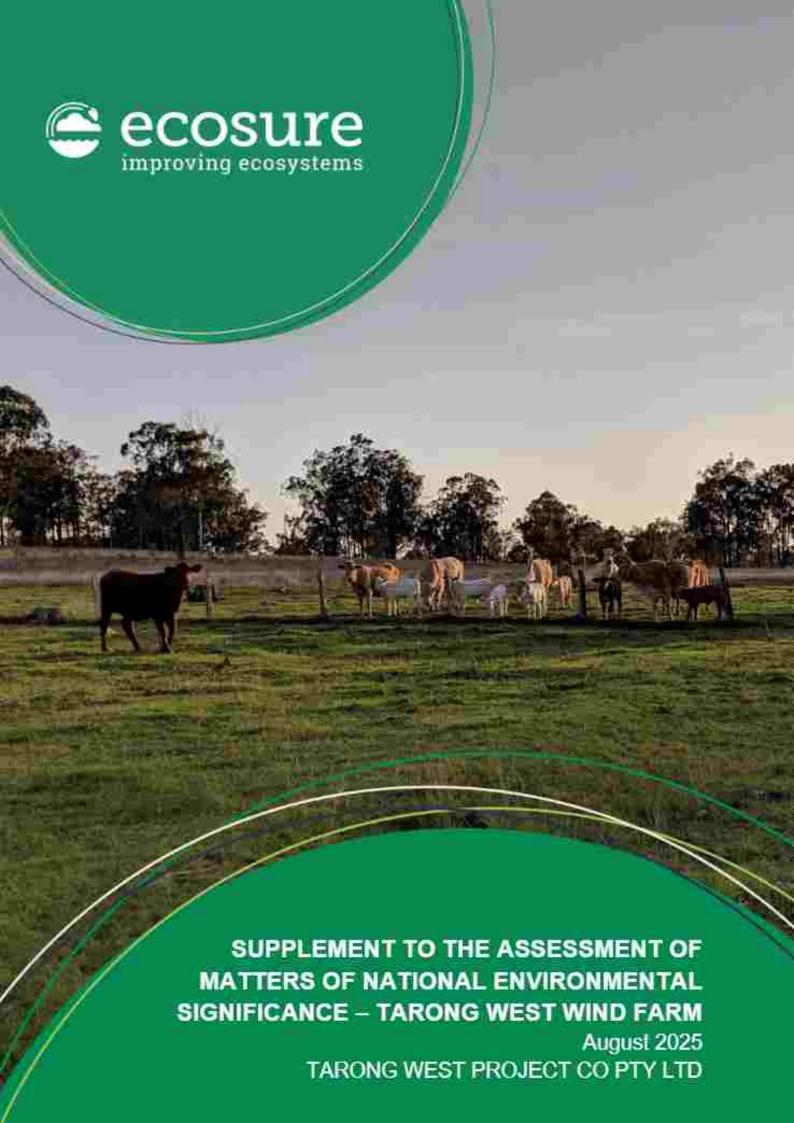


Appendix E Supplement to the Assessment of Matters of National Environmental Significance

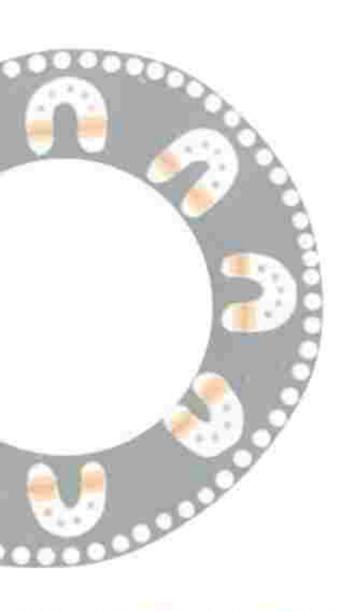




Acknowledgement of Country

Ecosure acknowledge the Traditional Custodians of the lands and waters where we work. We pay deep respect to Elders past and present who hold the Songlines and Dreaming of this Country. We honour and support the continuation of educational, cultural and spiritual customs of First Nations peoples.









Acknowledgements

Ecosure would like to acknowledge the project team that has collaboratively contributed knowledge over the course of the project to produce this Supplement to the Assessment of Matters of National Environmental Significance – Tarong West Wind Farm, in particular staff from SLR Consulting as well as staff from icubed Consulting Pty Ltd, AECOM Australia Pty Ltd, and RES Australia Pty Ltd.



Glossary, acronyms and abbreviations

AKHT Ancillary koala habitat tree BACI Before-After-Control-Impact

BBUS Bird and bat utilisation survey

Conservation Species listed as threatened (critically endangered, endangered,

significant species

vulnerable) and/or migratory under EPBC Act

DBH Diameter at breast height

DCCEEW Commonwealth Department of Climate Change, Energy, the

Environment and Water

DETSI Queensland Department of Environment, Tourism, Science and

Innovation

EPBC Act Environment Protection and Biodiversity Conservation Act 1999

(Commonwealth)

LFC Landscape Fragmentation Tool

HVR High value regrowth

LIKT Locally important koala free

MNES Matters of national environmental significance

OAMP Offset Area Management Plan

OMS Offset Management Strategy
PER Public Environmental Report

Proponent Tarong West Project Co Pty Ltd

RE Regional ecosystem

RSA Rotor swept area

SIA significant impact assessment

WTG Wind turbine generator



Contents

Acknowled	gement of Country	
Glossary, a	cronyms and abbreviations	II
List of figur	es	V
	*S	
	'S	
	oction	
1.1 Ba	ackground	
1.1.1	Assessment of Matters of National Environmental Significance for Taro	
Wind F		1
1.1.2	Supplement to the Assessment of Matters of National Environmental	
Signific	cance – Tarong West Wind Farm	
	cope	3
1.3 R	eport conventions	3
2 Field s	urveys	7
2.1 Pr	e-construction BBUS	7
211	Methods	7
2.1.1.1	Fixed point count surveys	7
2.1.1.2	Targeted searches	7
2.1.1.3	Opportunistic observations	8
2.1.2	BBUS survey conditions	8
2121	117477719223700000000000000000000000000000000000	
2122		
2123	Spring 2023	9
2.2 Bi	BUS results	9
2.3 H	abitat quality assessments	12
2.3.1	Methods	12
232	Results	
2.4 K	oala habitat assessment	13
2.4.1	Methods	13
2.4.2	Results	
2.5 G	reater glider habitat assessment	30
2.5.1	Methods	
252	Results	
2.5.3	Fragmentation discussion	
	rey-headed flying-fox	
2.6.1	Methods.	
2.6.1	Results	
	ossy black-cockatoo	56
100 100 100 100 100 100 100 100 100 100	CONTROL OF THE PROPERTY.	(2.00)



2.7	1 Methods	56
2.7	2 Results	56
2.8	Yellow belied glider	59
2.8	1 Methods	59
28	2 Results	59
3 Imp	pact assessment	64
3.1	Detailed design changes	64
3.1	.1 Transport route impacts	65
3.2	Listed threatened species	66
3.2		
3.2	2 Greater glider	70
3.2		
3.2		
3.2		7.75
3.2		
3.2		85
3.2	62. V. ZORUNISC AFRIGUES FIRMANIA MAINTAIN MAINT	
3.3 3.3	Listed migratory species 1 Fork-tailed swift	
. 생활		92
Ero.	nclusions	0.4
Referen		
Append	and the second s	0.5=0=0
Append		17.000
Append		
Append	of figures	109
	Proposed development layout	5
	2 Species recorded during BBUS surveys	
	3 Survey sites	par Tay
Figure 4	Mapped koala habitat within the project site	29
Figure 5	5 Mapped greater glider habitat within the project site	39
12.5	Existing landscape barriers for greater glider	
	Pre-mitigated landscape barriers to greater glider	
	3 Mitigated barriers to greater glider	
	Jumma Road impact area and greater glider habitat and record	
THE STREET	10 Grey-headed flying-fox habitat mapping	



