250_GOOD, 3250_POOR**	1.6	43.00
Hoplocephalus stephensii / Stephens' Banded Snake	**3241_GOOD, 3250_GOOD, 3583_GOOD, 3583_MOD, 3241_MOD, 3250_POOR, 3581_MOD, 3583_POOR**	5.5	125.00
Limosa lapponica baueri / Bar-tailed Godwit (baueri)	**4038_GOOD**	0.0	1.00
Lindernia alsinoides / Noah's False Chickweed	**3250_GOOD, 3250_POOR**	1.6	43.00
Litoria aurea / Green and Golden Bell Frog	**3241_GOOD, 3437_GOOD, 3437_MOD, 3583_GOOD, 3583_MOD, 3241_MOD, 3437_POOR, 3581_MOD, 3583_POOR**	11.0	247.00
Litoria brevipalmata / Green-thighed Frog	**3241_GOOD, 3250_GOOD, 3241_MOD, 3250_POOR**	2.8	47.00
Lophoictinia isura / Square-tailed Kite	**3241_GOOD, 3250_GOOD, 3437_GOOD, 3437_MOD, 3583_GOOD, 3583_MOD, 3241_MOD, 3250_POOR, 3437_POOR, 3581_MOD, 3583_POOR**	12.6	219.00
Maundia triglochinoides / Maundia triglochinoides	**4038_GOOD**	0.0	1.00

Miniopterus australis / Little Bent-winged Bat	**3241_GOOD, 3250_GOOD, 3437_GOOD, 3437_MOD, 3583_GOOD, 3583_MOD, 3241_MOD, 3250_POOR, 3437_POOR, 3581_MOD, 3583_POOR**	12.6	435.00
Miniopterus orianae oceanensis / Large Bent-winged Bat	**3241_GOOD, 3250_GOOD, 3437_GOOD, 3437_MOD, 3583_GOOD, 3583_MOD, 3241_MOD, 3250_POOR, 3437_POOR, 3581_MOD, 3583_POOR**	12.6	435.00
Mixophyes balbus / Stuttering Frog	**3241_GOOD, 3250_GOOD, 3437_GOOD, 3437_MOD, 3583_GOOD, 3583_MOD, 3241_MOD, 3250_POOR, 3437_POOR, 3581_MOD, 3583_POOR**	12.6	435.00
Mixophyes iteratus / Giant Barred Frog	**3241_GOOD, 3250_GOOD, 3583_GOOD, 3583_MOD, 3241_MOD, 3250_POOR, 3581_MOD, 3583_POOR**	5.5	95.00
Myotis macropus / Southern Myotis	**3241_GOOD, 3250_GOOD, 3437_GOOD, 3437_MOD, 3583_GOOD, 3583_MOD, 3241_MOD, 3250_POOR, 3437_POOR, 3581_MOD, 3583_POOR**	12.6	290.00

Ninox connivens / Barking Owl	**3241_GOOD, 3250_GOOD, 3437_GOOD, 3437_MOD, 3583_GOOD, 3583_MOD, 3241_MOD, 3250_POOR, 3437_POOR, 3581_MOD, 3583_POOR**	12.6	290.00
Ninox strenua / Powerful Owl	**3241_GOOD, 3250_GOOD, 3437_GOOD, 3437_MOD, 3583_GOOD, 3583_MOD, 3241_MOD, 3250_POOR, 3437_POOR, 3581_MOD, 3583_POOR**	12.6	290.00
Notamacropus parma / Parma Wallaby	**3250_GOOD, 3437_GOOD, 3437_MOD, 3250_POOR, 3437_POOR, 3581_MOD**	9.0	216.00
Numenius madagascariensis / Eastern Curlew	**4038_GOOD**	0.0	1.00
Pandion cristatus / Eastern Osprey	**3241_GOOD, 3250_GOOD, 3437_GOOD, 3437_MOD, 3583_GOOD, 3583_MOD, 3241_MOD, 3250_POOR, 3437_POOR, 3581_MOD, 3583_POOR**	12.6	219.00
Petauroides volans / Southern Greater Glider	**3241_GOOD, 3250_GOOD, 3437_GOOD, 3437_MOD, 3241_MOD, 3250_POOR, 3437_POOR, 3581_MOD**	10.2	234.00

Petaurus norfolcensis / Squirrel Glider	**3241_GOOD, 3250_GOOD, 3437_GOOD, 3437_MOD, 3583_GOOD, 3583_MOD, 3241_MOD, 3250_POOR, 3437_POOR, 3581_MOD, 3583_POOR**	12.6	290.00
Phascogale tapoatafa / Brush-tailed Phascogale	**3250_GOOD, 3437_GOOD, 3437_MOD, 3583_GOOD, 3583_MOD, 3250_POOR, 3437_POOR, 3581_MOD, 3583_POOR**	11.4	272.00
Phascolarctos cinereus / Koala	**3241_GOOD, 3250_GOOD, 3437_GOOD, 3437_MOD, 3583_GOOD, 3583_MOD, 3241_MOD, 3250_POOR, 3437_POOR, 3581_MOD, 3583_POOR**	12.6	290.00
Planigale maculata / Common Planigale	**3250_GOOD, 3437_GOOD, 3437_MOD, 3583_GOOD, 3583_MOD, 3250_POOR, 3437_POOR, 3581_MOD, 3583_POOR**	11.4	272.00
Potorous tridactylus / Long-nosed Potoroo	**3250_GOOD, 3583_GOOD, 3583_MOD, 3250_POOR, 3581_MOD, 3583_POOR**	4.3	107.00

Pteropus poliocephalus / Grey-headed Flying-fox	**3241_GOOD, 3250_GOOD, 3437_GOOD, 3437_MOD, 3583_GOOD, 3583_MOD, 3241_MOD, 3250_POOR, 3437_POOR, 3581_MOD, 3583_POOR**	12.6	290.00
Pterostylis chaetophora / Pterostylis chaetophora	**3241_GOOD, 3437_GOOD, 3437_MOD, 3241_MOD, 3437_POOR**	8.3	183.00
Rhizanthella slateri / Eastern Australian Underground Orchid	**3241_GOOD, 3250_GOOD, 3583_GOOD, 3583_MOD, 3241_MOD, 3250_POOR, 3581_MOD, 3583_POOR**	5.5	187.00
Rhizanthella slateri - endangered population / Rhizanthella slateri (Rupp) M.A. Clem. & Cribb in the Great Lakes local government area	**3241_GOOD, 3250_GOOD, 3241_MOD, 3250_POOR, 3581_MOD**	3.1	104.00
Solanum sulphureum / Manning Yellow Solanum	**3241_GOOD, 3250_GOOD, 3241_MOD, 3250_POOR**	2.8	61.00
Syzygium paniculatum / Magenta Lilly Pilly	**3241_GOOD, 3250_GOOD**	10.0	20.00
Tetratheca juncea / Black-eyed Susan	**3241_GOOD, 3241_MOD**	1.2	18.00
Thesium australe / Austral Toadflax	**3250_GOOD, 3250_POOR**	1.6	33.00
Turnix maculosus / Red-backed Button-quail	**3241_GOOD, 3250_GOOD, 3241_MOD, 3250_POOR**	2.8	61.00
Tyto novaehollandiae / Masked Owl	**3250_GOOD, 3437_GOOD, 3437_MOD, 3583_GOOD, 3583_MOD, 3250_POOR, 3437_POOR, 3581_MOD, 3583_POOR**	11.4	272.00

Uperoleia mahonyi / Mahony's Toadlet	**3437_GOOD, 3437_MOD, 3583_GOOD, 3583_MOD, 3437_POOR, 3581_MOD, 3583_POOR**	9.8	229.00
Xenus cinereus / Terek Sandpiper	**4038_GOOD**	0.0	1.00

Credit Retirement Options

Like-for-like options

Angophora inopina/ Charmhaven Apple	Spp	IBRA region	
	Angophora inopina/Charmhaven Apple	Any in NSW	
	Variation options		
	Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act shown below	IBRA region
	Flora	Vulnerable	Karuah Manning, Hunter, Macleay Hastings, Mummel Escarpment and Upper Hunter. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Asperula asthenes/ Trailing Woodruff	Spp	IBRA region	
	Asperula asthenes/Trailing Woodruff	Any in NSW	
	Variation options		
	Kingdom	Any species with same or	IBRA region

		higher category of listing under Part 4 of the BC Act shown below	
	Flora	Vulnerable	Karuah Manning, Hunter, Macleay Hastings, Mummel Escarpment and Upper Hunter. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Burhinus grallarius/ Bush Stone-curlew	Spp	IBRA region	
	Burhinus grallarius/Bush Stone-curlew	Any in NSW	
	Variation options		
	Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act shown below	IBRA region
	Fauna	Endangered	Karuah Manning, Hunter, Macleay Hastings, Mummel Escarpment and Upper Hunter. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Calidris alba/ Sanderling	Spp	IBRA region	
	Calidris alba/Sanderling	Any in NSW	

Calidris alba/ Sanderling	**Variation options**		
	Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act shown below	IBRA region
	Fauna	Vulnerable	Karuah Manning, Hunter, Macleay Hastings, Mummel Escarpment and Upper Hunter. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Calidris canutus/ Red Knot	Spp	IBRA region	
	Calidris canutus/Red Knot	Any in NSW	
	Variation options		
	Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act shown below	IBRA region
	Fauna	Not Listed	Karuah Manning, Hunter, Macleay Hastings, Mummel Escarpment and Upper Hunter. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

Calidris ferruginea/ Curlew Sandpiper	Spp		IBRA region
	Calidris ferruginea/Curlew Sandpiper *Note: Variation rules do not apply for Critically Endangered species and impacts on Commonwealth listed entities that are a controlled action.*		Any in NSW
Calidris tenuirostris/ Great Knot	Spp		IBRA region
	Calidris tenuirostris/Great Knot		Any in NSW
	Variation options		
	Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act shown below	IBRA region
	Fauna	Vulnerable	Karuah Manning, Hunter, Macleay Hastings, Mummel Escarpment and Upper Hunter. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Callistemon linearifolius/ Netted Bottle Brush	Spp		IBRA region
	Callistemon linearifolius/Netted Bottle Brush		Any in NSW
	Variation options		
	Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act	IBRA region

		shown below	
	Flora	Vulnerable	Karuah Manning, Hunter, Macleay Hastings, Mummel Escarpment and Upper Hunter. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Callocephalon fimbriatum/ Gang-gang Cockatoo	Spp	IBRA region	
	Callocephalon fimbriatum/Gang-gang Cockatoo	Any in NSW	
	Variation options		
	Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act shown below	IBRA region
	Fauna	Endangered	Karuah Manning, Hunter, Macleay Hastings, Mummel Escarpment and Upper Hunter. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Calyptorhynchus lathami lathami/ South-eastern Glossy Black-Cockatoo	Spp	IBRA region	
	Calyptorhynchus lathami lathami/South-eastern Glossy Black-Cockatoo	Any in NSW	
	Variation options		

	Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act shown below	IBRA region
	Fauna	Vulnerable	Karuah Manning, Hunter, Macleay Hastings, Mummel Escarpment and Upper Hunter. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Cercartetus nanus/ Eastern Pygmy-possum	Spp	IBRA region	
	Cercartetus nanus/Eastern Pygmy-possum	Any in NSW	
	Variation options		
	Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act shown below	IBRA region
	Fauna	Vulnerable	Karuah Manning, Hunter, Macleay Hastings, Mummel Escarpment and Upper Hunter. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Charadrius leschenaultii/ Greater Sand-plover	Spp	IBRA region	

	Charadrius leschenaultii/Greater Sand-plover		Any in NSW
	Variation options		
	Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act shown below	IBRA region
	Fauna	Vulnerable	Karuah Manning, Hunter, Macleay Hastings, Mummel Escarpment and Upper Hunter. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Charadrius mongolus/ Lesser Sand-plover	Spp		IBRA region
	Charadrius mongolus/Lesser Sand-plover		Any in NSW
	Variation options		
	Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act shown below	IBRA region

	Fauna	Vulnerable	Karuah Manning, Hunter, Macleay Hastings, Mummel Escarpment and Upper Hunter. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Corybas dowlingii/ Red Helmet Orchid	Spp	IBRA region	
	Corybas dowlingii/Red Helmet Orchid	Any in NSW	
	Variation options		
	Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act shown below	IBRA region
	Flora	Endangered	Karuah Manning, Hunter, Macleay Hastings, Mummel Escarpment and Upper Hunter. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Crinia tinnula/ Wallum Froglet	Spp	IBRA region	
	Crinia tinnula/Wallum Froglet	Any in NSW	
	Variation options		
	Kingdom	Any species with same or higher category of listing	IBRA region

		under Part 4 of the BC Act shown below	
	Fauna	Vulnerable	Karuah Manning, Hunter, Macleay Hastings, Mummel Escarpment and Upper Hunter. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Cryptostylis hunteriana/ Leafless Tongue Orchid	Spp	IBRA region	
	Cryptostylis hunteriana/Leafless Tongue Orchid	Any in NSW	
	Variation options		
	Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act shown below	IBRA region
	Flora	Vulnerable	Karuah Manning, Hunter, Macleay Hastings, Mummel Escarpment and Upper Hunter. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Cynanchum elegans/ White-flowered Wax Plant	Spp	IBRA region	
	Cynanchum elegans/White-flowered Wax Plant	Any in NSW	
	Variation options		

	Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act shown below	IBRA region
	Flora	Endangered	Karuah Manning, Hunter, Macleay Hastings, Mummel Escarpment and Upper Hunter. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Dendrobium melaleucaphilum/ Spider orchid	Spp	IBRA region	
	Dendrobium melaleucaphilum/Spider orchid	Any in NSW	
	Variation options		
	Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act shown below	IBRA region
	Flora	Endangered	Karuah Manning, Hunter, Macleay Hastings, Mummel Escarpment and Upper Hunter. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Diuris flavescens/ Pale Yellow Doubletail	Spp	IBRA region	

	Diuris flavescens/Pale Yellow Doubletail *Note: Variation rules do not apply for Critically Endangered species and impacts on Commonwealth listed entities that are a controlled action.*		Any in NSW
Diuris praecox/ Rough Doubletail	Spp		IBRA region
	Diuris praecox/Rough Doubletail		Any in NSW
	Variation options		
	Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act shown below	IBRA region
	Flora	Vulnerable	Karuah Manning, Hunter, Macleay Hastings, Mummel Escarpment and Upper Hunter. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Dromaius novaehollandiae - endangered population/ Emu population in the New South Wales North Coast Bioregion and Port Stephens local government area	Spp		IBRA region
	Dromaius novaehollandiae - endangered population/Emu population in the New South Wales North Coast Bioregion and Port Stephens local government area		Any in NSW
	Variation options		
	Kingdom	Any species with same or	IBRA region

		higher category of listing under Part 4 of the BC Act shown below	
	Fauna	Endangered Population	Karuah Manning, Hunter, Macleay Hastings, Mummel Escarpment and Upper Hunter. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Esacus magnirostris/ Beach Stone-curlew	Spp		IBRA region
	Esacus magnirostris/Beach Stone-curlew *Note: Variation rules do not apply for Critically Endangered species and impacts on Commonwealth listed entities that are a controlled action.*		Any in NSW
Grevillea parviflora subsp. parviflora/ Small-flower Grevillea	Spp		IBRA region
	Grevillea parviflora subsp. parviflora/Small-flower Grevillea		Any in NSW
	Variation options		
	Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act shown below	IBRA region

	Flora	Vulnerable	Karuah Manning, Hunter, Macleay Hastings, Mummel Escarpment and Upper Hunter. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Haliaeetus leucogaster/ White-bellied Sea-Eagle	Spp	IBRA region	
	Haliaeetus leucogaster/White-bellied Sea-Eagle	Any in NSW	
	Variation options		
	Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act shown below	IBRA region
	Fauna	Vulnerable	Karuah Manning, Hunter, Macleay Hastings, Mummel Escarpment and Upper Hunter. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Hieraaetus morphnoides/ Little Eagle	Spp	IBRA region	
	Hieraaetus morphnoides/Little Eagle	Any in NSW	
	Variation options		
	Kingdom	Any species with same or higher category of listing	IBRA region

		under Part 4 of the BC Act shown below	
	Fauna	Vulnerable	Karuah Manning, Hunter, Macleay Hastings, Mummel Escarpment and Upper Hunter. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Hoplocephalus bitorquatus/ Pale-headed Snake	Spp	IBRA region	
	Hoplocephalus bitorquatus/Pale-headed Snake	Any in NSW	
	Variation options		
	Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act shown below	IBRA region
	Fauna	Vulnerable	Karuah Manning, Hunter, Macleay Hastings, Mummel Escarpment and Upper Hunter. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Hoplocephalus stephensii/ Stephens' Banded Snake	Spp	IBRA region	
	Hoplocephalus stephensii/Stephens' Banded Snake	Any in NSW	
	Variation options		

	Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act shown below	IBRA region
	Fauna	Vulnerable	Karuah Manning, Hunter, Macleay Hastings, Mummel Escarpment and Upper Hunter. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Limosa lapponica baueri/ Bar-tailed Godwit (baueri)	Spp	IBRA region	
	Limosa lapponica baueri/Bar-tailed Godwit (baueri)	Any in NSW	
	Variation options		
	Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act shown below	IBRA region
	Fauna	Not Listed	Karuah Manning, Hunter, Macleay Hastings, Mummel Escarpment and Upper Hunter. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Lindernia alsinoides/ Noah's False Chickweed	Spp	IBRA region	

	Lindernia alsinoides/Noah's False Chickweed	Any in NSW	
	Variation options		
	Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act shown below	IBRA region
	Flora	Endangered	Karuah Manning, Hunter, Macleay Hastings, Mummel Escarpment and Upper Hunter. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Litoria aurea/ Green and Golden Bell Frog	Spp	IBRA region	
	Litoria aurea/Green and Golden Bell Frog	Any in NSW	
	Variation options		
	Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act shown below	IBRA region

	Fauna	Endangered	Karuah Manning, Hunter, Macleay Hastings, Mummel Escarpment and Upper Hunter. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Litoria brevipalmata/ Green-thighed Frog	Spp	IBRA region	
	Litoria brevipalmata/Green-thighed Frog	Any in NSW	
	Variation options		
	Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act shown below	IBRA region
	Fauna	Vulnerable	Karuah Manning, Hunter, Macleay Hastings, Mummel Escarpment and Upper Hunter. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Lophoictinia isura/ Square-tailed Kite	Spp	IBRA region	
	Lophoictinia isura/Square-tailed Kite	Any in NSW	
	Variation options		
	Kingdom	Any species with same or higher category of listing	IBRA region

		under Part 4 of the BC Act shown below	
	Fauna	Vulnerable	Karuah Manning, Hunter, Macleay Hastings, Mummel Escarpment and Upper Hunter. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Maundia triglochinoides/ Maundia triglochinoides	Spp	IBRA region	
	Maundia triglochinoides/Maundia triglochinoides	Any in NSW	
	Variation options		
	Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act shown below	IBRA region
	Flora	Vulnerable	Karuah Manning, Hunter, Macleay Hastings, Mummel Escarpment and Upper Hunter. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Miniopterus australis/ Little Bent-winged Bat	Spp	IBRA region	
	Miniopterus australis/Little Bent-winged Bat	Any in NSW	
	Variation options		

	Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act shown below	IBRA region
	Fauna	Vulnerable	Karuah Manning, Hunter, Macleay Hastings, Mummel Escarpment and Upper Hunter. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Miniopterus orianae oceanensis/ Large Bent-winged Bat	Spp	IBRA region	
	Miniopterus orianae oceanensis/Large Bent-winged Bat	Any in NSW	
	Variation options		
	Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act shown below	IBRA region
	Fauna	Vulnerable	Karuah Manning, Hunter, Macleay Hastings, Mummel Escarpment and Upper Hunter. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Mixophyes balbus/ Stuttering Frog	Spp	IBRA region	

	Mixophyes balbus/Stuttering Frog		Any in NSW
	Variation options		
	Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act shown below	IBRA region
	Fauna	Endangered	Karuah Manning, Hunter, Macleay Hastings, Mummel Escarpment and Upper Hunter. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Mixophyes iteratus/ Giant Barred Frog	Spp		IBRA region
	Mixophyes iteratus/Giant Barred Frog		Any in NSW
	Variation options		
	Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act shown below	IBRA region

	Fauna	Vulnerable	Karuah Manning, Hunter, Macleay Hastings, Mummel Escarpment and Upper Hunter. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Myotis macropus/ Southern Myotis	Spp	IBRA region	
	Myotis macropus/Southern Myotis	Any in NSW	
	Variation options		
	Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act shown below	IBRA region
	Fauna	Vulnerable	Karuah Manning, Hunter, Macleay Hastings, Mummel Escarpment and Upper Hunter. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Ninox connivens/ Barking Owl	Spp	IBRA region	
	Ninox connivens/Barking Owl	Any in NSW	
	Variation options		
	Kingdom	Any species with same or higher category of listing	IBRA region

		under Part 4 of the BC Act shown below	
	Fauna	Vulnerable	Karuah Manning, Hunter, Macleay Hastings, Mummel Escarpment and Upper Hunter. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Ninox strenua/ Powerful Owl	Spp	IBRA region	
	Ninox strenua/Powerful Owl	Any in NSW	
	Variation options		
	Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act shown below	IBRA region
	Fauna	Vulnerable	Karuah Manning, Hunter, Macleay Hastings, Mummel Escarpment and Upper Hunter. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Notamacropus parma/ Parma Wallaby	Spp	IBRA region	
	Notamacropus parma/Parma Wallaby	Any in NSW	
	Variation options		

	Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act shown below	IBRA region
	Fauna	Vulnerable	Karuah Manning, Hunter, Macleay Hastings, Mummel Escarpment and Upper Hunter. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Numenius madagascariensis/ Eastern Curlew	Spp	IBRA region	
	Numenius madagascariensis/Eastern Curlew	Any in NSW	
	Variation options		
	Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act shown below	IBRA region
	Fauna	Not Listed	Karuah Manning, Hunter, Macleay Hastings, Mummel Escarpment and Upper Hunter. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Pandion cristatus/ Eastern Osprey	Spp	IBRA region	

	Pandion cristatus/Eastern Osprey	Any in NSW	
	Variation options		
	Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act shown below	IBRA region
	Fauna	Vulnerable	Karuah Manning, Hunter, Macleay Hastings, Mummel Escarpment and Upper Hunter. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Petauroides volans/ Southern Greater Glider	Spp	IBRA region	
	Petauroides volans/Southern Greater Glider	Any in NSW	
	Variation options		
	Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act shown below	IBRA region

	Fauna	Endangered	Karuah Manning, Hunter, Macleay Hastings, Mummel Escarpment and Upper Hunter. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Petaurus norfolcensis/ Squirrel Glider	Spp	IBRA region	
	Petaurus norfolcensis/Squirrel Glider	Any in NSW	
	Variation options		
	Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act shown below	IBRA region
	Fauna	Vulnerable	Karuah Manning, Hunter, Macleay Hastings, Mummel Escarpment and Upper Hunter. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Phascogale tapoatafa/ Brush-tailed Phascogale	Spp	IBRA region	
	Phascogale tapoatafa/Brush-tailed Phascogale	Any in NSW	
	Variation options		
	Kingdom	Any species with same or higher category of listing	IBRA region

		under Part 4 of the BC Act shown below	
	Fauna	Vulnerable	Karuah Manning, Hunter, Macleay Hastings, Mummel Escarpment and Upper Hunter. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Phascolarctos cinereus/ Koala	Spp	IBRA region	
	Phascolarctos cinereus/Koala	Any in NSW	
	Variation options		
	Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act shown below	IBRA region
	Fauna	Endangered	Karuah Manning, Hunter, Macleay Hastings, Mummel Escarpment and Upper Hunter. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Planigale maculata/ Common Planigale	Spp	IBRA region	
	Planigale maculata/Common Planigale	Any in NSW	
	Variation options		

	Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act shown below	IBRA region
	Fauna	Vulnerable	Karuah Manning, Hunter, Macleay Hastings, Mummel Escarpment and Upper Hunter. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Potorous tridactylus/ Long-nosed Potoroo	Spp	IBRA region	
	Potorous tridactylus/Long-nosed Potoroo	Any in NSW	
	Variation options		
	Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act shown below	IBRA region
	Fauna	Vulnerable	Karuah Manning, Hunter, Macleay Hastings, Mummel Escarpment and Upper Hunter. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Pteropus poliocephalus/ Grey-headed Flying-fox	Spp	IBRA region	

	Pteropus poliocephalus/Grey-headed Flying-fox	Any in NSW	
	Variation options		
	Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act shown below	IBRA region
	Fauna	Vulnerable	Karuah Manning, Hunter, Macleay Hastings, Mummel Escarpment and Upper Hunter. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Pterostylis chaetophora/ Pterostylis chaetophora	Spp	IBRA region	
	Pterostylis chaetophora/Pterostylis chaetophora	Any in NSW	
	Variation options		
	Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act shown below	IBRA region

	Flora	Vulnerable	Karuah Manning, Hunter, Macleay Hastings, Mummel Escarpment and Upper Hunter. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Rhizanthella slateri/ Eastern Australian Underground Orchid	Spp	IBRA region	
	Rhizanthella slateri/Eastern Australian Underground Orchid	Any in NSW	
	Variation options		
	Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act shown below	IBRA region
	Flora	Vulnerable	Karuah Manning, Hunter, Macleay Hastings, Mummel Escarpment and Upper Hunter. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Rhizanthella slateri - endangered population/ Rhizanthella slateri (Rupp) M.A. Clem. & Cribb in the Great Lakes local government area	Spp	IBRA region	
	Rhizanthella slateri - endangered population/Rhizanthella slateri (Rupp) M.A. Clem. & Cribb in the Great Lakes local government area	Any in NSW	

Rhizanthella slateri - endangered population/ Rhizanthella slateri (Rupp) M.A. Clem. & Cribb in the Great Lakes local government area	**Variation options**		
	Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act shown below	IBRA region
	Flora	Endangered Population	Karuah Manning, Hunter, Macleay Hastings, Mummel Escarpment and Upper Hunter. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Solanum sulphureum/ Manning Yellow Solanum	Spp	IBRA region	
	Solanum sulphureum/Manning Yellow Solanum	Any in NSW	
	Variation options		
	Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act shown below	IBRA region
	Flora	Endangered	Karuah Manning, Hunter, Macleay Hastings, Mummel Escarpment and Upper Hunter. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

Syzygium paniculatum/ Magenta Lilly Pilly	Spp		IBRA region
	Syzygium paniculatum/Magenta Lilly Pilly		Any in NSW
	Variation options		
	Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act shown below	IBRA region
	Flora	Endangered	Karuah Manning, Hunter, Macleay Hastings, Mummel Escarpment and Upper Hunter. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Tetratheca juncea/ Black-eyed Susan	Spp		IBRA region
	Tetratheca juncea/Black-eyed Susan		Any in NSW
	Variation options		
	Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act shown below	IBRA region

	Flora	Vulnerable	Karuah Manning, Hunter, Macleay Hastings, Mummel Escarpment and Upper Hunter. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Thesium australe/ Austral Toadflax	Spp	IBRA region	
	Thesium australe/Austral Toadflax	Any in NSW	
	Variation options		
	Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act shown below	IBRA region
	Flora	Vulnerable	Karuah Manning, Hunter, Macleay Hastings, Mummel Escarpment and Upper Hunter. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Turnix maculosus/ Red-backed Button-quail	Spp	IBRA region	
	Turnix maculosus/Red-backed Button-quail	Any in NSW	
	Variation options		
	Kingdom	Any species with same or higher category of listing	IBRA region

		under Part 4 of the BC Act shown below	
	Fauna	Vulnerable	Karuah Manning, Hunter, Macleay Hastings, Mummel Escarpment and Upper Hunter. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Tyto novaehollandiae/ Masked Owl	Spp	IBRA region	
	Tyto novaehollandiae/Masked Owl	Any in NSW	
	Variation options		
	Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act shown below	IBRA region
	Fauna	Vulnerable	Karuah Manning, Hunter, Macleay Hastings, Mummel Escarpment and Upper Hunter. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Uperoleia mahonyi/ Mahony's Toadlet	Spp	IBRA region	
	Uperoleia mahonyi/Mahony's Toadlet	Any in NSW	
	Variation options		

	Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act shown below	IBRA region
	Fauna	Endangered	Karuah Manning, Hunter, Macleay Hastings, Mummel Escarpment and Upper Hunter. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Xenus cinereus/ Terek Sandpiper	Spp	IBRA region	
	Xenus cinereus/Terek Sandpiper	Any in NSW	
	Variation options		
	Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act shown below	IBRA region
	Fauna	Vulnerable	Karuah Manning, Hunter, Macleay Hastings, Mummel Escarpment and Upper Hunter. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

BAM Biodiversity Credit Report (Like for like)

Proposal Details

Assessment Id
00052993/BAAS18098/24/00052994

Proposal Name
Bundabah

BAM data last updated *
28/10/2024

Assessor Name
Michael Somerville

Assessor Number
BAAS18098

BAM Data version *
Current classification (live - default) (80)

Proponent Names

Report Created
23/06/2025

BAM Case Status
Finalised

Assessment Revision
2

BOS entry trigger
BOS Threshold: Biodiversity Values Map

Assessment Type
Part 4 Developments (General)

Date Finalised
23/06/2025

* 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
Esacus magnirostris / Beach Stone-curlew
Diuris flavescens / Pale Yellow Doubletail

Miniopterus australis / Little Bent-winged Bat
Miniopterus orianae oceanensis / Large Bent-winged Bat
Mixophyes balbus / Stuttering Frog
Rhizanthella slateri - endangered population / Rhizanthella slateri (Rupp) M.A. Clem. & Cribb in the Great Lakes local government area
Rhizanthella slateri / Eastern Australian Underground Orchid
Calidris ferruginea / Curlew Sandpiper
Numenius madagascariensis / Eastern Curlew

Additional Information for Approval

PCT Outside Ibra Added

None added

PCTs With Customized Benchmarks

PCT
No Changes

Predicted Threatened Species Not On Site

Name
No Changes

Ecosystem Credit Summary (Number and class of biodiversity credits to be retired)

BAM Biodiversity Credit Report (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
3241-Lower North White Mahogany-Spotted Gum Moist Forest	Not a TEC	1.2	0	14	14
3250-Northern Foothills Blackbutt Grassy Forest	Not a TEC	2.7	50	6	56
3437-Hunter Coast Lowland Spotted Gum Dry Forest	Not a TEC	7.1	76	69	145
3581-Hunter Coast Foothills Apple Forest	Not a TEC	0.3	0	6	6
3583-Hunter Coast Lowland Scribbly Gum Forest	Not a TEC	2.4	38	11	49
4038-Hunter Estuarine Melaleuca nodosa Scrub	Swamp Oak Floodplain Forest of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions	0.1	0	2	2

3241-Lower North White Mahogany-Spotted Gum Moist Forest

Like-for-like credit retirement options

Class	Trading group	Zone	HBT	Credits	IBRA region

	Northern Hinterland Wet Sclerophyll Forests This includes PCT's: 3063, 3069, 3094, 3115, 3144, 3152, 3155, 3167, 3170, 3179, 3230, 3231, 3232, 3233, 3234, 3235, 3236, 3237, 3238, 3239, 3240, 3241, 3242, 3243, 3244, 3245, 3246, 3247, 3248, 3249, 3250, 3251, 3252, 3253, 3254, 3255, 3256, 3257, 3258, 3259, 3260, 3261, 3262, 3263, 3264, 3285, 4109	Northern Hinterland Wet Sclerophyll Forests <50%	3241_GOOD	No	5	Karuah Manning, Hunter, Macleay Hastings, Mummel Escarpment and Upper Hunter. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	Northern Hinterland Wet Sclerophyll Forests This includes PCT's: 3063, 3069, 3094, 3115, 3144, 3152, 3155, 3167, 3170, 3179, 3230, 3231, 3232, 3233, 3234, 3235, 3236, 3237, 3238, 3239, 3240, 3241, 3242, 3243, 3244, 3245, 3246, 3247, 3248, 3249, 3250, 3251, 3252, 3253, 3254, 3255, 3256, 3257, 3258, 3259, 3260, 3261, 3262, 3263, 3264, 3285, 4109	Northern Hinterland Wet Sclerophyll Forests <50%	3241_MOD	No	9	Karuah Manning, Hunter, Macleay Hastings, Mummel Escarpment and Upper Hunter. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