Figure 11 Glossy black-cockatoo foraging habitat	
Figure 12 Yellow-bellied glider regional protected areas, corridors and historical records6	52
Figure 13 Yellow-bellied glider potential dispersal habitat within the project site	53
List of tables	
Table 1 Weather conditions during the autumn 2023 survey period	8
Table 2 Weather conditions during the winter 2023 survey period.	8
Table 3 Weather conditions during the spring 2023 survey period	9
Table 4 EPBC Act-listed species detected during preconstruction BBUS	9
Table 5 LIKT and AKHT species in Brigalow Belt bioregion	14
Table 6 Koala habitat types and description	17
Table 7 Stem count of LIKT and AKHT (>10 cm DBH) within BioCondition survey results within the project site.	20
Table 8 Modelled koala habitat and impacts	26
Table 9 Greater glider food and den tree species (Eyre et al., 2022)	31
Table 10 Greater glider habitat types and descriptions.	34
Table 11 Greater glider food and habitat tree survey results	36
Table 12 Modelled greater glider habitat and impacts	37
Table 13 Mitigated project barriers identified during fragmentation assessment	44
Table 14 Grey-headed flying-fox refined habitat mapping for Tarong West Wind Farm projesite	
Table 15 Refined glossy black-cockatoo habitat within the project site	56
Table 16 Yellow-bellied glider habitat definitions within the project site	61
Table 17 Original and updated impact areas and sighting counts for threatened and migratory species.	54
Table 18 EPBC Act significant impact assessment for endangered koala	67
Table 19 EPBC Act SIA for endangered greater gliders	71
Table 20 EPBC Act significant impact assessment for vulnerable grey-headed flying-fox7	75
Table 21 EPBC Act significant impact assessment for vulnerable white-throated needletail 7	78
Table 21 EPBC Act significant impact assessment for vulnerable glossy black-cockatoo 8	30
Table 22 EPBC Act significant impact assessment for vulnerable Austral toadflax	33
Table 23 EPBC Act significant impact assessment for endangered wandering peppercresss	85
Table 25 EPBC Act SIA for vulnerable yellow-bellied glider	37



List of plates

Plate 1 Remnant Preferred koala habitat, survey site P4	. 22
Plate 2 Remnant Preferred koala habitat, survey site P5	22
Plate 3 General koala habitat, survey site P11	23
Plate 4 General koala habitat, survey site P15	23
Plate 5 Low general koala habitat, survey site P27	24
Plate 6 Low general koala habitat, survey site P25	24
Plate 7 P14 survey site within Dispersal koala habitat, with high number of regrowth stem	s25
Plate 8 P12 survey site within Dispersal koala habitat, without regrowth	25
Plate 9 P18 survey site within unsuitable koala habitat, showing no suitable shelter trees within a grassed paddock.	26



Introduction

1.1 Background

Tarong West Project Co Pty Ltd (herein referred to as the Proponent) proposes to develop the Tarong West Wind Farm (formerly known as the Iron Leaf Wind Farm) in the locality of Ironpot in south-east Queensland. The project requires approval under the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act) for assessment of impacts to matters of national environmental significance (MNES). A Public Environmental Report (PER) is required to assess these impacts (EPBC 2023/09643).

The proposed project involves the construction and operation of 97 wind turbine generators (WTGs) and associated infrastructure. Field and desktop assessment was undertaken to assess the environmental impact of the project during construction, operation, and decommissioning.

This MNES supplement report provides a synthesis of all MNES assessments completed for the project, incorporating information from the:

 Assessment of Matters of National Environmental Significance for Tarong West Wind Farm, Ironpot, Queensland report (Ecosure, 2023) provided in Appendix 1 of this supplement

1.1.1 Assessment of Matters of National Environmental Significance for Tarong West Wind Farm

The initial Assessment of Matters of National Environmental Significance for Tarong West Wind Farm, Ironpot, Queensland report (Ecosure, 2023) was submitted to the Department of Climate Change, Energy, the Environment and Water (DCCEEW) as part of a referral under Section 4 of the EPBC Act (EPBC 2023/09643). This assessment identified the following MNES fauna species as present within and adjacent to the project site:

- koala (Phascolarctos cinereus), listed as endangered
- greater glider (Petauroides volans), listed as endangered
- glossy black-cockatoo (Calyptorhynchus lathami lathami), listed as vulnerable
- grey-headed flying-fox (Pteropus poliocephalus), listed as vulnerable
- white-throated needletail (Hirundapus caudacutus), listed as vulnerable and migratory
- fork-tailed swift (Apus pacificus), listed as migratory.

This assessment identified another two bird species as present, which were subsequently removed from the migratory species list in September 2024:

rufous fantail (Rhipidura rufifrons)



satin flycatcher (Myiagra cyanoleuca).

The following MNES flora species were identified in this referral report as likely to be present within and adjacent to the project site based on suitability of habitat and records in the area.

- austral toadflax (Thesium australe), listed as vulnerable
- wandering peppercress (Lepidium peregrinum), listed as endangered.

All other species were only considered possible or unlikely to occur on the project site.

1.1.2 Supplement to the Assessment of Matters of National Environmental Significance – Tarong West Wind Farm

Final guidelines for the content of the draft PER for the proposed project were issued on 22 April 2024. The guidelines provided additional clarity around what is to be considered as habital for the species in question, in particular koala, greater glider and white throated needletail.

Koala habitat and the specified documents for consideration when assessing koala habitat and use requirements across the project site from the PER guidelines included:

- Conservation Advice for Phascolarctos cinereus (Koala) combined populations of Queensland, New South Wales and the Australian Capital Territory (DAWE, 2022a)
- Identifying habitat for the endangered Koala (DCCEEW, 2024)
- A review of koala habitat assessment criteria and methods (Youngentob et al., 2021)
- National recovery Plan for the Koala Phascolarctos cinereus (combined populations of Queensland, New South Wales and the Australian Capital Territory) (DAWE, 2022b).

Habitat descriptions for greater glider were also reviewed in line with the PER guidelines and the following documents specified for reference:

- Conservation Advice for Petauroides volans (greater glider (southern and central))
 (DCCEEW, 2022)
- Guide to greater glider habitat in Queensland (Eyre et al., 2022).

Habitat descriptions for white-throated needletail were also reviewed in line with the PER guidelines and the following documents specified for reference:

 Conservation Advice for Hirundapus caudacutus (white-throated needletail) (DCCEEW, 2019).

To ensure habitats, in particular for koala and greater glider, were comprehensively assessed, additional surveys were undertaken to inform the availability of food, habitat and dispersal trees for these species. The results of these additional surveys, in addition to further preconstruction bird and bat utilisation surveys (BBUS) are presented in this supplement report



and add onto the data previously collected and results presented in the Assessment of MNES addendum (referral documentation) presented in Appendix 1. The outcomes of revised habitat modelling for koala, greater glider, grey-headed flying fox, and glossy black-cockatoo are presented in this supplement report and supersede the habitat models presented in the Assessment of MNES (referral documentation) presented in Appendix 1.

Additional surveys were completed in 2025 by SLR Consulting (2025), to refine survey effort for threatened species considered possible to occur on the project site, including both flora (austral toadflax, wandering peppercress, *Pollanthion minutiflorum* and *Paspalidium grandispiculatum*) and fauna species (yellow-bellied glider and yakka skink). No MNES additional to those presented in the Assessment of MNES (referral documentation) report were identified within the project site during any of the additional surveys. The additional data was able to downgrade the likelihood of occurrence for some species.

1.2 Scope

The MNES supplement was prepared to assess potential impacts of the proposed project on MNES, incorporating:

- Assessment of Matters of National Environmental Significance for Tarong West Wind Farm, Ironpot, Queensland (Ecosure, 2023) presented in Appendix 1
- the data from the additional surveys completed post referral documentation (Appendix 1) (post summer 2023), including habitat quality assessments (autumn 2024 and winter 2025 surveys), results of the ongoing pre-construction BBUS conducted within and adjacent to the project site between autumn 2023 and spring 2023 and Targeted Matters of National Environmental Significance species surveys for Tarong West Wind Farm (SLR Consulting Australia, 2025)
- detailed Tarong West Wind Farm project design issued in October 2024 (and revised planning corridor issued in April 2025)
- final guidelines for the content of the draft PER for the proposed project issued by DCCEEW on 22 April 2024
- adequacy comments on the Tarong West Wind Farm PER (AECOM 2025) issued by DCCEEW on 11 March 2025.

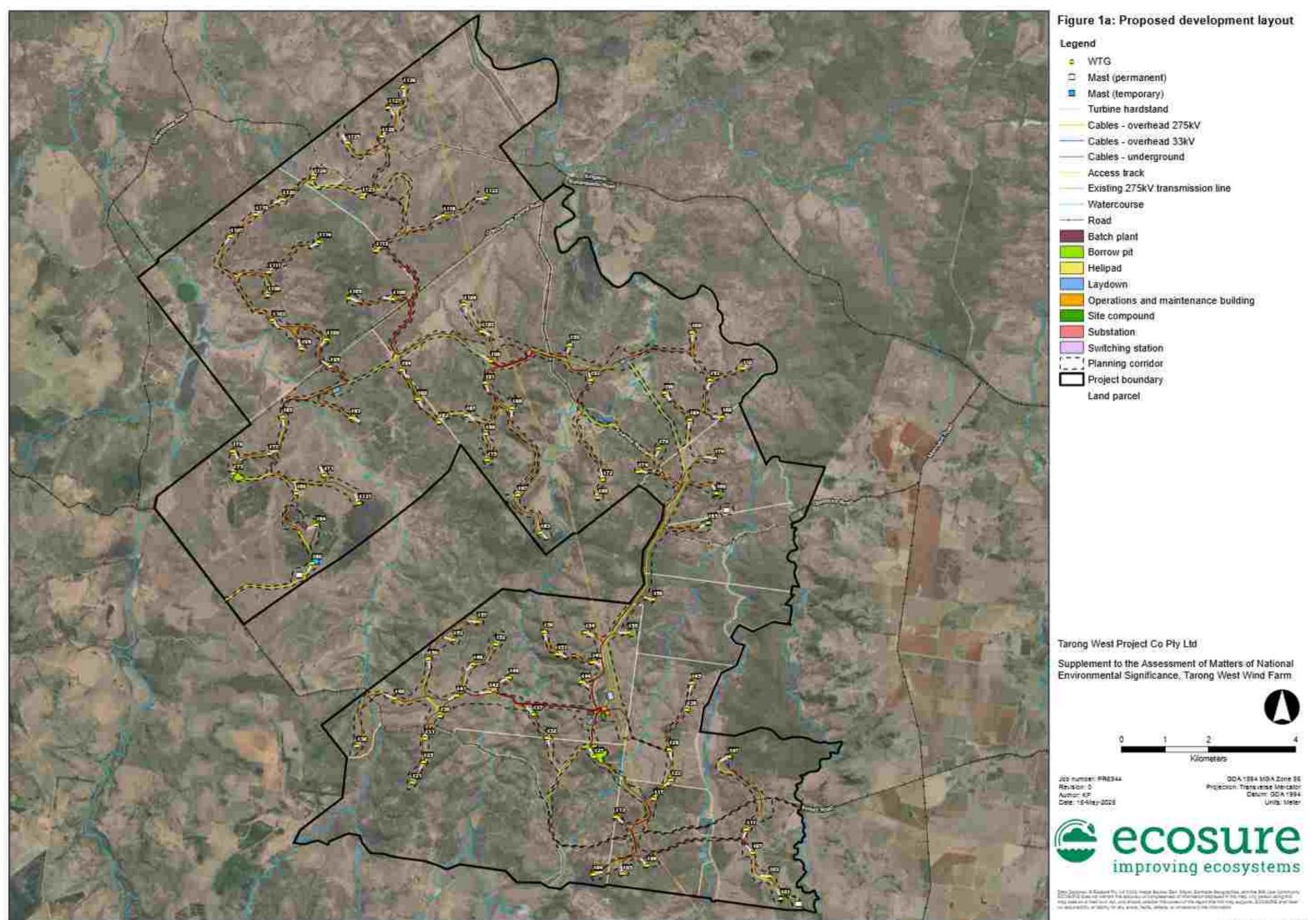
1.3 Report conventions

The following conventions are used throughout the report:

- The project site comprises 15 properties with an approximate combined area of 17,500 ha (including reserves and easements).
- The project boundary defines the outer perimeter of the project site.
- The proposed development comprises the spatial data presented in the shapefiles provided by the Proponent in October 2024 and the planning corridor provided April 2025.



- The planning corridor is the area for all infrastructure and development to occur
 within the project site and contains the clearing footprint.
- The clearing footprint represents the maximum disturbance footprint of the project, while allowing for minor micro-siting within the planning corridor.
- Conservation significant species include flora and fauna species that are listed as threatened (critically endangered, endangered, or vulnerable) and/or migratory under the Commonwealth EPBC Act.
- Common and scientific names of flora and fauna species follow the Department of Environment, Tourism, Science and Innovation (DETSI) WildNet database (DETSI, 2024).
- Introduced species are denoted by an asterisk (*).