3250-Northern Foothills Blackbutt Grassy Forest	**Like-for-like credit retirement options**					
	Class	Trading group	Zone	HBT	Credits	IBRA region

	Northern Hinterland Wet Sclerophyll Forests This includes PCT's: 3063, 3069, 3094, 3115, 3144, 3152, 3155, 3167, 3170, 3179, 3230, 3231, 3232, 3233, 3234, 3235, 3236, 3237, 3238, 3239, 3240, 3241, 3242, 3243, 3244, 3245, 3246, 3247, 3248, 3249, 3250, 3251, 3252, 3253, 3254, 3255, 3256, 3257, 3258, 3259, 3260, 3261, 3262, 3263, 3264, 3285, 4109	Northern Hinterland Wet Sclerophyll Forests <50%	3250_GOOD	Yes	50	Karuah Manning, Hunter, Macleay Hastings, Mummel Escarpment and Upper Hunter. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	Northern Hinterland Wet Sclerophyll Forests This includes PCT's: 3063, 3069, 3094, 3115, 3144, 3152, 3155, 3167, 3170, 3179, 3230, 3231, 3232, 3233, 3234, 3235, 3236, 3237, 3238, 3239, 3240, 3241, 3242, 3243, 3244, 3245, 3246, 3247, 3248, 3249, 3250, 3251, 3252, 3253, 3254, 3255, 3256, 3257, 3258, 3259, 3260, 3261, 3262, 3263, 3264, 3285, 4109	Northern Hinterland Wet Sclerophyll Forests <50%	3250_POOR	No	5	Karuah Manning, Hunter, Macleay Hastings, Mummel Escarpment and Upper Hunter. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	Northern Hinterland Wet Sclerophyll Forests This includes PCT's: 3063, 3069, 3094, 3115, 3144, 3152, 3155, 3167, 3170, 3179, 3230, 3231, 3232, 3233, 3234, 3235, 3236, 3237, 3238, 3239, 3240, 3241, 3242, 3243, 3244, 3245, 3246, 3247, 3248, 3249, 3250, 3251, 3252, 3253, 3254, 3255, 3256, 3257, 3258, 3259, 3260, 3261, 3262, 3263, 3264, 3285, 4109	Northern Hinterland Wet Sclerophyll Forests <50%	3250_DNG	No	1	Karuah Manning, Hunter, Macleay Hastings, Mummel Escarpment and Upper Hunter. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

3437-Hunter Coast Lowland Spotted Gum Dry Forest	**Like-for-like credit retirement options**					
	Class	Trading group	Zone	HBT	Credits	IBRA region

	Hunter-Macleay Dry Sclerophyll Forests This includes PCT's: 1608, 3431, 3433, 3436, 3437, 3439, 3442, 3444, 3446	Hunter-Macleay Dry Sclerophyll Forests >=50% and <70%	3437_GOOD	Yes	76	Karuah Manning, Hunter, Macleay Hastings, Mummel Escarpment and Upper Hunter. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
	Hunter-Macleay Dry Sclerophyll Forests This includes PCT's: 1608, 3431, 3433, 3436, 3437, 3439, 3442, 3444, 3446	Hunter-Macleay Dry Sclerophyll Forests >=50% and <70%	3437_MOD	No	44	Karuah Manning, Hunter, Macleay Hastings, Mummel Escarpment and Upper Hunter. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
	Hunter-Macleay Dry Sclerophyll Forests This includes PCT's: 1608, 3431, 3433, 3436, 3437, 3439, 3442, 3444, 3446	Hunter-Macleay Dry Sclerophyll Forests >=50% and <70%	3437_POOR	No	25	Karuah Manning, Hunter, Macleay Hastings, Mummel Escarpment and Upper Hunter. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

3581-Hunter Coast Foothills Apple Forest	**Like-for-like credit retirement options**					
	Class	Trading group	Zone	HBT	Credits	IBRA region
	Sydney Coastal Dry Sclerophyll Forests This includes PCT's: 1681, 3578, 3579, 3580, 3581, 3582, 3583, 3584, 3585, 3586, 3587, 3588, 3589, 3590, 3591, 3592, 3593, 3594, 3595, 3596, 3597, 3598	Sydney Coastal Dry Sclerophyll Forests <50%	3581_MOD	No	6	Karuah Manning, Hunter, Macleay Hastings, Mummel Escarpment and Upper Hunter. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
3583-Hunter Coast Lowland Scribbly Gum Forest	**Like-for-like credit retirement options**					
	Class	Trading group	Zone	HBT	Credits	IBRA region
	Sydney Coastal Dry Sclerophyll Forests This includes PCT's: 3583, 3592, 3594	Sydney Coastal Dry Sclerophyll Forests >=50% and <70%	3583_GOOD	Yes	30	Karuah Manning, Hunter, Macleay Hastings, Mummel Escarpment and Upper Hunter. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

	Sydney Coastal Dry Sclerophyll Forests This includes PCT's: 3583, 3592, 3594	Sydney Coastal Dry Sclerophyll Forests >=50% and <70%	3583_MOD	No	11	Karuah Manning, Hunter, Macleay Hastings, Mummel Escarpment and Upper Hunter. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
	Sydney Coastal Dry Sclerophyll Forests This includes PCT's: 3583, 3592, 3594	Sydney Coastal Dry Sclerophyll Forests >=50% and <70%	3583_POOR	Yes	8	Karuah Manning, Hunter, Macleay Hastings, Mummel Escarpment and Upper Hunter. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
4038-Hunter Estuarine Melaleuca nodosa Scrub	**Like-for-like credit retirement options**					
	Name of offset trading group	Trading group	Zone	HBT	Credits	IBRA region

	Swamp Oak Floodplain Forest of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions This includes PCT's: 1731, 3962, 3963, 3985, 3987, 3993, 4016, 4023, 4026, 4027, 4028, 4030, 4035, 4038, 4040, 4048, 4049, 4050, 4056	-	4038_GOOD	No	2	Karuah Manning, Hunter, Macleay Hastings, Mummel Escarpment and Upper Hunter. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

Species Credit Summary

Species	Vegetation Zone/s	Area / Count	Credits
Angophora inopina / Charmhaven Apple	**3583_GOOD, 3583_MOD, 3581_MOD, 3583_POOR**	2.6	63.00
Asperula asthenes / Trailing Woodruff	**3241_GOOD, 3250_GOOD, 3241_MOD, 3250_POOR**	2.8	61.00

Burhinus grallarius / Bush Stone-curlew	**3250_GOOD, 3437_GOOD, 3437_MOD, 3583_GOOD, 3583_MOD, 3250_POOR, 3437_POOR, 3581_MOD, 3583_POOR**	11.4	272.00
Calidris alba / Sanderling	**4038_GOOD**	0.0	1.00
Calidris canutus / Red Knot	**4038_GOOD**	0.0	1.00
Calidris ferruginea / Curlew Sandpiper	**4038_GOOD**	0.0	1.00
Calidris tenuirostris / Great Knot	**4038_GOOD**	0.0	1.00
Callistemon linearifolius / Netted Bottle Brush	**3437_GOOD**	10.0	15.00
Callocephalon fimbriatum / Gang-gang Cockatoo	**3241_GOOD, 3437_GOOD, 3437_MOD, 3583_GOOD, 3583_MOD, 3241_MOD, 3437_POOR, 3581_MOD, 3583_POOR**	11.0	247.00
Calyptorhynchus lathami lathami / South-eastern Glossy Black-Cockatoo	**3241_GOOD, 3250_GOOD, 3437_GOOD, 3437_MOD, 3583_GOOD, 3583_MOD, 3241_MOD, 3250_POOR, 3437_POOR, 3581_MOD, 3583_POOR**	12.6	290.00

Cercartetus nanus / Eastern Pygmy-possum	**3241_GOOD, 3250_GOOD, 3437_GOOD, 3437_MOD, 3583_GOOD, 3583_MOD, 3241_MOD, 3250_POOR, 3437_POOR, 3581_MOD, 3583_POOR**	12.6	290.00
Charadrius leschenaultii / Greater Sand-plover	**4038_GOOD**	0.0	1.00
Charadrius mongolus / Lesser Sand-plover	**4038_GOOD**	0.0	1.00
Corybas dowlingii / Red Helmet Orchid	**3241_GOOD, 3250_GOOD, 3437_GOOD, 3437_MOD, 3241_MOD, 3250_POOR, 3437_POOR, 3581_MOD**	10.2	234.00
Crinia tinnula / Wallum Froglet	**3250_GOOD, 3437_GOOD, 3437_MOD, 3583_GOOD, 3583_MOD, 3250_POOR, 3437_POOR, 3581_MOD, 3583_POOR**	11.4	205.00
Cryptostylis hunteriana / Leafless Tongue Orchid	**3250_GOOD, 3437_GOOD, 3437_MOD, 3583_GOOD, 3583_MOD, 3250_POOR, 3437_POOR, 3581_MOD, 3583_POOR**	11.4	205.00
Cynanchum elegans / White-flowered Wax Plant	**3250_GOOD, 3250_POOR**	1.6	43.00
Dendrobium melaleucaphilum / Spider orchid	**3250_GOOD, 3250_POOR**	1.6	43.00
Diuris flavescens / Pale Yellow Doubletail	**3241_GOOD, 3241_MOD**	1.2	28.00

Diuris praecox / Rough Doubletail	**3250_GOOD, 3437_GOOD, 3437_MOD, 3583_GOOD, 3583_MOD, 3250_POOR, 3437_POOR, 3581_MOD, 3583_POOR**	11.4	205.00
Dromaius novaehollandiae - endangered population / Emu population in the New South Wales North Coast Bioregion and Port Stephens local government area	**3241_GOOD, 3250_GOOD, 3437_GOOD, 3437_MOD, 3583_GOOD, 3583_MOD, 3241_MOD, 3250_POOR, 3437_POOR, 3581_MOD, 3583_POOR**	12.6	290.00
Esacus magnirostris / Beach Stone-curlew	**3250_GOOD, 3250_POOR**	1.6	65.00
Grevillea parviflora subsp. parviflora / Small-flower Grevillea	**3583_GOOD, 3583_MOD, 3581_MOD, 3583_POOR**	2.7	64.00
Haliaeetus leucogaster / White-bellied Sea-Eagle	**3241_GOOD, 3250_GOOD, 3437_GOOD, 3437_MOD, 3583_GOOD, 3583_MOD, 3241_MOD, 3250_POOR, 3437_POOR, 3581_MOD, 3583_POOR**	12.6	290.00

Hieraaetus morphnoides / Little Eagle	**3241_GOOD, 3250_GOOD, 3437_GOOD, 3437_MOD, 3583_GOOD, 3583_MOD, 3241_MOD, 3250_POOR, 3437_POOR, 3581_MOD, 3583_POOR**	12.6	219.00
Hoplocephalus bitorquatus / Pale-headed Snake	**3250_GOOD, 3250_POOR**	1.6	43.00
Hoplocephalus stephensii / Stephens' Banded Snake	**3241_GOOD, 3250_GOOD, 3583_GOOD, 3583_MOD, 3241_MOD, 3250_POOR, 3581_MOD, 3583_POOR**	5.5	125.00
Limosa lapponica baueri / Bar-tailed Godwit (baueri)	**4038_GOOD**	0.0	1.00
Lindernia alsinoides / Noah's False Chickweed	**3250_GOOD, 3250_POOR**	1.6	43.00
Litoria aurea / Green and Golden Bell Frog	**3241_GOOD, 3437_GOOD, 3437_MOD, 3583_GOOD, 3583_MOD, 3241_MOD, 3437_POOR, 3581_MOD, 3583_POOR**	11.0	247.00
Litoria brevipalmata / Green-thighed Frog	**3241_GOOD, 3250_GOOD, 3241_MOD, 3250_POOR**	2.8	47.00

Lophoictinia isura / Square-tailed Kite	**3241_GOOD, 3250_GOOD, 3437_GOOD, 3437_MOD, 3583_GOOD, 3583_MOD, 3241_MOD, 3250_POOR, 3437_POOR, 3581_MOD, 3583_POOR**	12.6	219.00
Maundia triglochinoides / Maundia triglochinoides	**4038_GOOD**	0.0	1.00
Miniopterus australis / Little Bent-winged Bat	**3241_GOOD, 3250_GOOD, 3437_GOOD, 3437_MOD, 3583_GOOD, 3583_MOD, 3241_MOD, 3250_POOR, 3437_POOR, 3581_MOD, 3583_POOR**	12.6	435.00
Miniopterus orianae oceanensis / Large Bent-winged Bat	**3241_GOOD, 3250_GOOD, 3437_GOOD, 3437_MOD, 3583_GOOD, 3583_MOD, 3241_MOD, 3250_POOR, 3437_POOR, 3581_MOD, 3583_POOR**	12.6	435.00
Mixophyes balbus / Stuttering Frog	**3241_GOOD, 3250_GOOD, 3437_GOOD, 3437_MOD, 3583_GOOD, 3583_MOD, 3241_MOD, 3250_POOR, 3437_POOR, 3581_MOD, 3583_POOR**	12.6	435.00

Mixophyes iteratus / Giant Barred Frog	**3241_GOOD, 3250_GOOD, 3583_GOOD, 3583_MOD, 3241_MOD, 3250_POOR, 3581_MOD, 3583_POOR**	5.5	95.00
Myotis macropus / Southern Myotis	**3241_GOOD, 3250_GOOD, 3437_GOOD, 3437_MOD, 3583_GOOD, 3583_MOD, 3241_MOD, 3250_POOR, 3437_POOR, 3581_MOD, 3583_POOR**	12.6	290.00
Ninox connivens / Barking Owl	**3241_GOOD, 3250_GOOD, 3437_GOOD, 3437_MOD, 3583_GOOD, 3583_MOD, 3241_MOD, 3250_POOR, 3437_POOR, 3581_MOD, 3583_POOR**	12.6	290.00
Ninox strenua / Powerful Owl	**3241_GOOD, 3250_GOOD, 3437_GOOD, 3437_MOD, 3583_GOOD, 3583_MOD, 3241_MOD, 3250_POOR, 3437_POOR, 3581_MOD, 3583_POOR**	12.6	290.00
Notamacropus parma / Parma Wallaby	**3250_GOOD, 3437_GOOD, 3437_MOD, 3250_POOR, 3437_POOR, 3581_MOD**	9.0	216.00

Numenius madagascariensis / Eastern Curlew	**4038_GOOD**	0.0	1.00
Pandion cristatus / Eastern Osprey	**3241_GOOD, 3250_GOOD, 3437_GOOD, 3437_MOD, 3583_GOOD, 3583_MOD, 3241_MOD, 3250_POOR, 3437_POOR, 3581_MOD, 3583_POOR**	12.6	219.00
Petauroides volans / Southern Greater Glider	**3241_GOOD, 3250_GOOD, 3437_GOOD, 3437_MOD, 3241_MOD, 3250_POOR, 3437_POOR, 3581_MOD**	10.2	234.00
Petaurus norfolcensis / Squirrel Glider	**3241_GOOD, 3250_GOOD, 3437_GOOD, 3437_MOD, 3583_GOOD, 3583_MOD, 3241_MOD, 3250_POOR, 3437_POOR, 3581_MOD, 3583_POOR**	12.6	290.00
Phascogale tapoatafa / Brush-tailed Phascogale	**3250_GOOD, 3437_GOOD, 3437_MOD, 3583_GOOD, 3583_MOD, 3250_POOR, 3437_POOR, 3581_MOD, 3583_POOR**	11.4	272.00

Phascolarctos cinereus / Koala	**3241_GOOD, 3250_GOOD, 3437_GOOD, 3437_MOD, 3583_GOOD, 3583_MOD, 3241_MOD, 3250_POOR, 3437_POOR, 3581_MOD, 3583_POOR**	12.6	290.00
Planigale maculata / Common Planigale	**3250_GOOD, 3437_GOOD, 3437_MOD, 3583_GOOD, 3583_MOD, 3250_POOR, 3437_POOR, 3581_MOD, 3583_POOR**	11.4	272.00
Potorous tridactylus / Long-nosed Potoroo	**3250_GOOD, 3583_GOOD, 3583_MOD, 3250_POOR, 3581_MOD, 3583_POOR**	4.3	107.00
Pteropus poliocephalus / Grey-headed Flying-fox	**3241_GOOD, 3250_GOOD, 3437_GOOD, 3437_MOD, 3583_GOOD, 3583_MOD, 3241_MOD, 3250_POOR, 3437_POOR, 3581_MOD, 3583_POOR**	12.6	290.00
Pterostylis chaetophora / Pterostylis chaetophora	**3241_GOOD, 3437_GOOD, 3437_MOD, 3241_MOD, 3437_POOR**	8.3	183.00

Rhizanthella slateri / Eastern Australian Underground Orchid	**3241_GOOD, 3250_GOOD, 3583_GOOD, 3583_MOD, 3241_MOD, 3250_POOR, 3581_MOD, 3583_POOR**	5.5	187.00
Rhizanthella slateri - endangered population / Rhizanthella slateri (Rupp) M.A. Clem. & Cribb in the Great Lakes local government area	**3241_GOOD, 3250_GOOD, 3241_MOD, 3250_POOR, 3581_MOD**	3.1	104.00
Solanum sulphureum / Manning Yellow Solanum	**3241_GOOD, 3250_GOOD, 3241_MOD, 3250_POOR**	2.8	61.00
Syzygium paniculatum / Magenta Lilly Pilly	**3241_GOOD, 3250_GOOD**	10.0	20.00
Tetratheca juncea / Black-eyed Susan	**3241_GOOD, 3241_MOD**	1.2	18.00
Thesium australe / Austral Toadflax	**3250_GOOD, 3250_POOR**	1.6	33.00
Turnix maculosus / Red-backed Button-quail	**3241_GOOD, 3250_GOOD, 3241_MOD, 3250_POOR**	2.8	61.00
Tyto novaehollandiae / Masked Owl	**3250_GOOD, 3437_GOOD, 3437_MOD, 3583_GOOD, 3583_MOD, 3250_POOR, 3437_POOR, 3581_MOD, 3583_POOR**	11.4	272.00
Uperoleia mahonyi / Mahony's Toadlet	**3437_GOOD, 3437_MOD, 3583_GOOD, 3583_MOD, 3437_POOR, 3581_MOD, 3583_POOR**	9.8	229.00
Xenus cinereus / Terek Sandpiper	**4038_GOOD**	0.0	1.00

Credit Retirement Options	Like-for-like credit retirement options	
Angophora inopina / Charmhaven Apple	Spp	IBRA subregion
	Angophora inopina / Charmhaven Apple	Any in NSW
Asperula asthenes / Trailing Woodruff	Spp	IBRA subregion
	Asperula asthenes / Trailing Woodruff	Any in NSW
Burhinus grallarius / Bush Stone-curlew	Spp	IBRA subregion
	Burhinus grallarius / Bush Stone-curlew	Any in NSW
Calidris alba / Sanderling	Spp	IBRA subregion
	Calidris alba / Sanderling	Any in NSW
Calidris canutus / Red Knot	Spp	IBRA subregion
	Calidris canutus / Red Knot	Any in NSW
Calidris ferruginea / Curlew Sandpiper	Spp	IBRA subregion
	Calidris ferruginea / Curlew Sandpiper	Any in NSW

Calidris tenuirostris / Great Knot	Spp	IBRA subregion
	Calidris tenuirostris / Great Knot	Any in NSW
Callistemon linearifolius / Netted Bottle Brush	Spp	IBRA subregion
	Callistemon linearifolius / Netted Bottle Brush	Any in NSW
Callocephalon fimbriatum / Gang-gang Cockatoo	Spp	IBRA subregion
	Callocephalon fimbriatum / Gang-gang Cockatoo	Any in NSW
Calyptorhynchus lathami lathami / South-eastern Glossy Black-Cockatoo	Spp	IBRA subregion
	Calyptorhynchus lathami lathami / South-eastern Glossy Black-Cockatoo	Any in NSW
Cercartetus nanus / Eastern Pygmy-possum	Spp	IBRA subregion
	Cercartetus nanus / Eastern Pygmy-possum	Any in NSW
Charadrius leschenaultii / Greater Sand-plover	Spp	IBRA subregion
	Charadrius leschenaultii / Greater Sand-plover	Any in NSW

Charadrius mongolus / Lesser Sand-plover	Spp	IBRA subregion
	Charadrius mongolus / Lesser Sand-plover	Any in NSW
Corybas dowlingii / Red Helmet Orchid	Spp	IBRA subregion
	Corybas dowlingii / Red Helmet Orchid	Any in NSW
Crinia tinnula / Wallum Froglet	Spp	IBRA subregion
	Crinia tinnula / Wallum Froglet	Any in NSW
Cryptostylis hunteriana / Leafless Tongue Orchid	Spp	IBRA subregion
	Cryptostylis hunteriana / Leafless Tongue Orchid	Any in NSW
Cynanchum elegans / White-flowered Wax Plant	Spp	IBRA subregion
	Cynanchum elegans / White-flowered Wax Plant	Any in NSW
Dendrobium melaleucaphilum / Spider orchid	Spp	IBRA subregion
	Dendrobium melaleucaphilum / Spider orchid	Any in NSW
Diuris flavescens / Pale Yellow Doubletail	Spp	IBRA subregion

	Diuris flavescens / Pale Yellow Doubletail	Any in NSW
Diuris praecox / Rough Doubletail	Spp	IBRA subregion
	Diuris praecox / Rough Doubletail	Any in NSW
Dromaius novaehollandiae - endangered population / Emu population in the New South Wales North Coast Bioregion and Port Stephens local government area	Spp	IBRA subregion
	Dromaius novaehollandiae - endangered population / Emu population in the New South Wales North Coast Bioregion and Port Stephens local government area	Any in NSW
Esacus magnirostris / Beach Stone-curlew	Spp	IBRA subregion
	Esacus magnirostris / Beach Stone-curlew	Any in NSW
Grevillea parviflora subsp. parviflora / Small-flower Grevillea	Spp	IBRA subregion
	Grevillea parviflora subsp. parviflora / Small-flower Grevillea	Any in NSW
Haliaeetus leucogaster / White-bellied Sea-Eagle	Spp	IBRA subregion
	Haliaeetus leucogaster / White-bellied Sea-Eagle	Any in NSW
Hieraaetus morphnoides / Little Eagle	Spp	IBRA subregion
	Hieraaetus morphnoides / Little Eagle	Any in NSW

Hoplocephalus bitorquatus / Pale-headed Snake	Spp	IBRA subregion
	Hoplocephalus bitorquatus / Pale-headed Snake	Any in NSW
Hoplocephalus stephensii / Stephens' Banded Snake	Spp	IBRA subregion
	Hoplocephalus stephensii / Stephens' Banded Snake	Any in NSW
Limosa lapponica baueri / Bar-tailed Godwit (baueri)	Spp	IBRA subregion
	Limosa lapponica baueri / Bar-tailed Godwit (baueri)	Any in NSW
Lindernia alsinoides / Noah's False Chickweed	Spp	IBRA subregion
	Lindernia alsinoides / Noah's False Chickweed	Any in NSW
Litoria aurea / Green and Golden Bell Frog	Spp	IBRA subregion
	Litoria aurea / Green and Golden Bell Frog	Any in NSW
Litoria brevipalmata / Green-thighed Frog	Spp	IBRA subregion
	Litoria brevipalmata / Green-thighed Frog	Any in NSW
Lophoictinia isura / Square-tailed Kite	Spp	IBRA subregion

	Lophoictinia isura / Square-tailed Kite	Any in NSW
Maundia triglochinoides / Maundia triglochinoides	Spp	IBRA subregion
	Maundia triglochinoides / Maundia triglochinoides	Any in NSW
Miniopterus australis / Little Bent-winged Bat	Spp	IBRA subregion
	Miniopterus australis / Little Bent-winged Bat	Any in NSW
Miniopterus orianae oceanensis / Large Bent-winged Bat	Spp	IBRA subregion
	Miniopterus orianae oceanensis / Large Bent-winged Bat	Any in NSW
Mixophyes balbus / Stuttering Frog	Spp	IBRA subregion
	Mixophyes balbus / Stuttering Frog	Any in NSW
Mixophyes iteratus / Giant Barred Frog	Spp	IBRA subregion
	Mixophyes iteratus / Giant Barred Frog	Any in NSW
Myotis macropus / Southern Myotis	Spp	IBRA subregion
	Myotis macropus / Southern Myotis	Any in NSW

Ninox connivens / Barking Owl	Spp	IBRA subregion
	Ninox connivens / Barking Owl	Any in NSW
Ninox strenua / Powerful Owl	Spp	IBRA subregion
	Ninox strenua / Powerful Owl	Any in NSW
Notamacropus parma / Parma Wallaby	Spp	IBRA subregion
	Notamacropus parma / Parma Wallaby	Any in NSW
Numenius madagascariensis / Eastern Curlew	Spp	IBRA subregion
	Numenius madagascariensis / Eastern Curlew	Any in NSW
Pandion cristatus / Eastern Osprey	Spp	IBRA subregion
	Pandion cristatus / Eastern Osprey	Any in NSW
Petauroides volans / Southern Greater Glider	Spp	IBRA subregion
	Petauroides volans / Southern Greater Glider	Any in NSW
Petaurus norfolcensis / Squirrel Glider	Spp	IBRA subregion

	Petaurus norfolcensis / Squirrel Glider	Any in NSW
Phascogale tapoatafa / Brush-tailed Phascogale	Spp	IBRA subregion
	Phascogale tapoatafa / Brush-tailed Phascogale	Any in NSW
Phascolarctos cinereus / Koala	Spp	IBRA subregion
	Phascolarctos cinereus / Koala	Any in NSW
Planigale maculata / Common Planigale	Spp	IBRA subregion
	Planigale maculata / Common Planigale	Any in NSW
Potorous tridactylus / Long-nosed Potoroo	Spp	IBRA subregion
	Potorous tridactylus / Long-nosed Potoroo	Any in NSW
Pteropus poliocephalus / Grey-headed Flying-fox	Spp	IBRA subregion
	Pteropus poliocephalus / Grey-headed Flying-fox	Any in NSW
Pterostylis chaetophora / Pterostylis chaetophora	Spp	IBRA subregion
	Pterostylis chaetophora / Pterostylis chaetophora	Any in NSW

Rhizanthella slateri / Eastern Australian Underground Orchid	Spp	IBRA subregion
	Rhizanthella slateri / Eastern Australian Underground Orchid	Any in NSW
Rhizanthella slateri - endangered population / Rhizanthella slateri (Rupp) M.A. Clem. & Cribb in the Great Lakes local government area	Spp	IBRA subregion
	Rhizanthella slateri - endangered population / Rhizanthella slateri (Rupp) M.A. Clem. & Cribb in the Great Lakes local government area	Any in NSW
Solanum sulphureum / Manning Yellow Solanum	Spp	IBRA subregion
	Solanum sulphureum / Manning Yellow Solanum	Any in NSW
Syzygium paniculatum / Magenta Lilly Pilly	Spp	IBRA subregion
	Syzygium paniculatum / Magenta Lilly Pilly	Any in NSW
Tetratheca juncea / Black-eyed Susan	Spp	IBRA subregion
	Tetratheca juncea / Black-eyed Susan	Any in NSW
Thesium australe / Austral Toadflax	Spp	IBRA subregion
	Thesium australe / Austral Toadflax	Any in NSW

Turnix maculosus / Red-backed Button-quail	Spp	IBRA subregion
	Turnix maculosus / Red-backed Button-quail	Any in NSW
Tyto novaehollandiae / Masked Owl	Spp	IBRA subregion
	Tyto novaehollandiae / Masked Owl	Any in NSW
Uperoleia mahonyi / Mahony's Toadlet	Spp	IBRA subregion
	Uperoleia mahonyi / Mahony's Toadlet	Any in NSW
Xenus cinereus / Terek Sandpiper	Spp	IBRA subregion
	Xenus cinereus / Terek Sandpiper	Any in NSW

BAM Candidate Species Report

Proposal Details

Assessment Id 00052993/BAAS18098/24/00052994	Proposal Name Bundabah	BAM data last updated * 28/10/2024
Assessor Name Michael Somerville	Report Created 23/06/2025	BAM Data version * Current classification (live - default) (80)
Assessor Number BAAS18098	Assessment Type Part 4 Developments (General)	BAM Case Status Finalised
Assessment Revision 2	BOS entry trigger BOS Threshold: Biodiversity Values Map	Date Finalised 23/06/2025

* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.

List of Species Requiring Survey

Name	Presence	Survey Months
Angophora inopina Charmhaven Apple	Yes (surveyed)	☑ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Asperula asthenes Trailing Woodruff	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Burhinus grallarius Bush Stone-curlew	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?

Calidris alba Sanderling	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Calidris canutus Red Knot	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Calidris ferruginea Curlew Sandpiper	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Calidris tenuirostris Great Knot	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Callistemon linearifolius Netted Bottle Brush	Yes (surveyed)	☑ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Callocephalon fimbriatum Gang-gang Cockatoo	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?

Calyptorhynchus lathami lathami South-eastern Glossy Black-Cockatoo	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Cercartetus nanus Eastern Pygmy-possum	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Charadrius leschenaultii Greater Sand-plover	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Charadrius mongolus Lesser Sand-plover	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Corybas dowlingii Red Helmet Orchid	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Crinia tinnula Wallum Froglet	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?

Cryptostylis hunteriana Leafless Tongue Orchid	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Cynanchum elegans White-flowered Wax Plant	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Dendrobium melaleucaphilum Spider orchid	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Diuris flavescens Pale Yellow Doubletail	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Diuris praecox Rough Doubletail	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Dromaius novaehollandiae - endangered population Emu population in the New South Wales North Coast Bioregion and Port Stephens local government area	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?

Esacus magnirostris Beach Stone-curlew	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Eucalyptus camfieldii Camfield's Stringybark	No (surveyed)	☑ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Eucalyptus glaucina Slaty Red Gum	No (surveyed)	☑ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Eucalyptus largeana Craven Grey Box	No (surveyed)	☑ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Grevillea parviflora subsp. parviflora Small-flower Grevillea	Yes (surveyed) *Survey months are outside of the months specified in Bionet.	☑ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☑ Nov ☐ Dec ☑ Survey month outside the specified months?
Haliaeetus leucogaster White-bellied Sea-Eagle	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?

Hieraaetus morphnoides Little Eagle	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Hoplocephalus bitorquatus Pale-headed Snake	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Hoplocephalus stephensii Stephens' Banded Snake	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Limosa lapponica baueri Bar-tailed Godwit (baueri)	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Lindernia alsinoides Noah's False Chickweed	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Litoria aurea Green and Golden Bell Frog	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?

Litoria brevipalmata Green-thighed Frog	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Lophoictinia isura Square-tailed Kite	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Maundia triglochinoides Maundia triglochinoides	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Melaleuca biconvexa Biconvex Paperbark	No (surveyed)	☑ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Melaleuca groveana Grove's Paperbark	No (surveyed)	☑ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Miniopterus australis Little Bent-winged Bat	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?

Miniopterus orianae oceanensis Large Bent-winged Bat	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Mixophyes balbus Stuttering Frog	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Mixophyes iteratus Giant Barred Frog	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Myotis macropus Southern Myotis	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Ninox connivens Barking Owl	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Ninox strenua Powerful Owl	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?

Notamacropus parma Parma Wallaby	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Numenius madagascariensis Eastern Curlew	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Pandion cristatus Eastern Osprey	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Petauroides volans Southern Greater Glider	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Petaurus norfolcensis Squirrel Glider	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Phascogale tapoatafa Brush-tailed Phascogale	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?

Phascolarctos cinereus Koala	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Planigale maculata Common Planigale	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Potorous tridactylus Long-nosed Potoroo	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Pteropus poliocephalus Grey-headed Flying-fox	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Pterostylis chaetophora Pterostylis chaetophora	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Rhizanthella slateri Eastern Australian Underground Orchid	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?