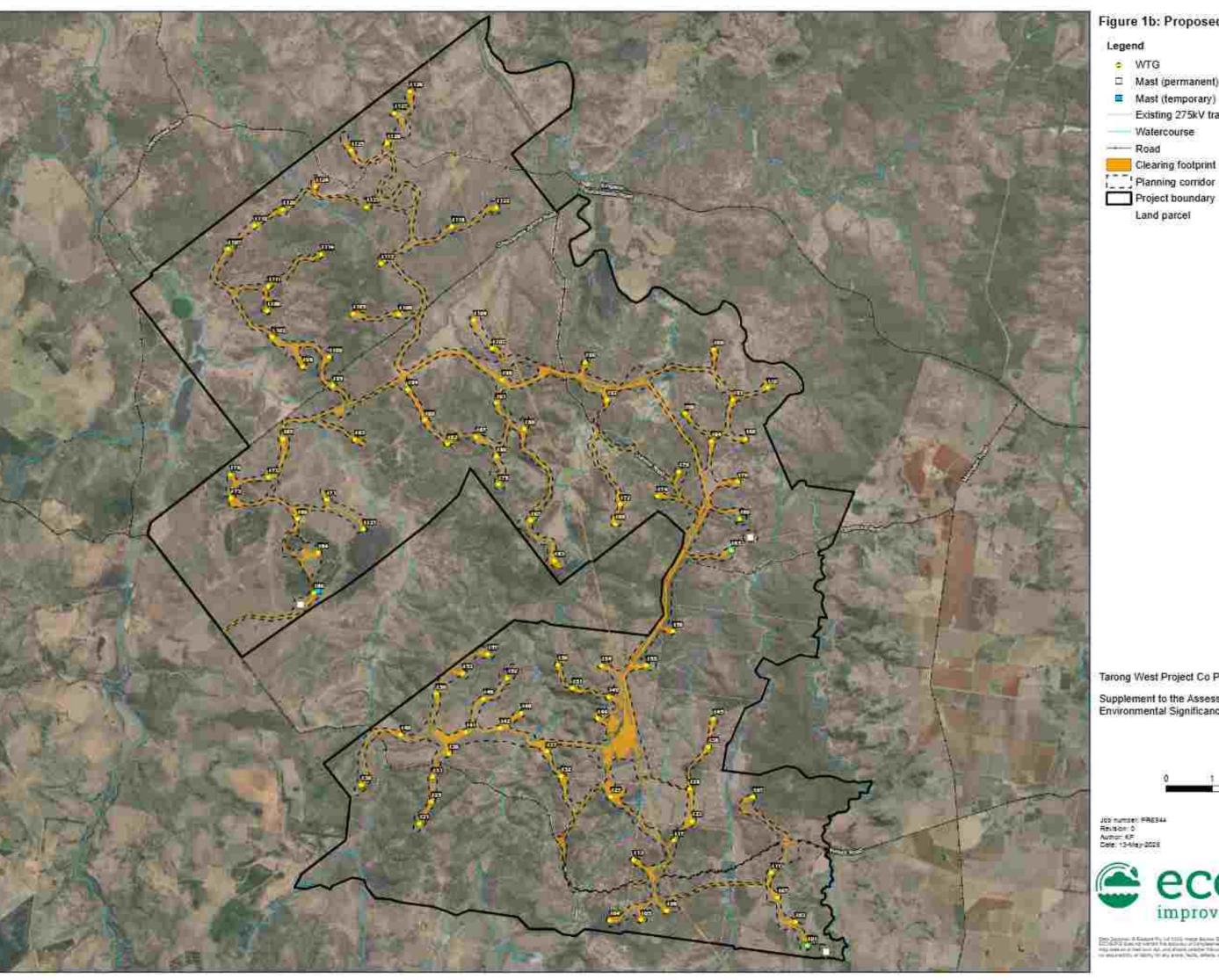


Figure 1b: Proposed clearing footprint

☐ Mast (permanent)

Mast (temporary)

Existing 275kV transmission line:

Watercourse

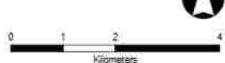
Clearing footprint

Project boundary

Land parcel

Tarong West Project Co Pty Ltd

Supplement to the Assessment of Matters of National Environmental Significance, Tarong West Wind Farm



GDA 1984 MBA Zone 85 Projection: Transverse Melicator Detum: GDA 1984





2 Field surveys

2.1 Pre-construction BBUS

2.1.1 Methods

Quarterly pre-construction BBUS commenced in summer 2022, and the results of five of these quarterly surveys up to and inclusive of summer 2023 are presented in the original referral documentation MNES assessment (see Appendix 1). This supplement presents the results of the additional three quarterly surveys up to Spring 2024.

2.1.1.1 Fixed point count surveys

Fixed point count locations were selected as described in the Bird and Bat Utilisation Survey report (Ecosure 2025b) and refined from 30 points to 15 for the Spring 2021 and ongoing quarterly surveys in 2022 and beyond. In short, the project site was divided into grid squares and grids were randomly selected using a random number generator. Survey locations were then visually assessed to ensure they were distributed across the project site to maximise coverage for the proposed turbine footprint. Within each grid reference, survey locations were chosen to provide clear visual access in all directions.

Fifteen fixed point count locations were surveyed in 2023 (Figure 3):

- eleven impact point count locations within the proposed turbine footprint area (impact sites within the Before-After-Control-Impact [BACI] framework)
- four reference point count locations outside the proposed turbine footprint area (control sites within the BACI framework).

Point count locations were visited for one day each, and a total of three times per day (morning, midday, and afternoon). This accounts for diurnal variations in bird activity as per the autumn 2019 surveys (Ecosure, 2025b). The 15 points were chosen based on their proximity to WTGs and the proposed planning corridor.

Within an 800 m radius of each fixed-point location, the area was surveyed for bird presence and behaviour for 30 minutes per survey (morning, midday, and afternoon). Data collected included species, number of birds, habitat in which the bird was seen, height above ground level (to nearest 20 m), behaviour, and flight direction (to the nearest 45° angle).

For the purposes of this report, bird survey data for impact and control sites will be combined.

2.1.1.2 Targeted searches

Spotlighting was conducted in areas of suitable habitat to search for nocturnal species such as owls and megabats (e.g. flying-foxes), and active searches for camps were conducted while travelling during the day between survey sites.



2.1.1.3 Opportunistic observations

Additional species of conservation significance were detected opportunistically throughout the survey period and while travelling across the project site (Timmiss et al., 2020).

2.1.2 BBUS survey conditions

2.1.2.1 Autumn 2023

The autumn 2023 survey was completed over one week from 2 to 7 May 2023. In the seven day period prior to surveys 20.6 mm of rainfall was recorded at Kingaroy Airport (BoM, 2023), although conversations with landowners indicated that the rainfall received at the project site was much lower (approximately 3 mm on 30 April compared to 16.4 mm recorded at Kingaroy Airport). No rainfall was recorded during the survey period (BoM, 2023). All sites were accessible and surveyed during each time period (morning, midday, afternoon).

Table 1 Weather conditions during the autumn 2023 survey period

Date	Min temp (°C)	Max temp (*C)	Rainfall (mm)	Mex wind guet (km/h)
2 May	1.7	22.6	0	26
3 May	4.9	24.8	0	30
4 May	3.8	25,5	0	33
5 May	47	24.9	0	37
6 May	6.7	24.9	0	19
7 May	9.5	24.7	0	35

2.1.2.2 Winter 2023

The winter 2023 survey was completed over one week from 10 to 15 August 2023. In the seven day period prior to surveys no rainfall was recorded at Kingaroy Airport, and 0.2 mm of rain was recorded during the survey period (BoM, 2023). The average daily maximum temperature during the survey period was 25.6°C and the average daily minimum was 3.2°C. All sites were accessible and surveyed during each time period (morning, midday, afternoon).

Table 2 Weather conditions during the winter 2023 survey period

Date	Min temp (°C)	Max temp (°C)	Rainfall (mm)	Max wind gust (kni/h)
10 August	2.8	22,1	0.2	24
11 August	22	24:9	0	31
12 August	2.1	25.2	0	3,1



Date	Min temp (°C)	Max temp (°C)	Rainfall (mm)	Mox wind gust (km/h)
13 August	5.9	26.3	0	31
14 August	1.7	27.7	0	37
15 August	4.2	27.3	0	37

2.1.2.3 Spring 2023

The spring 2023 survey was conducted over one week from 30 October to 4 November 2023. In the seven day period prior to surveys no rainfall was recorded at Kingaroy Airport, and 6.8 mm of rain was recorded during the survey period (BoM, 2023). The average daily maximum temperature during the survey period was 29.8°C and the average daily minimum was 11.7°C. All sites were accessible and were surveyed during each time period (morning, midday, afternoon).

Table 3 Weather conditions during the spring 2023 survey period

Date	Min temp (*C)	Max temp (*C)	Rainfall (mm)	Max wind gust (km/h)
30 October	8.0	29.5	0	30
31 October	10.8	34.8	0	35
1 November	13.7	31.8	0	46
2 November	10.9	28.1	0	41
3 November	1.1.3	27.1	0	46
4 November	15.7	27.2	6.8	37

2.2 BBUS results

Four species listed as threatened or migratory under the EPBC Act were detected during preconstruction BBUS (Table 4, Figure 2). All four species were recorded previously within the project site and no new EPBC Act-listed species were detected. An updated list of all species observed during the 2023 autumn to spring BBUS surveys is presented in Appendix 2.

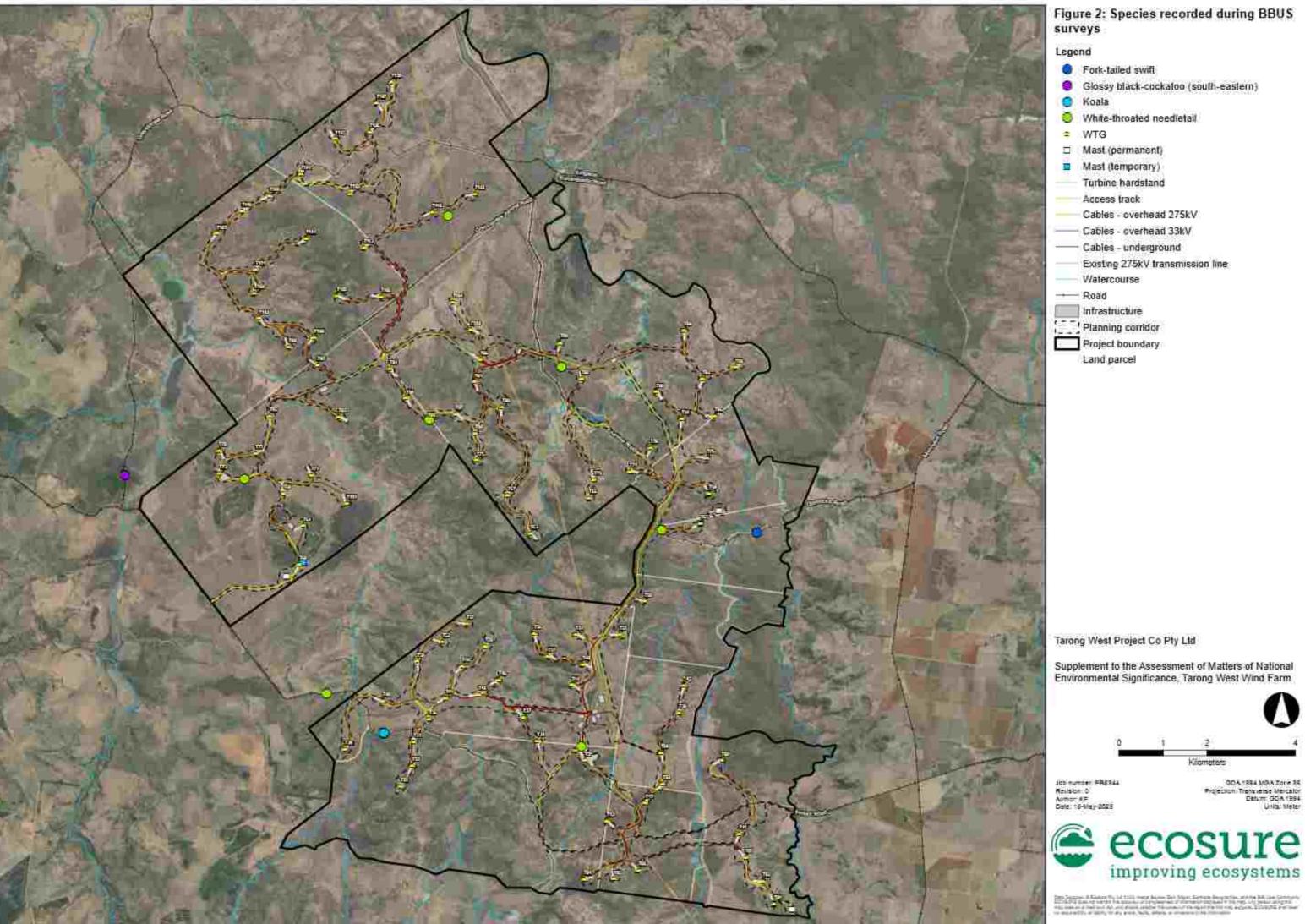
Table 4 EPBC Act-listed species detected during preconstruction BBUS

Species	EPBC status	Autuma 2023	Winter 2023	Spring 2023	Total
koala	E	1 opportunistic sighting no targeted surveys undertaken	No targeted surveys undertaken	No targeted surveys undertaken	1 opportunistic detection
white-throated needletail	V, Mi	No detections	No detections	132 individual sightings during	132 sightings



Species	EPBC status	Autumn 2023	Winter 2023	Spring 2023	Total
				fixed point count surveys	
glossy black- cockatoo	v	No detections, no targeted surveys undertaken	No detections, no targeted surveys undertaken	3 sightings during fixed point count surveys	3 sightings
fork-tailed swift	Mi	No detections	No detections	1 detection	1 sighting

EPBC status: E - endangered, V - Vulnerable, Mi - Migratory Species:



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2.3 Habitat quality assessments

2.3.1 Methods

Habitat quality assessments were completed in accordance with relevant state and Commonwealth guidelines, including:

- BioCondition: a condition assessment framework for terrestrial biodiversity in Queensland (Eyre et al. 2015)
- Guide to determining terrestrial habitat quality methods for assessing habitat quality under the Queensland Environmental Offsets Policy (GTDTHQ), version 1.2 (DEHP 2017)
- EPBC modified Queensland habitat quality method and associated spreadsheet (DCCEEW 2024b).

The impact area and potential offset areas were divided into assessment units (AUs), which are areas that are relatively homogeneous (i.e. each AU contains only one RE type that is in a reasonably consistent broad condition state). AUs were developed using a combination of desktop RE mapping and field surveys, to ground-truth REs and assess condition. Representative sites within each AU were assessed in general accordance with standard BioCondition and habitat quality methods, incorporating desktop and field assessments.

2.3.2 Results

Survey teams completed 13 habitat quality assessments at 13 sites within the impact area and 32 sites within the offset properties from 16 April to 23 May 2024. Four (4) additional habitat quality assessments were completed at the impact site and 12 additional habitat quality assessments at offset properties from 29 July to 2 August 2025. Detailed results will be reported in an Offset Area Management Plan (OAMP) for the Tarong West project.

Habitat quality assessments:

- re-confirmed ground-truthed REs and expanded on existing knowledge (e.g. condition, features) of vegetation communities and habitats within the impact area
- Informed habitat modelling for MNES species, in particular the details such as koala
 food trees, greater glider food trees and denning tree presence, and grey-headed
 flying fox and glossy black-cockatoo foraging species, and thereby re-confirming the
 habitat suitability for these species across the impact area
- quantitatively scored habitat quality within impact and offset areas to inform calculation of offset requirements for the project.

Habitat quality surveys, including BioCondition assessments, verified remnant vegetation within and adjacent to the impact area of the project site and indicated comparative assessment units to the proposed offset areas were present. BioCondition site scores within the impact area ranged from 3.9 (non-remnant areas) to over 8 (remnant 11.12.6 and regrowth of RE 11.12.3) and landscape-based scores ranged between 2 (non-remnant areas) and 18



(remnant areas) (Appendix 3).

24 Koala habitat assessment

2.4.1 Methods

The original MNES report modelled Potential koala habitat (now referred to as Preferred and General habitat) using ground-truthed regional ecosystems (REs) and high value regrowth (HVR) known to contain koala food trees. This identified 1,651.8 ha of remnant/HVR habitat (now identified as Preferred habitat). As the majority of the project site consists of non-remnant and regrowth vegetation (not considered HVR), a habitat model was required to identify high quality non-remnant areas of Potential koala habitat. This was created using areas displaying a foliage protective cover of 25% (cover level of 125) as this level was found to best align with habitat where koala had been recorded on site and included other attributes such as pre-clear vegetation mapping, evidence of clearing and patch size. This identified 4,182.19 ha of nonremnant Potential modelled koala habitat (now referred to as General habitat) across the project site. This resulted in a total of 5,833.99 ha of Potential koala habitat across the entire project site. The clearing footprint assessed in the referral documentation report contained 186.03 ha (16.98 ha of remnant and 169.05 ha of non-remnant) of Potential koala habitat (Appendix 1). Through project refinement and an updated koala habitat model these impact areas within the clearing footprint have been refined along with the habitat definitions and now consist of 15.46 ha of Preferred, 115.2 ha of General and 139.86 ha of Low quality general koala habitat.

The updated model completed expanded upon the previous model and mapped areas of habitat in the referral documentation to bring the habitat mapping into alignment with the PER Guidelines definition of koala habitat. The updated model incorporates the requirements of recent guidance and reviews, as discussed below, to more accurately map potential areas of different types of koala usage across the project site and to identify the relative importance of different areas.

The Commonwealth government publication Identifying habitat for the endangered koala (DCCEEW, 2024) identifies the following attributes that koala habitat will often include the following.