Rhizanthella slateri - endangered population Rhizanthella slateri (Rupp) M.A. Clem. & Cribb in the Great Lakes local government area	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Rhodamnia rubescens Scrub Turpentine	No (surveyed)	☑ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Rhodomyrtus psidioides Native Guava	No (surveyed)	☑ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Solanum sulphureum Manning Yellow Solanum	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Syzygium paniculatum Magenta Lilly Pilly	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Tetratheca juncea Black-eyed Susan	Yes (surveyed) *Survey months are outside of the months specified in Bionet.	☑ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☑ Oct ☐ Nov ☐ Dec ☑ Survey month outside the specified months?

Thesium australe Austral Toadflax	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Turnix maculosus Red-backed Button-quail	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Tyto novaehollandiae Masked Owl	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Uperoleia mahonyi Mahony's Toadlet	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Xenus cinereus Terek Sandpiper	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?

Threatened species Manually Added

None added

Threatened species assessed as not on site

Refer to BAR for detailed justification

Common name	Scientific name	Justification in the BAM-C
Broad-billed Sandpiper	Limicola falcinellus	Refer to BAR
Brush-tailed Rock-wallaby	Petrogale penicillata	Refer to BAR
Eastern Cave Bat	Vespadelus troughtoni	Refer to BAR
Eucalyptus seeana population in the Greater Taree local government area	Eucalyptus seeana - endangered population	Geographic limitations
Large-eared Pied Bat	Chalinolobus dwyeri	Refer to BAR
Regent Honeyeater	Anthochaera phrygia	Refer to BAR
Rufous Bettong	Aepyprymnus rufescens	Geographic limitations
Sooty Owl	Tyto tenebricosa	Refer to BAR
Swift Parrot	Lathamus discolor	Refer to BAR

BAM Credit Summary Report

Proposal Details

Assessment Id
00052993/BAAS18098/24/00052994

Proposal Name
Bundabah

BAM data last updated *
28/10/2024

Assessor Name
Michael Somerville

Report Created
23/06/2025

BAM Data version *
Current classification (live - default) (80)

Assessor Number
BAAS18098

BAM Case Status
Finalised

Date Finalised
23/06/2025

Assessment Revision
2

BOS entry trigger
BOS Threshold: Biodiversity Values Map

Assessment Type
Part 4 Developments (General)

* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.

Ecosystem credits for plant communities types (PCT), ecological communities & threatened species habitat

Zone	Vegetation zone name	TEC name	Current Vegetation integrity score	Change in Vegetation integrity (loss / gain)	Area (ha)	Sensitivity to loss (Justification)	Species sensitivity to gain class	BC Act Listing status	EPBC Act listing status	Biodiversity risk weighting	Potential SAII	Ecosystem credits
Hunter Coast Foothills Apple Forest												
8	3581_MOD	Not a TEC	50.1	50.1	0.3	PCT Cleared - 26%	High Sensitivity to Gain			1.50		6
											Subtotal	**6**

Hunter Coast Lowland Scribbly Gum Forest												
9	3583_GOOD	Not a TEC	62.1	62.1	1.1	PCT Cleared - 64%	High Sensitivity to Gain			1.75		30
10	3583_MOD	Not a TEC	50.5	50.5	0.5	PCT Cleared - 64%	High Sensitivity to Gain			1.75		11
11	3583_POOR	Not a TEC	22	22.0	0.8	PCT Cleared - 64%	High Sensitivity to Gain			1.75		8
											Subtotal	**49**
Hunter Coast Lowland Spotted Gum Dry Forest												
5	3437_GOOD	Not a TEC	54.2	54.2	3.2	PCT Cleared - 60%	High Sensitivity to Gain			1.75		76
6	3437_MOD	Not a TEC	41.7	41.7	2.4	PCT Cleared - 60%	High Sensitivity to Gain			1.75		44
7	3437_POOR	Not a TEC	37.9	37.9	1.5	PCT Cleared - 60%	High Sensitivity to Gain			1.75		25
											Subtotal	**145**

Hunter Estuarine Melaleuca nodosa Scrub												
13	4038_GOOD	Swamp Oak Floodplain Forest of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions	36.5	36.5	0.1	Biodiversity Conservation Act listing status	High Sensitivity to Gain	Endangered Ecological Community	Not Listed	2.00		2
											Subtotal	**2**
Lower North White Mahogany-Spotted Gum Moist Forest												
1	3241_GOOD	Not a TEC	42.2	42.2	0.3	PCT Cleared - 31%	High Sensitivity to Gain			1.50		5
2	3241_MOD	Not a TEC	27.4	27.4	0.9	PCT Cleared - 31%	High Sensitivity to Gain			1.50		9
											Subtotal	**14**
Northern Foothills Blackbutt Grassy Forest												
3	3250_GOOD	Not a TEC	63.7	63.7	2.1	PCT Cleared - 30%	High Sensitivity to Gain			1.50		50

4	3250_POOR	Not a TEC	26.5	26.5	0.5	PCT Cleared - 30%	High Sensitivity to Gain			1.50		5
12	3250_DNG	Not a TEC	29.7	29.7	0.1	PCT Cleared - 30%	High Sensitivity to Gain			1.50		1
											Subtotal	**56**
											Total	**272**

Species credits for threatened species

Vegetation zone name	Habitat condition (Vegetation Integrity)	Change in habitat condition	Area (ha)/Count (no. individuals)	Sensitivity to loss (Justification)	Sensitivity to gain (Justification)	BC Act Listing status	EPBC Act listing status	Potential SAII	Species credits
Angophora inopina / Charmhaven Apple (Flora)									
3583_GOOD	62.1	62.1	1.1	Biodiversity Conservation Act listing status	Ability to colonise improved habitat	Vulnerable	Vulnerable	False	34
3583_MOD	50.5	50.5	0.5	Biodiversity Conservation Act listing status	Ability to colonise improved habitat	Vulnerable	Vulnerable	False	13
3581_MOD	50.1	50.1	0.26	Biodiversity Conservation Act listing status	Ability to colonise improved habitat	Vulnerable	Vulnerable	False	7

3583_POOR	22.0	22.0	0.8	Biodiversity Conservation Act listing status	Ability to colonise improved habitat	Vulnerable	Vulnerable	False	9
								Subtotal	**63**
Asperula asthenes / Trailing Woodruff (Flora)									
3241_GOOD	42.2	42.2	0.3	Biodiversity Conservation Act listing status	Quantity class of viable seeds produced	Vulnerable	Vulnerable	False	6
3250_GOOD	63.7	63.7	1.2	Biodiversity Conservation Act listing status	Quantity class of viable seeds produced	Vulnerable	Vulnerable	False	38
3241_MOD	27.4	27.4	0.9	Biodiversity Conservation Act listing status	Quantity class of viable seeds produced	Vulnerable	Vulnerable	False	12
3250_POOR	26.5	26.5	0.4	Biodiversity Conservation Act listing status	Quantity class of viable seeds produced	Vulnerable	Vulnerable	False	5
								Subtotal	**61**

Burhinus grallarius / Bush Stone-curlew (Fauna)									
3250_GOOD	63.7	63.7	1.2	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Not Listed	False	38
3437_GOOD	54.2	54.2	3.2	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Not Listed	False	87
3437_MOD	41.7	41.7	2.4	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Not Listed	False	50
3583_GOOD	62.1	62.1	1.1	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Not Listed	False	34
3583_MOD	50.5	50.5	0.5	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Not Listed	False	13

3250_POOR	26.5	26.5	0.4	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Not Listed	False	5
3437_POOR	37.9	37.9	1.5	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Not Listed	False	28
3581_MOD	50.1	50.1	0.3	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Not Listed	False	8
3583_POOR	22.0	22.0	0.8	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Not Listed	False	9
								Subtotal	**272**
Calidris alba / Sanderling (Fauna)									
4038_GOOD	36.5	36.5	0.04	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Not Listed	False	1
								Subtotal	**1**

Calidris canutus / Red Knot (Fauna)									
4038_GOOD	36.5	36.5	0.04	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Not Listed	Endangered	False	1
								Subtotal	**1**
Calidris ferruginea / Curlew Sandpiper (Fauna)									
4038_GOOD	36.5	36.5	0.04	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Critically Endangered	Critically Endangered	True	1
								Subtotal	**1**
Calidris tenuirostris / Great Knot (Fauna)									
4038_GOOD	36.5	36.5	0.04	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Vulnerable	False	1
								Subtotal	**1**

Callistemon linearifolius / Netted Bottle Brush (Flora)									
3437_GOOD	N/A	N/A	10	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Not Listed	False	15
								Subtotal	**15**
Callocephalon fimbriatum / Gang-gang Cockatoo (Fauna)									
3241_GOOD	42.2	42.2	0.3	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Endangered	Endangered	False	6
3437_GOOD	54.2	54.2	3.2	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Endangered	Endangered	False	87
3437_MOD	41.7	41.7	2.4	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Endangered	Endangered	False	50
3583_GOOD	62.1	62.1	1.1	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Endangered	Endangered	False	34
3583_MOD	50.5	50.5	0.5	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Endangered	Endangered	False	13

3241_MOD	27.4	27.4	0.9	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Endangered	Endangered	False	12
3437_POOR	37.9	37.9	1.5	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Endangered	Endangered	False	28
3581_MOD	50.1	50.1	0.3	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Endangered	Endangered	False	8
3583_POOR	22.0	22.0	0.8	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Endangered	Endangered	False	9
								Subtotal	**247**
Calyptorhynchus lathami lathami / South-eastern Glossy Black-Cockatoo (Fauna)									
3241_GOOD	42.2	42.2	0.3	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Vulnerable	False	6
3250_GOOD	63.7	63.7	1.2	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Vulnerable	False	38

3437_GOOD	54.2	54.2	3.2	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Vulnerable	False	87
3437_MOD	41.7	41.7	2.4	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Vulnerable	False	50
3583_GOOD	62.1	62.1	1.1	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Vulnerable	False	34
3583_MOD	50.5	50.5	0.5	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Vulnerable	False	13
3241_MOD	27.4	27.4	0.9	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Vulnerable	False	12
3250_POOR	26.5	26.5	0.4	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Vulnerable	False	5
3437_POOR	37.9	37.9	1.5	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Vulnerable	False	28

3581_MOD	50.1	50.1	0.3	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Vulnerable	False	8
3583_POOR	22.0	22.0	0.8	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Vulnerable	False	9
								Subtotal	**290**
Cercartetus nanus / Eastern Pygmy-possum (Fauna)									
3241_GOOD	42.2	42.2	0.3	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Not Listed	False	6
3250_GOOD	63.7	63.7	1.2	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Not Listed	False	38
3437_GOOD	54.2	54.2	3.2	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Not Listed	False	87

3437_MOD	41.7	41.7	2.4	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Not Listed	False	50
3583_GOOD	62.1	62.1	1.1	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Not Listed	False	34
3583_MOD	50.5	50.5	0.5	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Not Listed	False	13
3241_MOD	27.4	27.4	0.9	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Not Listed	False	12
3250_POOR	26.5	26.5	0.4	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Not Listed	False	5
3437_POOR	37.9	37.9	1.5	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Not Listed	False	28

3581_MOD	50.1	50.1	0.3	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Not Listed	False	8
3583_POOR	22.0	22.0	0.8	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Not Listed	False	9
								Subtotal	**290**
Charadrius leschenaultii / Greater Sand-plover (Fauna)									
4038_GOOD	36.5	36.5	0.04	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Vulnerable	False	1
								Subtotal	**1**
Charadrius mongolus / Lesser Sand-plover (Fauna)									
4038_GOOD	36.5	36.5	0.04	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Endangered	False	1
								Subtotal	**1**

Corybas dowlingii / Red Helmet Orchid (Flora)									
3241_GOOD	42.2	42.2	0.3	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Not Listed	False	6
3250_GOOD	63.7	63.7	1.2	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Not Listed	False	38
3437_GOOD	54.2	54.2	3.2	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Not Listed	False	87
3437_MOD	41.7	41.7	2.4	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Not Listed	False	50
3241_MOD	27.4	27.4	0.9	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Not Listed	False	12

3250_POOR	26.5	26.5	0.4	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Not Listed	False	5
3437_POOR	37.9	37.9	1.5	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Not Listed	False	28
3581_MOD	50.1	50.1	0.3	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Not Listed	False	8
								Subtotal	**234**
Crinia tinnula / Wallum Froglet (Fauna)									
3250_GOOD	63.7	63.7	1.2	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Not Listed	False	29
3437_GOOD	54.2	54.2	3.2	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Not Listed	False	65

3437_MOD	41.7	41.7	2.4	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Not Listed	False	38
3583_GOOD	62.1	62.1	1.1	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Not Listed	False	26
3583_MOD	50.5	50.5	0.5	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Not Listed	False	9
3250_POOR	26.5	26.5	0.4	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Not Listed	False	4
3437_POOR	37.9	37.9	1.5	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Not Listed	False	21
3581_MOD	50.1	50.1	0.3	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Not Listed	False	6

3583_POOR	22.0	22.0	0.8	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Not Listed	False	7
								Subtotal	**205**
Cryptostylis hunteriana / Leafless Tongue Orchid (Flora)									
3250_GOOD	63.7	63.7	1.2	Biodiversity Conservation Act listing status	Ability to colonise improved habitat	Vulnerable	Vulnerable	False	29
3437_GOOD	54.2	54.2	3.2	Biodiversity Conservation Act listing status	Ability to colonise improved habitat	Vulnerable	Vulnerable	False	65
3437_MOD	41.7	41.7	2.4	Biodiversity Conservation Act listing status	Ability to colonise improved habitat	Vulnerable	Vulnerable	False	38
3583_GOOD	62.1	62.1	1.1	Biodiversity Conservation Act listing status	Ability to colonise improved habitat	Vulnerable	Vulnerable	False	26
3583_MOD	50.5	50.5	0.5	Biodiversity Conservation Act listing status	Ability to colonise improved habitat	Vulnerable	Vulnerable	False	9

3250_POOR	26.5	26.5	0.4	Biodiversity Conservation Act listing status	Ability to colonise improved habitat	Vulnerable	Vulnerable	False	4
3437_POOR	37.9	37.9	1.5	Biodiversity Conservation Act listing status	Ability to colonise improved habitat	Vulnerable	Vulnerable	False	21
3581_MOD	50.1	50.1	0.3	Biodiversity Conservation Act listing status	Ability to colonise improved habitat	Vulnerable	Vulnerable	False	6
3583_POOR	22.0	22.0	0.8	Biodiversity Conservation Act listing status	Ability to colonise improved habitat	Vulnerable	Vulnerable	False	7
								Subtotal	**205**
Cynanchum elegans / White-flowered Wax Plant (Flora)									
3250_GOOD	63.7	63.7	1.2	Biodiversity Conservation Act listing status	Quantity class of viable seeds produced	Endangered	Endangered	False	38
3250_POOR	26.5	26.5	0.4	Biodiversity Conservation Act listing status	Quantity class of viable seeds produced	Endangered	Endangered	False	5
								Subtotal	**43**

Dendrobium melaleucaphilum / Spider orchid (Flora)									
3250_GOOD	63.7	63.7	1.2	Biodiversity Conservation Act listing status	Seedbank Persistence	Endangered	Not Listed	False	38
3250_POOR	26.5	26.5	0.4	Biodiversity Conservation Act listing status	Seedbank Persistence	Endangered	Not Listed	False	5
								Subtotal	**43**
Diuris flavescens / Pale Yellow Doubletail (Flora)									
3241_GOOD	42.2	42.2	0.3	Biodiversity Conservation Act listing status	Ability to colonise improved habitat	Critically Endangered	Critically Endangered	True	9
3241_MOD	27.4	27.4	0.9	Biodiversity Conservation Act listing status	Ability to colonise improved habitat	Critically Endangered	Critically Endangered	True	19
								Subtotal	**28**
Diuris praecox / Rough Doubletail (Flora)									
3250_GOOD	63.7	63.7	1.2	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Vulnerable	False	29

3437_GOOD	54.2	54.2	3.2	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Vulnerable	False	65
3437_MOD	41.7	41.7	2.4	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Vulnerable	False	38
3583_GOOD	62.1	62.1	1.1	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Vulnerable	False	26
3583_MOD	50.5	50.5	0.5	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Vulnerable	False	9
3250_POOR	26.5	26.5	0.4	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Vulnerable	False	4
3437_POOR	37.9	37.9	1.5	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Vulnerable	False	21

3581_MOD	50.1	50.1	0.3	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Vulnerable	False	6
3583_POOR	22.0	22.0	0.8	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Vulnerable	False	7
								Subtotal	**205**
Dromaius novaehollandiae - endangered population / Emu population in the New South Wales North Coast Bioregion and Port Stephens local government area (Fauna)									
3241_GOOD	42.2	42.2	0.3	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered Population	Not Listed	False	6
3250_GOOD	63.7	63.7	1.2	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered Population	Not Listed	False	38
3437_GOOD	54.2	54.2	3.2	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered Population	Not Listed	False	87

3437_MOD	41.7	41.7	2.4	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered Population	Not Listed	False	50
3583_GOOD	62.1	62.1	1.1	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered Population	Not Listed	False	34
3583_MOD	50.5	50.5	0.5	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered Population	Not Listed	False	13
3241_MOD	27.4	27.4	0.9	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered Population	Not Listed	False	12
3250_POOR	26.5	26.5	0.4	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered Population	Not Listed	False	5
3437_POOR	37.9	37.9	1.5	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered Population	Not Listed	False	28

3581_MOD	50.1	50.1	0.3	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered Population	Not Listed	False	8
3583_POOR	22.0	22.0	0.8	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered Population	Not Listed	False	9
								Subtotal	**290**
Esacus magnirostris / Beach Stone-curlew (Fauna)									
3250_GOOD	63.7	63.7	1.2	Biodiversity Conservation Act listing status	Ecology or response to management is poorly known	Critically Endangered	Not Listed	True	57
3250_POOR	26.5	26.5	0.4	Biodiversity Conservation Act listing status	Ecology or response to management is poorly known	Critically Endangered	Not Listed	True	8
								Subtotal	**65**
Grevillea parviflora subsp. parviflora / Small-flower Grevillea (Flora)									
3583_GOOD	62.1	62.1	1.1	Biodiversity Conservation Act listing status	Quantity class of viable seeds produced	Vulnerable	Vulnerable	False	34

3583_MOD	50.5	50.5	0.5	Biodiversity Conservation Act listing status	Quantity class of viable seeds produced	Vulnerable	Vulnerable	False	13
3581_MOD	50.1	50.1	0.3	Biodiversity Conservation Act listing status	Quantity class of viable seeds produced	Vulnerable	Vulnerable	False	8
3583_POOR	22.0	22.0	0.8	Biodiversity Conservation Act listing status	Quantity class of viable seeds produced	Vulnerable	Vulnerable	False	9
								Subtotal	**64**
Haliaeetus leucogaster / White-bellied Sea-Eagle (Fauna)									
3241_GOOD	42.2	42.2	0.3	Biodiversity Conservation Act listing status	Fecundity – age at which females first produce	Vulnerable	Not Listed	False	6
3250_GOOD	63.7	63.7	1.2	Biodiversity Conservation Act listing status	Fecundity – age at which females first produce	Vulnerable	Not Listed	False	38
3437_GOOD	54.2	54.2	3.2	Biodiversity Conservation Act listing status	Fecundity – age at which females first produce	Vulnerable	Not Listed	False	87

3437_MOD	41.7	41.7	2.4	Biodiversity Conservation Act listing status	Fecundity – age at which females first produce	Vulnerable	Not Listed	False	50
3583_GOOD	62.1	62.1	1.1	Biodiversity Conservation Act listing status	Fecundity – age at which females first produce	Vulnerable	Not Listed	False	34
3583_MOD	50.5	50.5	0.5	Biodiversity Conservation Act listing status	Fecundity – age at which females first produce	Vulnerable	Not Listed	False	13
3241_MOD	27.4	27.4	0.9	Biodiversity Conservation Act listing status	Fecundity – age at which females first produce	Vulnerable	Not Listed	False	12
3250_POOR	26.5	26.5	0.4	Biodiversity Conservation Act listing status	Fecundity – age at which females first produce	Vulnerable	Not Listed	False	5
3437_POOR	37.9	37.9	1.5	Biodiversity Conservation Act listing status	Fecundity – age at which females first produce	Vulnerable	Not Listed	False	28
3581_MOD	50.1	50.1	0.3	Biodiversity Conservation Act listing status	Fecundity – age at which females first produce	Vulnerable	Not Listed	False	8

3583_POOR	22.0	22.0	0.8	Biodiversity Conservation Act listing status	Fecundity – age at which females first produce	Vulnerable	Not Listed	False	9
								Subtotal	**290**
Hieraaetus morphnoides / Little Eagle (Fauna)									
3241_GOOD	42.2	42.2	0.3	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Not Listed	False	5
3250_GOOD	63.7	63.7	1.2	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Not Listed	False	29
3437_GOOD	54.2	54.2	3.2	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Not Listed	False	65
3437_MOD	41.7	41.7	2.4	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Not Listed	False	38

3583_GOOD	62.1	62.1	1.1	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Not Listed	False	26
3583_MOD	50.5	50.5	0.5	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Not Listed	False	9
3241_MOD	27.4	27.4	0.9	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Not Listed	False	9
3250_POOR	26.5	26.5	0.4	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Not Listed	False	4
3437_POOR	37.9	37.9	1.5	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Not Listed	False	21
3581_MOD	50.1	50.1	0.3	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Not Listed	False	6

3583_POOR	22.0	22.0	0.8	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Not Listed	False	7
								Subtotal	**219**
Hoplocephalus bitorquatus / Pale-headed Snake (Fauna)									
3250_GOOD	63.7	63.7	1.2	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	38
3250_POOR	26.5	26.5	0.4	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	5
								Subtotal	**43**
Hoplocephalus stephensii / Stephens' Banded Snake (Fauna)									
3241_GOOD	42.2	42.2	0.3	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	6
3250_GOOD	63.7	63.7	1.2	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	38

3583_GOOD	62.1	62.1	1.1	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	34
3583_MOD	50.5	50.5	0.5	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	13
3241_MOD	27.4	27.4	0.9	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	12
3250_POOR	26.5	26.5	0.4	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	5
3581_MOD	50.1	50.1	0.3	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	8
3583_POOR	22.0	22.0	0.8	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	9
								Subtotal	**125**

Limosa lapponica baueri / Bar-tailed Godwit (baueri) (Fauna)									
4038_GOOD	36.5	36.5	0.04	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Not Listed	Vulnerable	False	1
								Subtotal	**1**
Lindernia alsinoides / Noah's False Chickweed (Flora)									
3250_GOOD	63.7	63.7	1.2	Biodiversity Conservation Act listing status	Ability to colonise improved habitat	Endangered	Not Listed	False	38
3250_POOR	26.5	26.5	0.4	Biodiversity Conservation Act listing status	Ability to colonise improved habitat	Endangered	Not Listed	False	5
								Subtotal	**43**
Litoria aurea / Green and Golden Bell Frog (Fauna)									
3241_GOOD	42.2	42.2	0.3	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Vulnerable	False	6

3437_GOOD	54.2	54.2	3.2	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Vulnerable	False	87
3437_MOD	41.7	41.7	2.4	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Vulnerable	False	50
3583_GOOD	62.1	62.1	1.1	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Vulnerable	False	34
3583_MOD	50.5	50.5	0.5	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Vulnerable	False	13
3241_MOD	27.4	27.4	0.9	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Vulnerable	False	12
3437_POOR	37.9	37.9	1.5	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Vulnerable	False	28

3581_MOD	50.1	50.1	0.3	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Vulnerable	False	8
3583_POOR	22.0	22.0	0.8	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Vulnerable	False	9
								Subtotal	**247**
Litoria brevipalmata / Green-thighed Frog (Fauna)									
3241_GOOD	42.2	42.2	0.3	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Not Listed	False	5
3250_GOOD	63.7	63.7	1.2	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Not Listed	False	29
3241_MOD	27.4	27.4	0.9	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Not Listed	False	9

3250_POOR	26.5	26.5	0.4	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Not Listed	False	4
								Subtotal	**47**
Lophoictinia isura / Square-tailed Kite (Fauna)									
3241_GOOD	42.2	42.2	0.3	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Not Listed	False	5
3250_GOOD	63.7	63.7	1.2	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Not Listed	False	29
3437_GOOD	54.2	54.2	3.2	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Not Listed	False	65
3437_MOD	41.7	41.7	2.4	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Not Listed	False	38

3583_GOOD	62.1	62.1	1.1	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Not Listed	False	26
3583_MOD	50.5	50.5	0.5	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Not Listed	False	9
3241_MOD	27.4	27.4	0.9	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Not Listed	False	9
3250_POOR	26.5	26.5	0.4	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Not Listed	False	4
3437_POOR	37.9	37.9	1.5	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Not Listed	False	21
3581_MOD	50.1	50.1	0.3	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Not Listed	False	6

3583_POOR	22.0	22.0	0.8	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Not Listed	False	7
								Subtotal	**219**
Maundia triglochinoides / Maundia triglochinoides (Flora)									
4038_GOOD	36.5	36.5	0.04	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Not Listed	False	1
								Subtotal	**1**
Miniopterus australis / Little Bent-winged Bat (Fauna)									
3241_GOOD	42.2	42.2	0.3	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	True	9
3250_GOOD	63.7	63.7	1.2	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	True	57
3437_GOOD	54.2	54.2	3.2	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	True	130

3437_MOD	41.7	41.7	2.4	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	True	75
3583_GOOD	62.1	62.1	1.1	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	True	51
3583_MOD	50.5	50.5	0.5	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	True	19
3241_MOD	27.4	27.4	0.9	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	True	19
3250_POOR	26.5	26.5	0.4	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	True	8
3437_POOR	37.9	37.9	1.5	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	True	43
3581_MOD	50.1	50.1	0.3	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	True	11

3583_POOR	22.0	22.0	0.8	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	True	13
								Subtotal	**435**
Miniopterus orianae oceanensis / Large Bent-winged Bat (Fauna)									
3241_GOOD	42.2	42.2	0.3	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	True	9
3250_GOOD	63.7	63.7	1.2	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	True	57
3437_GOOD	54.2	54.2	3.2	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	True	130
3437_MOD	41.7	41.7	2.4	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	True	75
3583_GOOD	62.1	62.1	1.1	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	True	51

3583_MOD	50.5	50.5	0.5	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	True	19
3241_MOD	27.4	27.4	0.9	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	True	19
3250_POOR	26.5	26.5	0.4	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	True	8
3437_POOR	37.9	37.9	1.5	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	True	43
3581_MOD	50.1	50.1	0.3	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	True	11
3583_POOR	22.0	22.0	0.8	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	True	13
								Subtotal	**435**

Mixophyes balbus / Stuttering Frog (Fauna)									
3241_GOOD	42.2	42.2	0.3	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Vulnerable	True	9
3250_GOOD	63.7	63.7	1.2	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Vulnerable	True	57
3437_GOOD	54.2	54.2	3.2	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Vulnerable	True	130
3437_MOD	41.7	41.7	2.4	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Vulnerable	True	75
3583_GOOD	62.1	62.1	1.1	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Vulnerable	True	51

3583_MOD	50.5	50.5	0.5	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Vulnerable	True	19
3241_MOD	27.4	27.4	0.9	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Vulnerable	True	19
3250_POOR	26.5	26.5	0.4	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Vulnerable	True	8
3437_POOR	37.9	37.9	1.5	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Vulnerable	True	43
3581_MOD	50.1	50.1	0.3	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Vulnerable	True	11
3583_POOR	22.0	22.0	0.8	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Vulnerable	True	13

								Subtotal	435
Mixophyes iteratus / Giant Barred Frog (Fauna)									
3241_GOOD	42.2	42.2	0.3	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Vulnerable	False	5
3250_GOOD	63.7	63.7	1.2	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Vulnerable	False	29
3583_GOOD	62.1	62.1	1.1	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Vulnerable	False	26
3583_MOD	50.5	50.5	0.5	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Vulnerable	False	9
3241_MOD	27.4	27.4	0.9	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Vulnerable	False	9

3250_POOR	26.5	26.5	0.4	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Vulnerable	False	4
3581_MOD	50.1	50.1	0.3	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Vulnerable	False	6
3583_POOR	22.0	22.0	0.8	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Vulnerable	False	7
								Subtotal	**95**
Myotis macropus / Southern Myotis (Fauna)									
3241_GOOD	42.2	42.2	0.3	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	6
3250_GOOD	63.7	63.7	1.2	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	38
3437_GOOD	54.2	54.2	3.2	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	87

3437_MOD	41.7	41.7	2.4	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	50
3583_GOOD	62.1	62.1	1.1	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	34
3583_MOD	50.5	50.5	0.5	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	13
3241_MOD	27.4	27.4	0.9	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	12
3250_POOR	26.5	26.5	0.4	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	5
3437_POOR	37.9	37.9	1.5	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	28
3581_MOD	50.1	50.1	0.3	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	8

3583_POOR	22.0	22.0	0.8	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	9
								Subtotal	**290**
Ninox connivens / Barking Owl (Fauna)									
3241_GOOD	42.2	42.2	0.3	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	6
3250_GOOD	63.7	63.7	1.2	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	38
3437_GOOD	54.2	54.2	3.2	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	87
3437_MOD	41.7	41.7	2.4	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	50
3583_GOOD	62.1	62.1	1.1	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	34

3583_MOD	50.5	50.5	0.5	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	13
3241_MOD	27.4	27.4	0.9	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	12
3250_POOR	26.5	26.5	0.4	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	5
3437_POOR	37.9	37.9	1.5	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	28
3581_MOD	50.1	50.1	0.3	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	8
3583_POOR	22.0	22.0	0.8	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	9
								Subtotal	**290**

Ninox strenua / Powerful Owl (Fauna)									
3241_GOOD	42.2	42.2	0.3	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	6
3250_GOOD	63.7	63.7	1.2	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	38
3437_GOOD	54.2	54.2	3.2	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	87
3437_MOD	41.7	41.7	2.4	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	50
3583_GOOD	62.1	62.1	1.1	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	34
3583_MOD	50.5	50.5	0.5	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	13
3241_MOD	27.4	27.4	0.9	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	12

3250_POOR	26.5	26.5	0.4	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	5
3437_POOR	37.9	37.9	1.5	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	28
3581_MOD	50.1	50.1	0.3	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	8
3583_POOR	22.0	22.0	0.8	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	9
								Subtotal	**290**
Notamacropus parma / Parma Wallaby (Fauna)									
3250_GOOD	63.7	63.7	1.2	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Vulnerable	False	38
3437_GOOD	54.2	54.2	3.2	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Vulnerable	False	87

3437_MOD	41.7	41.7	2.4	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Vulnerable	False	50
3250_POOR	26.5	26.5	0.4	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Vulnerable	False	5
3437_POOR	37.9	37.9	1.5	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Vulnerable	False	28
3581_MOD	50.1	50.1	0.3	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Vulnerable	False	8
								Subtotal	**216**
Numenius madagascariensis / Eastern Curlew (Fauna)									
4038_GOOD	36.5	36.5	0.04	Environment Protection and Conservation Act listing status	Effectiveness of management in controlling threats	Not Listed	Critically Endangered	True	1
								Subtotal	**1**

Pandion cristatus / Eastern Osprey (Fauna)									
3241_GOOD	42.2	42.2	0.3	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	5
3250_GOOD	63.7	63.7	1.2	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	29
3437_GOOD	54.2	54.2	3.2	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	65
3437_MOD	41.7	41.7	2.4	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	38
3583_GOOD	62.1	62.1	1.1	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	26
3583_MOD	50.5	50.5	0.5	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	9
3241_MOD	27.4	27.4	0.9	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	9