- forests or woodlands, especially with a higher proportion of feed tree species, and may include remnant or non-remnant vegetation
- roadside and railway vegetation and paddock trees
- safe intervening ground for travelling between trees and patches to forage, shelter and reproduce
- access to vegetated corridors or paddock trees to facilitate movement between patches, noting that it is stated in this document that koala are capable of dispersing across distances of 1 - 3 km



 climate refugia such as drainage lines, riparian zones and more mesic patches contribute to a location's resilience to drying conditions and are likely to provide a cooler refuge during periods of bushfire and heatwaves:

Climate change modelling identifies that koala populations are likely to contract eastwards and southwards, through:

- contraction of the koala food tree distributions to the east and south (Shabani et al., 2019; Adams-Hosking et al., 2011)
- mortality and increased physiological stress due to increased heatwaves, droughts and bushfires (Reckless et al., 2017).

These attributes have been considered when determining potential koala habitat across the project site.

Youngentob et al. (2021) completed a comprehensive review of koala habitat assessment criteria and methods, including the compilation of locally important koala tree (LIKT) and ancillary koala habitat tree (AKHT) species within eastern Australian bioregions. A LIKT is defined as a tree species that is regularly browsed by koalas in a particular bioregion, such that it could be considered a substantial portion of the koala's diet. An AKHT is defined as a tree species that is unlikely to be a preferred browse tree but is likely to make important contributions to koala habitat based on documented koala use. LIKT species can be used as a starting point to determine whether an area is likely to contain koala habitat. Table 5 lists LIKT and AKHT species identified in the Brigalow Belt bioregion.

Table 5 LIKT and AKHT species in Brigalow Belt bioregion

Scientific name	Common папіє	Category
Eucalyptus brownii	Reid River box	LIKT
Eucalyptus camaldulensis	river red gum	LIKT
Eucalyptus chlorociada	Baradine gum	LIKT
Eucalyptus conica	fuzzy box	LIKT
Eucalyptus coolabah	coolabah	LIKT
Eucalyptus crebra	narrow-leaved red ironbark	LIKT
Eucalyptus drepanophylia	narrow-leaved grey ironbark	LIKT
Eucalyptus dura	ironbark	LIKT
Eucalyptus exserta	Queensland peppermint	LIKT
Eucalyptus fibrosa	broad-leaved red ironbark	LIKT
Eucalyptus laevopinea	silverlop stringybark	LIKT
Eucalyptus largiflorens	black box	LIKT
Eucalyptus longirostrata	grey gum	LIKT
Eucalyptus major	grey gum	LIKT
Eucalyptus melanophioia	silver-leaved ironbark	LIKT
Eucalyptus microcarpa	narrow-leaved box	LIKT
Eucalyptus moluccana	gum-topped box	LIKT



Scientific name	Common name	Category	
Eucalyptus ochrophicia	yapunyah	LIKT	
Eucalyptus orgadophila	mountain coolabah	LIKT	
Eucalyptus populnea	poplar gum	LIKT	
Eucalyptus punctata	grey gum	LIKT	
Eucalyptus saligna	Sydney blue gum	LIKT	
Eucalyptus sideroxylon	red ironbark	LIKT	
Eucalyptus tereticornis	blue gum	LIKT	
Acacis harpophylia	brigalow	AHKT	
Acacia salicina	sally wattle	АНКТ	
Acacia tephrina	boree	AHKT	
Corymbia citriodora	lemon-scented gum	АНКТ	
Corymbia dallachiana	Dallachy's ghost gum	AHKT	
Corymbia erythrophloia	red-barked bloodwood	AHKT	
Corymbia intermedia	pink bloodwood	AHKT	
Corymbia tessellaris	Moreton Bay ash	AHKT	
Eucalyptus acmenoides	white mahogany	AHKT	
Eucalyptus ballayana	Bailey's stringybark	АНКТ	
Eucalyptus cambageana	Dawson River blackbuft	AHKT	
Eucalyptus decorticans	gum-top ironbark	АНКТ	
Eucalyptus platyphylla	poplar gum	AHKT	
Eucalyptus thozetiana	Thozet's box	AHKT	
Melaleuca bracteata	black tea-tree	AHKT	

Bolded species were recorded in survey plots.

Important koala habitat characteristics identified in recent studies (Gardiner et al., 2023; Melzer et al., 2018; A. Smith et al., 2013; A. Smith & Pile, 2024; Youngentob et al., 2021) include:

- high diversity and abundance of food trees (including locally important food trees)
- ground layer that allows individuals to move freely and safely between trees
- proximity to watercourses (i.e. wetter, more fertile landscapes)
- undisturbed primary forests (including little to no past logging).

The PER guidelines and the Conservation advice for the koala (DAWE, 2022a) identify the following as koala habitat:

- any forest or woodland (including remnant and regrowth, and modified vegetation communities) containing species that are koala food trees
- any grassland with emergent koala food trees
- any shrubland with emergent koala food trees



 paddock trees and associated trees that may facilitate movement which are not food trees but are commonly used by koala for shelter or predator avoidance.

The Conservation advice identifies the basis of habitat critical for the koala as habitat relating to the functional ecology of the koala, but does not identify by description or spatially habitat critical to the survival of the koala. The revised model identifies the five habital types for the koala as detailed in Table 6.



Table 6 Koala habitat types and description

Habitat type	Habital description	Ecological function	General modelling rules (detailed further in text below)
Preferred foraging and breeding habitat	areas within the fragmented landscape that form contiguous patches of ground-truthed remnant and HVR eucalypt open forest and woodland vegetation communities containing LIKT. This includes all suitable remnant and regrowth vegetation ground-truthed within the project site, excluding vine thicket communities (REs 11.3.25, 11.5.20, 11.7.6, 11.11.4, 11.11.15, 11.12.3 and 11.12.6)	Preferred foraging and breeding habitat for the species, suitable to support the koala throughout its life cycle. This habitat is considered habitat critical to the survival of the koala.	all remnant and regrowth vegetation ground-truthed including REs 11 3.25, 11 5.20, 11 7.5, 11 11.4, 11.11.15, 11.12.3 and 11.12.6, excluding vine thicket communities.
General foraging and breeding habitat	areas of modified forest or woodland containing species that are known koala food trees, or shrubland with emergent food trees. This includes non-remnant and regrowth vegetation and considers recent cleaning, canopy cover and patch size	Habitat of higher quality within non-remnant woodlands with reduced foraging availability, potential to support breeding, suitable dispersal corridors. This habitat is considered habitat critical to the survival of the koala.	pre-clear vegetation mapping containing essential habitat REs, including eucalypt woodland/forest REs 11.3.4, 11.3.25, 11.5.20, 11.7.6, 11.9.5, 11.10.1, 11.11.4a, 11.11.15, 11.12.3 and 11.12.6 woody vegetation foliage projective cover >125 (2014 Landsat) no evidence of clearing from 1998 to 2018, based on the Statewide Land and Tree Survey removing small isolated patches <0.3 ha (as these areas more likely contribute to lower quality habitat) manual model refinement based on recent (2025) aerial imagery smooth polygons tool, using Polynominal Approximation with Exponential Kernals (PAEK) algorithm and 200 m smoothing tolerance remove holes with Eliminate Polygon Part tool, using "area" parameter in Condition up to two hectares
Low quality general habitat	areas of low-quality modified forest or woodland potentially containing species that are known koala trees, or shrubland with entergent koala trees, that connect to higher quality General or Preferred koala habitat. This includes non-remnant vegetation with very sparse coverage	Habitat of low quality non- remnant woodlands with reduced foraging availability, low potential to support breeding, suitable dispersal corridors or narrow clearings between (allowing safe dispersal) Preferred and/or General habitat.	based on recent (2025) aerial imagery connects areas of Preferred and General habitat follows vegetation patch tree lines, taking into consideration lidar tree point and height data to account for edges and narrow cleared areas providing connectivity between the Preferred and/or General habitat layers excludes paddocks with sparse to very sparse paddock trees (i.e. dispersal habitat)