3250_POOR	26.5	26.5	0.4	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	4
3437_POOR	37.9	37.9	1.5	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	21
3581_MOD	50.1	50.1	0.3	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	6
3583_POOR	22.0	22.0	0.8	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	7
								Subtotal	**219**
Petauroides volans / Southern Greater Glider (Fauna)									
3241_GOOD	42.2	42.2	0.3	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Endangered	Endangered	False	6
3250_GOOD	63.7	63.7	1.2	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Endangered	Endangered	False	38

3437_GOOD	54.2	54.2	3.2	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Endangered	Endangered	False	87
3437_MOD	41.7	41.7	2.4	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Endangered	Endangered	False	50
3241_MOD	27.4	27.4	0.9	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Endangered	Endangered	False	12
3250_POOR	26.5	26.5	0.4	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Endangered	Endangered	False	5
3437_POOR	37.9	37.9	1.5	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Endangered	Endangered	False	28
3581_MOD	50.1	50.1	0.3	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Endangered	Endangered	False	8
								Subtotal	**234**

Petaurus norfolcensis / Squirrel Glider (Fauna)									
3241_GOOD	42.2	42.2	0.3	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	6
3250_GOOD	63.7	63.7	1.2	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	38
3437_GOOD	54.2	54.2	3.2	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	87
3437_MOD	41.7	41.7	2.4	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	50
3583_GOOD	62.1	62.1	1.1	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	34
3583_MOD	50.5	50.5	0.5	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	13
3241_MOD	27.4	27.4	0.9	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	12

3250_POOR	26.5	26.5	0.4	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	5
3437_POOR	37.9	37.9	1.5	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	28
3581_MOD	50.1	50.1	0.3	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	8
3583_POOR	22.0	22.0	0.8	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	9
								Subtotal	**290**
Phascogale tapoatafa / Brush-tailed Phascogale (Fauna)									
3250_GOOD	63.7	63.7	1.2	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	38
3437_GOOD	54.2	54.2	3.2	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	87

3437_MOD	41.7	41.7	2.4	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	50
3583_GOOD	62.1	62.1	1.1	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	34
3583_MOD	50.5	50.5	0.5	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	13
3250_POOR	26.5	26.5	0.4	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	5
3437_POOR	37.9	37.9	1.5	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	28
3581_MOD	50.1	50.1	0.3	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	8
3583_POOR	22.0	22.0	0.8	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	9
								Subtotal	**272**

Phascolarctos cinereus / Koala (Fauna)									
3241_GOOD	42.2	42.2	0.3	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Endangered	False	6
3250_GOOD	63.7	63.7	1.2	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Endangered	False	38
3437_GOOD	54.2	54.2	3.2	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Endangered	False	87
3437_MOD	41.7	41.7	2.4	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Endangered	False	50
3583_GOOD	62.1	62.1	1.1	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Endangered	False	34

3583_MOD	50.5	50.5	0.5	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Endangered	False	13
3241_MOD	27.4	27.4	0.9	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Endangered	False	12
3250_POOR	26.5	26.5	0.4	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Endangered	False	5
3437_POOR	37.9	37.9	1.5	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Endangered	False	28
3581_MOD	50.1	50.1	0.3	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Endangered	False	8
3583_POOR	22.0	22.0	0.8	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Endangered	False	9

								Subtotal	290
Planigale maculata / Common Planigale (Fauna)									
3250_GOOD	63.7	63.7	1.2	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Not Listed	False	38
3437_GOOD	54.2	54.2	3.2	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Not Listed	False	87
3437_MOD	41.7	41.7	2.4	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Not Listed	False	50
3583_GOOD	62.1	62.1	1.1	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Not Listed	False	34
3583_MOD	50.5	50.5	0.5	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Not Listed	False	13

3250_POOR	26.5	26.5	0.4	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Not Listed	False	5
3437_POOR	37.9	37.9	1.5	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Not Listed	False	28
3581_MOD	50.1	50.1	0.3	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Not Listed	False	8
3583_POOR	22.0	22.0	0.8	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Not Listed	False	9
								Subtotal	**272**
Potorous tridactylus / Long-nosed Potoroo (Fauna)									
3250_GOOD	63.7	63.7	1.2	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Vulnerable	False	38

3583_GOOD	62.1	62.1	1.1	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Vulnerable	False	34
3583_MOD	50.5	50.5	0.5	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Vulnerable	False	13
3250_POOR	26.5	26.5	0.4	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Vulnerable	False	5
3581_MOD	50.1	50.1	0.3	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Vulnerable	False	8
3583_POOR	22.0	22.0	0.8	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Vulnerable	False	9
								Subtotal	**107**

Pteropus poliocephalus / Grey-headed Flying-fox (Fauna)									
3241_GOOD	42.2	42.2	0.3	Biodiversity Conservation Act listing status	Fecundity – average number of offspring	Vulnerable	Vulnerable	False	6
3250_GOOD	63.7	63.7	1.2	Biodiversity Conservation Act listing status	Fecundity – average number of offspring	Vulnerable	Vulnerable	False	38
3437_GOOD	54.2	54.2	3.2	Biodiversity Conservation Act listing status	Fecundity – average number of offspring	Vulnerable	Vulnerable	False	87
3437_MOD	41.7	41.7	2.4	Biodiversity Conservation Act listing status	Fecundity – average number of offspring	Vulnerable	Vulnerable	False	50
3583_GOOD	62.1	62.1	1.1	Biodiversity Conservation Act listing status	Fecundity – average number of offspring	Vulnerable	Vulnerable	False	34
3583_MOD	50.5	50.5	0.5	Biodiversity Conservation Act listing status	Fecundity – average number of offspring	Vulnerable	Vulnerable	False	13
3241_MOD	27.4	27.4	0.9	Biodiversity Conservation Act listing status	Fecundity – average number of offspring	Vulnerable	Vulnerable	False	12

3250_POOR	26.5	26.5	0.4	Biodiversity Conservation Act listing status	Fecundity – average number of offspring	Vulnerable	Vulnerable	False	5
3437_POOR	37.9	37.9	1.5	Biodiversity Conservation Act listing status	Fecundity – average number of offspring	Vulnerable	Vulnerable	False	28
3581_MOD	50.1	50.1	0.3	Biodiversity Conservation Act listing status	Fecundity – average number of offspring	Vulnerable	Vulnerable	False	8
3583_POOR	22.0	22.0	0.8	Biodiversity Conservation Act listing status	Fecundity – average number of offspring	Vulnerable	Vulnerable	False	9
								Subtotal	**290**
Pterostylis chaetophora / Pterostylis chaetophora (Flora)									
3241_GOOD	42.2	42.2	0.3	Geographic Distribution	Effectiveness of management in controlling threats	Vulnerable	Not Listed	False	6
3437_GOOD	54.2	54.2	3.2	Geographic Distribution	Effectiveness of management in controlling threats	Vulnerable	Not Listed	False	87

3437_MOD	41.7	41.7	2.4	Geographic Distribution	Effectiveness of management in controlling threats	Vulnerable	Not Listed	False	50
3241_MOD	27.4	27.4	0.9	Geographic Distribution	Effectiveness of management in controlling threats	Vulnerable	Not Listed	False	12
3437_POOR	37.9	37.9	1.5	Geographic Distribution	Effectiveness of management in controlling threats	Vulnerable	Not Listed	False	28
								Subtotal	**183**
Rhizanthella slateri / Eastern Australian Underground Orchid (Flora)									
3241_GOOD	42.2	42.2	0.3	Population size	Ecology or response to management is poorly known	Vulnerable	Endangered	True	9
3250_GOOD	63.7	63.7	1.2	Population size	Ecology or response to management is poorly known	Vulnerable	Endangered	True	57

3583_GOOD	62.1	62.1	1.1	Population size	Ecology or response to management is poorly known	Vulnerable	Endangered	True	51
3583_MOD	50.5	50.5	0.5	Population size	Ecology or response to management is poorly known	Vulnerable	Endangered	True	19
3241_MOD	27.4	27.4	0.9	Population size	Ecology or response to management is poorly known	Vulnerable	Endangered	True	19
3250_POOR	26.5	26.5	0.4	Population size	Ecology or response to management is poorly known	Vulnerable	Endangered	True	8
3581_MOD	50.1	50.1	0.3	Population size	Ecology or response to management is poorly known	Vulnerable	Endangered	True	11
3583_POOR	22.0	22.0	0.8	Population size	Ecology or response to management is poorly known	Vulnerable	Endangered	True	13

								Subtotal	**187**
Rhizanthella slateri - endangered population / Rhizanthella slateri (Rupp) M.A. Clem. & Cribb in the Great Lakes local government area (Flora)									
3241_GOOD	42.2	42.2	0.3	Population size	Ecology or response to management is poorly known	Endangered Population	Not Listed	True	9
3250_GOOD	63.7	63.7	1.2	Population size	Ecology or response to management is poorly known	Endangered Population	Not Listed	True	57
3241_MOD	27.4	27.4	0.9	Population size	Ecology or response to management is poorly known	Endangered Population	Not Listed	True	19
3250_POOR	26.5	26.5	0.4	Population size	Ecology or response to management is poorly known	Endangered Population	Not Listed	True	8
3581_MOD	50.1	50.1	0.3	Population size	Ecology or response to management is poorly known	Endangered Population	Not Listed	True	11
								Subtotal	**104**

Solanum sulphureum / Manning Yellow Solanum (Flora)									
3241_GOOD	42.2	42.2	0.3	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Endangered	False	6
3250_GOOD	63.7	63.7	1.2	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Endangered	False	38
3241_MOD	27.4	27.4	0.9	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Endangered	False	12
3250_POOR	26.5	26.5	0.4	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Endangered	False	5
								Subtotal	**61**
Syzygium paniculatum / Magenta Lilly Pilly (Flora)									
3241_GOOD	N/A	N/A	5	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Vulnerable	False	10

3250_GOOD	N/A	N/A	5	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Vulnerable	False	10
								Subtotal	**20**
Tetratheca juncea / Black-eyed Susan (Flora)									
3241_GOOD	42.2	42.2	0.3	Biodiversity Conservation Act listing status	Ability to colonise improved habitat	Vulnerable	Vulnerable	False	6
3241_MOD	27.4	27.4	0.9	Biodiversity Conservation Act listing status	Ability to colonise improved habitat	Vulnerable	Vulnerable	False	12
								Subtotal	**18**
Thesium australe / Austral Toadflax (Flora)									
3250_GOOD	63.7	63.7	1.2	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Vulnerable	False	29
3250_POOR	26.5	26.5	0.4	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Vulnerable	False	4

								Subtotal	**33**
Turnix maculosus / Red-backed Button-quail (Fauna)									
3241_GOOD	42.2	42.2	0.3	Biodiversity Conservation Act listing status	Ecology or response to management is poorly known	Vulnerable	Not Listed	False	6
3250_GOOD	63.7	63.7	1.2	Biodiversity Conservation Act listing status	Ecology or response to management is poorly known	Vulnerable	Not Listed	False	38
3241_MOD	27.4	27.4	0.9	Biodiversity Conservation Act listing status	Ecology or response to management is poorly known	Vulnerable	Not Listed	False	12
3250_POOR	26.5	26.5	0.4	Biodiversity Conservation Act listing status	Ecology or response to management is poorly known	Vulnerable	Not Listed	False	5
								Subtotal	**61**
Tyto novaehollandiae / Masked Owl (Fauna)									
3250_GOOD	63.7	63.7	1.2	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	38

3437_GOOD	54.2	54.2	3.2	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	87
3437_MOD	41.7	41.7	2.4	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	50
3583_GOOD	62.1	62.1	1.1	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	34
3583_MOD	50.5	50.5	0.5	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	13
3250_POOR	26.5	26.5	0.4	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	5
3437_POOR	37.9	37.9	1.5	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	28
3581_MOD	50.1	50.1	0.3	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	8

3583_POOR	22.0	22.0	0.8	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	9
								Subtotal	**272**
Uperoleia mahonyi / Mahony's Toadlet (Fauna)									
3437_GOOD	54.2	54.2	3.2	Biodiversity Conservation Act listing status	Ecology or response to management is poorly known	Endangered	Endangered	False	87
3437_MOD	41.7	41.7	2.4	Biodiversity Conservation Act listing status	Ecology or response to management is poorly known	Endangered	Endangered	False	50
3583_GOOD	62.1	62.1	1.1	Biodiversity Conservation Act listing status	Ecology or response to management is poorly known	Endangered	Endangered	False	34
3583_MOD	50.5	50.5	0.5	Biodiversity Conservation Act listing status	Ecology or response to management is poorly known	Endangered	Endangered	False	13

3437_POOR	37.9	37.9	1.5	Biodiversity Conservation Act listing status	Ecology or response to management is poorly known	Endangered	Endangered	False	28
3581_MOD	50.1	50.1	0.3	Biodiversity Conservation Act listing status	Ecology or response to management is poorly known	Endangered	Endangered	False	8
3583_POOR	22.0	22.0	0.8	Biodiversity Conservation Act listing status	Ecology or response to management is poorly known	Endangered	Endangered	False	9
								Subtotal	**229**
Xenus cinereus / Terek Sandpiper (Fauna)									
4038_GOOD	36.5	36.5	0.04	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Vulnerable	False	1
								Subtotal	**1**

BAM Predicted Species Report

Proposal Details

Assessment Id	Proposal Name	BAM data last updated *
00052993/BAAS18098/24/00052994	Bundabah	28/10/2024
Assessor Name	Report Created	BAM Data version *
Michael Somerville	23/06/2025	Current classification (live - default) (80)
Assessor Number	Assessment Type	BAM Case Status
BAAS18098	Part 4 Developments (General)	Finalised
Assessment Revision	BOS entry trigger	Date Finalised
2	BOS Threshold: Biodiversity Values Map	23/06/2025

* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.

Threatened species reliably predicted to utilise the site. No surveys are required for these species. Ecosystem credits apply to these species.

Common Name	Scientific Name	Vegetation Types(s)
Australasian Bittern	Botaurus poiciloptilus	4038-Hunter Estuarine Melaleuca nodosa Scrub
Australian Painted Snipe	Rostratula australis	4038-Hunter Estuarine Melaleuca nodosa Scrub
Barred Cuckoo-shrike	Coracina lineata	3241-Lower North White Mahogany-Spotted Gum Moist Forest
		3250-Northern Foothills Blackbutt Grassy Forest
Bar-tailed Godwit (baueri)	Limosa lapponica baueri	4038-Hunter Estuarine Melaleuca nodosa Scrub
Beach Stone-curlew	Esacus magnirostris	3250-Northern Foothills Blackbutt Grassy Forest
Black Bittern	Ixobrychus flavicollis	3241-Lower North White Mahogany-Spotted Gum Moist Forest
		3250-Northern Foothills Blackbutt Grassy Forest
		3437-Hunter Coast Lowland Spotted Gum Dry Forest
		3581-Hunter Coast Foothills Apple Forest
		3583-Hunter Coast Lowland Scribbly Gum Forest

Black-chinned Honeyeater (eastern subspecies)	Melithreptus gularis gularis	3241-Lower North White Mahogany-Spotted Gum Moist Forest
		3250-Northern Foothills Blackbutt Grassy Forest
		3437-Hunter Coast Lowland Spotted Gum Dry Forest
		3581-Hunter Coast Foothills Apple Forest
		3583-Hunter Coast Lowland Scribbly Gum Forest
Black-necked Stork	Ephippiorhynchus asiaticus	3241-Lower North White Mahogany-Spotted Gum Moist Forest
		3250-Northern Foothills Blackbutt Grassy Forest
		3437-Hunter Coast Lowland Spotted Gum Dry Forest
		3581-Hunter Coast Foothills Apple Forest
		3583-Hunter Coast Lowland Scribbly Gum Forest
		4038-Hunter Estuarine Melaleuca nodosa Scrub
Broad-billed Sandpiper	Limicola falcinellus	3437-Hunter Coast Lowland Spotted Gum Dry Forest
Brown Treecreeper (eastern subspecies)	Climacteris picumnus victoriae	3241-Lower North White Mahogany-Spotted Gum Moist Forest
		3250-Northern Foothills Blackbutt Grassy Forest
		3437-Hunter Coast Lowland Spotted Gum Dry Forest
		3581-Hunter Coast Foothills Apple Forest
		3583-Hunter Coast Lowland Scribbly Gum Forest
		4038-Hunter Estuarine Melaleuca nodosa Scrub
Common Blossom-bat	Syconycteris australis	3250-Northern Foothills Blackbutt Grassy Forest
		3437-Hunter Coast Lowland Spotted Gum Dry Forest
		3581-Hunter Coast Foothills Apple Forest
Curlew Sandpiper	Calidris ferruginea	4038-Hunter Estuarine Melaleuca nodosa Scrub
Diamond Firetail	Stagonopleura guttata	3250-Northern Foothills Blackbutt Grassy Forest
		3437-Hunter Coast Lowland Spotted Gum Dry Forest
Dusky Woodswallow	Artamus cyanopterus cyanopterus	3241-Lower North White Mahogany-Spotted Gum Moist Forest
		3250-Northern Foothills Blackbutt Grassy Forest
		3437-Hunter Coast Lowland Spotted Gum Dry Forest
		3581-Hunter Coast Foothills Apple Forest
		3583-Hunter Coast Lowland Scribbly Gum Forest
		4038-Hunter Estuarine Melaleuca nodosa Scrub