Tarong West MNES Supplement 17



Habitat type	Habitat description	Ecological function	General modelling rules (detailed further in text below)
Dispersal habitat	areas that do not provide foraging or breeding habitat opportunities, located between and adjacent to Preferred and/or General habitat patches (including Low quality general) and containing shelter frees in sufficient densities to allow for the safe movement of koalas. This includes areas containing higher densities of paddock trees and some sparser regrowth vegetation. Areas of unvegetated riparian and other corridors not captured in the Preferred or General habitats are also captured in the Dispersal habitat.	Limited dispersal through the landscape and refuge in scattered shelter trees (where trees are of suitable size to provide refuge). This habital is not considered habital critical to the survival of the koala, but provides a safe intervening matrix for traveiling between sites, as justified in the SIA Table 18 in section 3.2.1.	based on recent (2025) aerial imagery includes all other areas within the project footprint, excluding unvegetated areas with no obvious alive refuge paddock trees
Unsuitable habitat	areas that do not provide foraging or breeding habital opportunities, which contain no to limited suitable habital trees, resulting in an unsafe dispersal corridor	Highly restricted habital due to lack of refuge trees as a result of historical clearing. Does not provide foraging or breeding opportunities, and is considered unsafe dispersal habital. This habital is not considered habital critical to the survival of the koala, as justified in the SIA Table 18 in section 3.2.1.	based on recent (2025) aerial imagery includes unvegetated areas without obvious alive paddock frees of a suitable size to provide refuge while dispersing for koala.

Tarong West MNES Supplement 18



As described in Table 6 above the Preferred foraging and breeding habitat is modelled using the ground-truthed RE layer, including all remnant and HVR areas (REs 11.3.25, 11.5.20. 11.7.6, 11.11.4, 11.11.15, 11.12.3 and 11.12.6) within the project site (refer Plate 1 and Plate As the majority of the project site contains non-remnant or regrowth (not considered HVR). vegetation, a GIS model was developed to map the remaining koala habitat types. This model has been updated since the referral documentation to align with the PER Guidelines definition of koala habitat and the new model of available koala habitat across the project supersedes that presented in the referral documentation (Appendix 1).

The GIS model of koala habitat in non-remnant areas utilised Statewide Landcover and Trees Study (SLATS) land cover mapping for Queensland. This data set measures projective foliage cover of woody vegetation by analysing dry season Landsat satellite imagery with a pixel size of 30 m by 30 m (DES 2016, 2018b). Cover levels vary from 100 (0% foliage projective cover) to 200 (100% foliage projective cover). The 125 threshold cover level was considered to most accurately reflect the distribution of woody to non-woody vegetation cover, provides a reflective model of available koala habitats (General, Low general, Dispersal and Unsuitable habitat), and most accurately represents the habitat where records of koalas have been located within the project site.

The foliage projective cover method was validated by comparing the SLATS land cover mapping to lidar data collected from the project site in 2019. The two datasets are concordant, with significant trees identified by lidar falling within areas of koala habitat modelled using the 125 threshold cover level of the SLATS dataset.

To determine the areas of General koala habitat (refer Plate 3 and Plate 4) available within the non-remnant areas the following mapping rules were applied:

- pre-clear vegetation mapping (DoR 2022a) containing REs that are listed as essential habitat factors for koala (DoR 2022b), including eucalypt woodland/forest RES 11.3.4, 11.3.25, 11.5.20, 11.7.6, 11.9.5, 11.10.1, 11.11.4a, 11.11.15, 11.12.3 and 11.12.6
- woody vegetation foliage projective cover greater than a value of 125, based on Landsat imagery from 2014 (DES 2016)
- no evidence of clearing from 1998 to 2018, based on analyses of change in woody vegetation cover by the Statewide Land and Tree Survey (DES 2018b)
- removing patches smaller than 0.3 ha in size (i.e. removing isolated habitat patches less than 0.3 ha, as these areas are more likely to contribute to Dispersal habitat. based on ground-truthed vegetation data)
- manual model refinement based on recent (2025) aerial imagery to remove modelled habitat areas that do not contain vegetation
- applying a smoothing tool to remove the grid-like appearance of the model and more accurately represent boundaries of on-ground vegetation.

To determine the areas of Low general koala habitat (refer Plate 5 and Plate 6) available within the non-remnant areas the following mapping rules were applied:



manual model refinement based on recent (2025) aerial imagery to include patches
containing low quality habitat adjoining and connecting vegetation adjacent to habitat
areas modelled by the above steps, this includes areas where Preferred and General
habitat thins and provides a sparse – very sparse coverage of trees.

To model Dispersal koala habitat (refer Plate 7 and Plate 8) available within the non-remnant areas the following mapping rules were applied:

 based on recent (2025) aerial imagery and includes all other areas within the project footprint, excluding unvegetated areas with no obvious alive refuge paddock trees.

Unsuitable areas (Plate 9) of koala habitat were modelled within the non-remnant areas using the following mapping rule:

 based on recent (2025) aerial imagery and includes unvegetated areas with no obvious alive paddock trees of a suitable size to provide refuge for koala while dispersing.

To supplement available data used, as well as ground-truth and inform the habitat model, a total of 21 sites across the broader project site (Figure 3), were assessed with plots of 50 x 100 m traversed and the number of the following trees recorded:

- LIKT (greater than 10 cm diameter at breast height [DBH])
- AKHT (greater than 10 cm DBH).

Data relating to the topography, level of disturbance and vegetation structure was also captured, in additional to general BioCondition data.

2.4.2 Results

The results of koala habitat tree surveys within the impact area across the project site are presented in Table 7 and survey sites shown in Figure 3. There are a high number of sites within General, Low general and Dispersal habitat as the project footprint has been designed to minimise impacts within areas of Preferred habitat as a priority, followed by General habitat. Therefore, only two sites of Preferred habitat were suitable to survey within the planning corridor (Plate 1 and Plate 2, Preferred koala habitat site P4 and P5 respectively).

Table 7 Stem count of LIKT and AKHT (>10 cm DBH) within BioCondition survey results within the project sile

Site	Planning corridor / Project site	Ground-truthed RE	Modelled habitat type	UKT	AKHT
P04	Planning corridor	11.12.6	Preferred habitat	0	86
P05	Planning corridor	11.12.6	Preferred habitat	10	148
P06	Project site	Non-remnant but adjacent 11.12.6/11.11.15	General habitat	57	12
P07	Project sile	Non-remnant	General habitat	73	3



Site	Planning corridor / Project site	Ground-truthed RE	Modelled habitat type	LIKT	AKHT
809 809	Planning corridor	Non-remnant	Low general habitat	17:	.15
P09	Project site	Non-remnant	Non habitat	0	0
P10	Planning corridor	Non-remnant	General habitat	5	0
P11	Planning corridor	Non-remnant	General habitat	54	0
P12	Planning corridor	Non-remnant	Low general habitat	7	ŏ
P13	Planning corridor	Non-remnant	Dispersal habitat	112	2
P14	Planning corridor	Non-remnant	Dispersal habitat	121	0
P15	Planning corridor	Non-remnant	General habitat	76	10
P16	Planning corridor	Non-remnant	General habitat	4	38
P17	Planning corridor	Non remnant	General habitat	111	Ŏ
P18	Planning corridor	Non-remnant	Non habitat	0	0
P19	Project site	Non-remnant	General habitat	18	0
P20	Project site	Non-remnant	Low general habitat	0	202
P25	Planning corridor	Non-remnant	Low general habitat	-8	0
P26	Planning corridor	Non-remnant	Low general habitat	11	4
P27	Planning corridor	Non-remnant	Low general habitat	8	0
P28	Planning corridor	Non-remnant	Low general habitat	10	0

Surveys across the project site identified LIKT and AKHT in varying abundance. Seventeen of 21 survey sites contained LIKT with eight of these also containing AKHT. An additional two sites contained AKHT only. Sites had been variously disturbed by grazing, animal access, fire and timber cutting and were mostly on lower or upper slopes, or crests within RE 11.12.3 or RE 11.12.6.