Eastern Chestnut Mouse	Pseudomys gracilicaudatus	3437-Hunter Coast Lowland Spotted Gum Dry Forest
		4038-Hunter Estuarine Melaleuca nodosa Scrub
Eastern Coastal Free-tailed Bat	Micronomus norfolkensis	3241-Lower North White Mahogany-Spotted Gum Moist Forest
		3250-Northern Foothills Blackbutt Grassy Forest
		3437-Hunter Coast Lowland Spotted Gum Dry Forest
		3581-Hunter Coast Foothills Apple Forest
		3583-Hunter Coast Lowland Scribbly Gum Forest
Eastern Curlew	Numenius madagascariensis	4038-Hunter Estuarine Melaleuca nodosa Scrub
Eastern False Pipistrelle	Falsistrellus tasmaniensis	3241-Lower North White Mahogany-Spotted Gum Moist Forest
		3250-Northern Foothills Blackbutt Grassy Forest
		3437-Hunter Coast Lowland Spotted Gum Dry Forest
		3581-Hunter Coast Foothills Apple Forest
		3583-Hunter Coast Lowland Scribbly Gum Forest
Eastern Grass Owl	Tyto longimembris	3250-Northern Foothills Blackbutt Grassy Forest
Eastern Osprey	Pandion cristatus	3241-Lower North White Mahogany-Spotted Gum Moist Forest
		3250-Northern Foothills Blackbutt Grassy Forest
		3437-Hunter Coast Lowland Spotted Gum Dry Forest
		3581-Hunter Coast Foothills Apple Forest
		3583-Hunter Coast Lowland Scribbly Gum Forest
		4038-Hunter Estuarine Melaleuca nodosa Scrub
Flame Robin	Petroica phoenicea	3241-Lower North White Mahogany-Spotted Gum Moist Forest
		3250-Northern Foothills Blackbutt Grassy Forest
		3437-Hunter Coast Lowland Spotted Gum Dry Forest
		3581-Hunter Coast Foothills Apple Forest
		3583-Hunter Coast Lowland Scribbly Gum Forest
Gang-gang Cockatoo	Callocephalon fimbriatum	3241-Lower North White Mahogany-Spotted Gum Moist Forest
		3437-Hunter Coast Lowland Spotted Gum Dry Forest
		3581-Hunter Coast Foothills Apple Forest
		3583-Hunter Coast Lowland Scribbly Gum Forest
		4038-Hunter Estuarine Melaleuca nodosa Scrub

Golden-tipped Bat	Phoniscus papuensis	3241-Lower North White Mahogany-Spotted Gum Moist Forest
		3250-Northern Foothills Blackbutt Grassy Forest
		3437-Hunter Coast Lowland Spotted Gum Dry Forest
		3581-Hunter Coast Foothills Apple Forest
		3583-Hunter Coast Lowland Scribbly Gum Forest
Great Knot	Calidris tenuirostris	4038-Hunter Estuarine Melaleuca nodosa Scrub
Greater Broad-nosed Bat	Scoteanax rueppellii	3241-Lower North White Mahogany-Spotted Gum Moist Forest
		3250-Northern Foothills Blackbutt Grassy Forest
		3437-Hunter Coast Lowland Spotted Gum Dry Forest
		3581-Hunter Coast Foothills Apple Forest
		3583-Hunter Coast Lowland Scribbly Gum Forest
Greater Sand-plover	Charadrius leschenaultii	4038-Hunter Estuarine Melaleuca nodosa Scrub
Grey-crowned Babbler (eastern subspecies)	Pomatostomus temporalis temporalis	3241-Lower North White Mahogany-Spotted Gum Moist Forest
		3250-Northern Foothills Blackbutt Grassy Forest
		3437-Hunter Coast Lowland Spotted Gum Dry Forest
		4038-Hunter Estuarine Melaleuca nodosa Scrub
Grey-headed Flying-fox	Pteropus poliocephalus	3241-Lower North White Mahogany-Spotted Gum Moist Forest
		3250-Northern Foothills Blackbutt Grassy Forest
		3437-Hunter Coast Lowland Spotted Gum Dry Forest
		3581-Hunter Coast Foothills Apple Forest
		3583-Hunter Coast Lowland Scribbly Gum Forest
Large Bent-winged Bat	Miniopterus orianae oceanensis	3241-Lower North White Mahogany-Spotted Gum Moist Forest
		3250-Northern Foothills Blackbutt Grassy Forest
		3437-Hunter Coast Lowland Spotted Gum Dry Forest
		3581-Hunter Coast Foothills Apple Forest
		3583-Hunter Coast Lowland Scribbly Gum Forest
Lesser Sand-plover	Charadrius mongolus	4038-Hunter Estuarine Melaleuca nodosa Scrub
Little Bent-winged Bat	Miniopterus australis	3241-Lower North White Mahogany-Spotted Gum Moist Forest
		3250-Northern Foothills Blackbutt Grassy Forest

Little Bent-winged Bat	Miniopterus australis	3437-Hunter Coast Lowland Spotted Gum Dry Forest
		3581-Hunter Coast Foothills Apple Forest
		3583-Hunter Coast Lowland Scribbly Gum Forest
		4038-Hunter Estuarine Melaleuca nodosa Scrub
Little Eagle	Hieraaetus morphnoides	3241-Lower North White Mahogany-Spotted Gum Moist Forest
		3250-Northern Foothills Blackbutt Grassy Forest
		3437-Hunter Coast Lowland Spotted Gum Dry Forest
		3581-Hunter Coast Foothills Apple Forest
		3583-Hunter Coast Lowland Scribbly Gum Forest
		4038-Hunter Estuarine Melaleuca nodosa Scrub
Little Lorikeet	Glossopsitta pusilla	3241-Lower North White Mahogany-Spotted Gum Moist Forest
		3250-Northern Foothills Blackbutt Grassy Forest
		3437-Hunter Coast Lowland Spotted Gum Dry Forest
		3581-Hunter Coast Foothills Apple Forest
		3583-Hunter Coast Lowland Scribbly Gum Forest
		4038-Hunter Estuarine Melaleuca nodosa Scrub
New Holland Mouse	Pseudomys novaehollandiae	3250-Northern Foothills Blackbutt Grassy Forest
		3581-Hunter Coast Foothills Apple Forest
		3583-Hunter Coast Lowland Scribbly Gum Forest
Red Knot	Calidris canutus	4038-Hunter Estuarine Melaleuca nodosa Scrub
Red-legged Pademelon	Thylogale stigmatica	3250-Northern Foothills Blackbutt Grassy Forest
Regent Honeyeater	Anthochaera phrygia	3241-Lower North White Mahogany-Spotted Gum Moist Forest
		3437-Hunter Coast Lowland Spotted Gum Dry Forest
		3581-Hunter Coast Foothills Apple Forest
		3583-Hunter Coast Lowland Scribbly Gum Forest
Rose-crowned Fruit-Dove	Ptilinopus regina	3250-Northern Foothills Blackbutt Grassy Forest
		3581-Hunter Coast Foothills Apple Forest
		3583-Hunter Coast Lowland Scribbly Gum Forest
Sanderling	Calidris alba	4038-Hunter Estuarine Melaleuca nodosa Scrub
Scarlet Robin	Petroica boodang	3241-Lower North White Mahogany-Spotted Gum Moist Forest
		3250-Northern Foothills Blackbutt Grassy Forest

Scarlet Robin	Petroica boodang	3437-Hunter Coast Lowland Spotted Gum Dry Forest
		3581-Hunter Coast Foothills Apple Forest
		3583-Hunter Coast Lowland Scribbly Gum Forest
South-eastern Glossy Black-Cockatoo	Calyptorhynchus lathami lathami	3241-Lower North White Mahogany-Spotted Gum Moist Forest
		3250-Northern Foothills Blackbutt Grassy Forest
		3437-Hunter Coast Lowland Spotted Gum Dry Forest
		3581-Hunter Coast Foothills Apple Forest
		3583-Hunter Coast Lowland Scribbly Gum Forest
		4038-Hunter Estuarine Melaleuca nodosa Scrub
South-eastern Hooded Robin	Melanodryas cucullata cucullata	3250-Northern Foothills Blackbutt Grassy Forest
		3581-Hunter Coast Foothills Apple Forest
		3583-Hunter Coast Lowland Scribbly Gum Forest
Speckled Warbler	Chthonicola sagittata	3241-Lower North White Mahogany-Spotted Gum Moist Forest
		3250-Northern Foothills Blackbutt Grassy Forest
		3437-Hunter Coast Lowland Spotted Gum Dry Forest
		3581-Hunter Coast Foothills Apple Forest
		3583-Hunter Coast Lowland Scribbly Gum Forest
Spotted Harrier	Circus assimilis	3437-Hunter Coast Lowland Spotted Gum Dry Forest
		4038-Hunter Estuarine Melaleuca nodosa Scrub
Spotted-tailed Quoll	Dasyurus maculatus	3241-Lower North White Mahogany-Spotted Gum Moist Forest
		3250-Northern Foothills Blackbutt Grassy Forest
		3437-Hunter Coast Lowland Spotted Gum Dry Forest
		3581-Hunter Coast Foothills Apple Forest
		3583-Hunter Coast Lowland Scribbly Gum Forest
		4038-Hunter Estuarine Melaleuca nodosa Scrub
Square-tailed Kite	Lophoictinia isura	3241-Lower North White Mahogany-Spotted Gum Moist Forest
		3250-Northern Foothills Blackbutt Grassy Forest
		3437-Hunter Coast Lowland Spotted Gum Dry Forest
		3581-Hunter Coast Foothills Apple Forest
		3583-Hunter Coast Lowland Scribbly Gum Forest
		4038-Hunter Estuarine Melaleuca nodosa Scrub
Superb Fruit-Dove	Ptilinopus superbus	3250-Northern Foothills Blackbutt Grassy Forest

Superb Fruit-Dove	Ptilinopus superbus	3437-Hunter Coast Lowland Spotted Gum Dry Forest
Swift Parrot	Lathamus discolor	3241-Lower North White Mahogany-Spotted Gum Moist Forest
		3250-Northern Foothills Blackbutt Grassy Forest
		3437-Hunter Coast Lowland Spotted Gum Dry Forest
		3581-Hunter Coast Foothills Apple Forest
		3583-Hunter Coast Lowland Scribbly Gum Forest
		4038-Hunter Estuarine Melaleuca nodosa Scrub
Terek Sandpiper	Xenus cinereus	4038-Hunter Estuarine Melaleuca nodosa Scrub
Turquoise Parrot	Neophema pulchella	3437-Hunter Coast Lowland Spotted Gum Dry Forest
		3581-Hunter Coast Foothills Apple Forest
		3583-Hunter Coast Lowland Scribbly Gum Forest
Varied Sittella	Daphoenositta chrysoptera	3241-Lower North White Mahogany-Spotted Gum Moist Forest
		3250-Northern Foothills Blackbutt Grassy Forest
		3437-Hunter Coast Lowland Spotted Gum Dry Forest
		3581-Hunter Coast Foothills Apple Forest
		3583-Hunter Coast Lowland Scribbly Gum Forest
		4038-Hunter Estuarine Melaleuca nodosa Scrub
White-bellied Sea-Eagle	Haliaeetus leucogaster	3241-Lower North White Mahogany-Spotted Gum Moist Forest
		3250-Northern Foothills Blackbutt Grassy Forest
		3437-Hunter Coast Lowland Spotted Gum Dry Forest
		3581-Hunter Coast Foothills Apple Forest
		3583-Hunter Coast Lowland Scribbly Gum Forest
		4038-Hunter Estuarine Melaleuca nodosa Scrub
White-throated Needletail	Hirundapus caudacutus	3241-Lower North White Mahogany-Spotted Gum Moist Forest
		3250-Northern Foothills Blackbutt Grassy Forest
		3437-Hunter Coast Lowland Spotted Gum Dry Forest
		3581-Hunter Coast Foothills Apple Forest
		3583-Hunter Coast Lowland Scribbly Gum Forest
		4038-Hunter Estuarine Melaleuca nodosa Scrub
Wompoo Fruit-Dove	Ptilinopus magnificus	3241-Lower North White Mahogany-Spotted Gum Moist Forest
		3250-Northern Foothills Blackbutt Grassy Forest

Yellow-bellied Glider	Petaurus australis	3241-Lower North White Mahogany-Spotted Gum Moist Forest
		3250-Northern Foothills Blackbutt Grassy Forest
		3581-Hunter Coast Foothills Apple Forest
Yellow-bellied Sheathtail-bat	Saccolaimus flaviventris	3250-Northern Foothills Blackbutt Grassy Forest
		3437-Hunter Coast Lowland Spotted Gum Dry Forest
		3581-Hunter Coast Foothills Apple Forest
		3583-Hunter Coast Lowland Scribbly Gum Forest

Threatened species Manually Added

None added

Threatened species assessed as not within the vegetation zone(s) for the PCT(s)

Refer to BAR for detailed justification

Common Name	Scientific Name	Justification in the BAM-C

BAM Vegetation Zones Report

Proposal Details

Assessment Id
00052993/BAAS18098/24/00052994

Assessment name
Bundabah

BAM data last updated *
28/10/2024

Assessor Name
Michael Somerville

Report Created
23/06/2025

BAM Data version *
Current classification (live - default) (80)

Assessor Number
BAAS18098

Assessment Type
Part 4 Developments (General)

BAM Case Status
Finalised

Assessment Revision
2

BOS entry trigger
BOS Threshold: Biodiversity Values Map

Date Finalised
23/06/2025

* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.

Vegetation Zones

#	Name	PCT	Condition	Area	Minimum number of plots	Management zones
1	3241_GOOD	3241-Lower North White Mahogany-Spotted Gum Moist Forest	GOOD	0.3	1	

2	3241_MOD	3241-Lower North White Mahogany-Spotted Gum Moist Forest	MOD	0.9	1	
3	3250_GOOD	3250-Northern Foothills Blackbutt Grassy Forest	GOOD	2.1	2	
4	3250_POOR	3250-Northern Foothills Blackbutt Grassy Forest	POOR	0.5	1	
5	3437_GOOD	3437-Hunter Coast Lowland Spotted Gum Dry Forest	GOOD	3.2	2	
6	3437_MOD	3437-Hunter Coast Lowland Spotted Gum Dry Forest	MOD	2.4	2	
7	3437_POOR	3437-Hunter Coast Lowland Spotted Gum Dry Forest	POOR	1.5	1	
8	3581_MOD	3581-Hunter Coast Foothills Apple Forest	MOD	0.3	1	
9	3583_GOOD	3583-Hunter Coast Lowland Scribbly Gum Forest	GOOD	1.1	1	
10	3583_MOD	3583-Hunter Coast Lowland Scribbly Gum Forest	MOD	0.5	1	
11	3583_POOR	3583-Hunter Coast Lowland Scribbly Gum Forest	POOR	0.8	1	
12	3250_DNG	3250-Northern Foothills Blackbutt Grassy Forest	DNG	0.1	1	
13	4038_GOOD	4038-Hunter Estuarine Melaleuca nodosa Scrub	GOOD	0.1	1	