Some sites within General, Low general and Dispersal habitat recorded a high stem density, consistent with younger regrowth trees (refer Plate 3 and Plate 4, General habitat site P11 and P15 respectively, refer Plate 5 and Plate 6, Low general habitat site P27 and P25 respectively, and Plate 7 and Plate 8, Dispersal habitat site P14 and P12 respectively). The number of LIKT recorded across all sites ranged from 1 to 121 with the highest numbers recorded in survey sites comprised of regrowth vegetation. Sites within non-remnant vegetation were often located on lower slopes and / or adjacent streams, which could provide important refuge from bushfire and heatwaves caused by climate-change, and therefore supports inclusion of these areas as General habitat. Other non-remnant sites were located on upper slopes but in areas where there has been less disturbance.





Plate 1 Remnant Preferred koala habitat, survey site P4



Plate 2 Remnant Preferred koala habitat, survey site P5





Plate 3 General koala habitat, survey site P11



Plate 4 General koala habitat, survey site P15





Plate 5 Low general koala habitat, survey site P27



Plate 6 Low general koala habitat, survey site P25





Plate 7 P14 survey site within Dispersal koala habitat, with high number of regrowth stems



Plate 8 P12 survey site within Dispersal koala habitat, without regrowth





Plate 9 P18 survey site within unsuitable koala habitat, showing no suitable shelter trees within a grassed paddock

The updated model of Preferred, General, Low general and Dispersal habitat is presented in Figure 4. Modelling has captured ground-truthed REs which are known to contain koala feed trees. These species are consistent with those identified in Table 5 and the species recorded across the project site. General habitat areas are typically located adjacent to Preferred habitat and Low general habitat adjacent to General habitat. These General (including Low quality general) habitats represent areas of less intact, non-remnant vegetation which has suffered greater disturbance. A fragmented band of General habitat (including Low quality general) extends across the project site from east to west, connecting intact areas of Preferred habitat on either boundary with smaller patches of Preferred habitat within the project site. These areas are further connected by Dispersal habitat which includes riparian and fence line corridors and open areas with sufficient tree abundance to provide shelter and foraging resources for koala. Wide univegetated areas which offer no foraging or shelter resources have been excluded.

The areas of each koala habitat type mapped within the project site and the areas within the planning corridor and clearing footprint are identified in Table 8 and presented in Figure 4.

Table 8 Modelled koala habitat and impacts

Koala habitat type	Mapped area (ha)	Planning corridor area (ha)	Clearing footprint area (ha)
Preferred foraging and breeding habitat	1,631.71	35.43	15.48
General foraging and breeding habitat	4,088.72	281.76	115.20
Low quality general habitat	4,321.01	323.88	139 86



Koala habitat type	Mapped area (ha)	Planning corridor area (ha)	Clearing footprint area (ha)
Dispersal habitat	3,370.89	713.05	347.16
Unsuitable habitat	4,083.87	591.45	254.19
Total	17,496.2	1,945.57	871.87

The project site predominantly contains dry sclerophyll forest and open woodland and no defined areas of cool microclimate forest or woodland are known to occur within the project site. Areas considered potential refuge under future climate change scenarios include refugia such as drainage lines, riparian zones and more mesic patches contribute to a location's resilience to drying conditions and are likely to provide a cooler refuge during periods of bushfire and heatwayes.

The project site contains some riparian corridors along generally ephemeral watercourses and gullies primarily occurring within the mapped General habitat. However, the vegetation is predominantly dry sclerophyll forest and open woodland, unlikely to provide cooler refuge during periods of bushfire or heatwaves. The riparian areas along the Boyne River provide the most likely patches of refugia, where some isolated riverine pools may persist beyond the wet season. However, many of these isolated pools would not persist longer term through periods of drought. Therefore, the project site is unlikely to be considered suitable habitat for future climate change resilience to prevent against dry conditions for the koala.

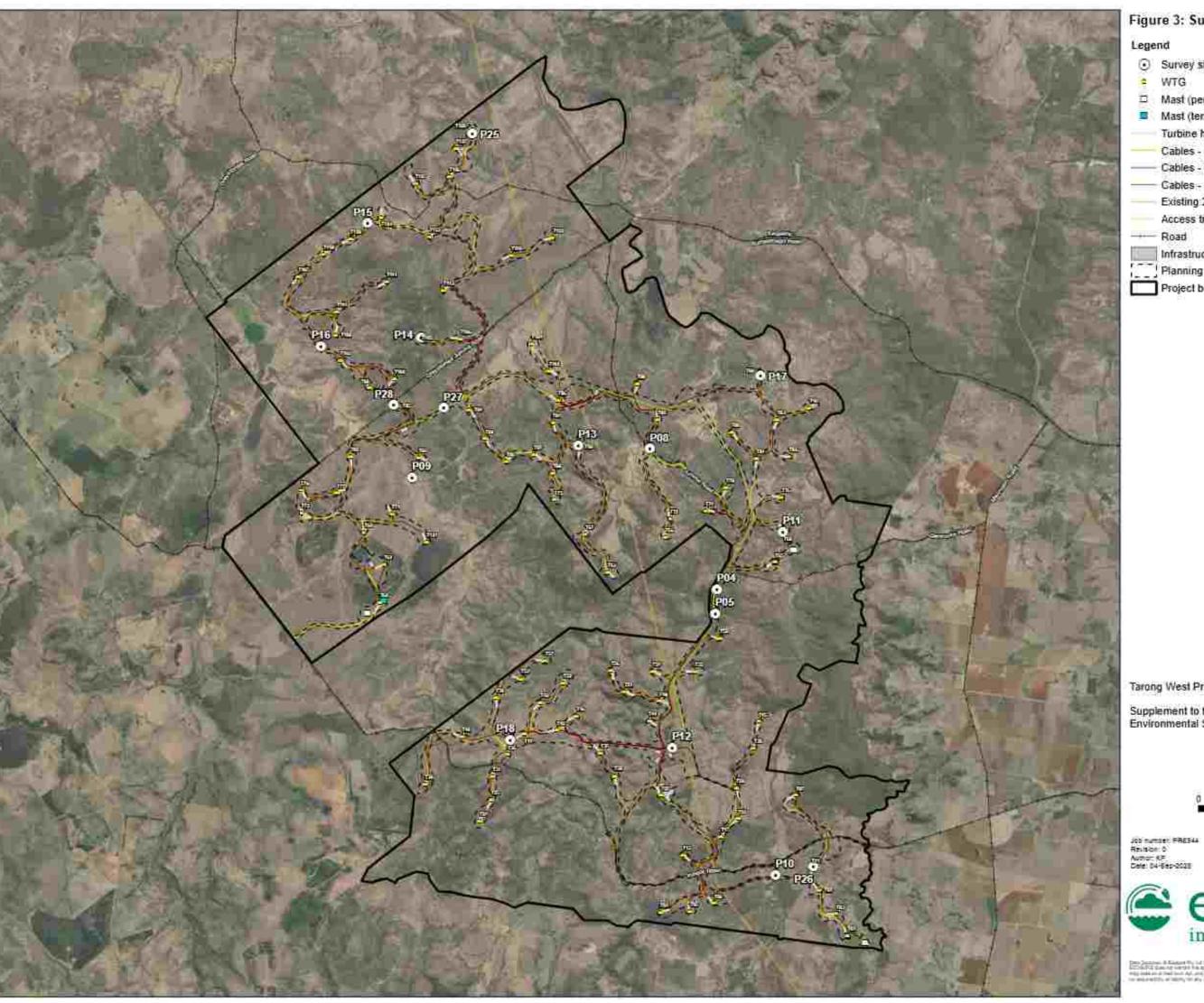


Figure 3: Survey sites

Survey site

☐ Mast (permanent)

Mast (temporary)

Turbine hardstand

Cables - overhead 275kV

Cables - overhead 33kV

Cables - underground

Existing 275kV transmission line

Access track

Infrastructure

Planning corridor

Project boundary

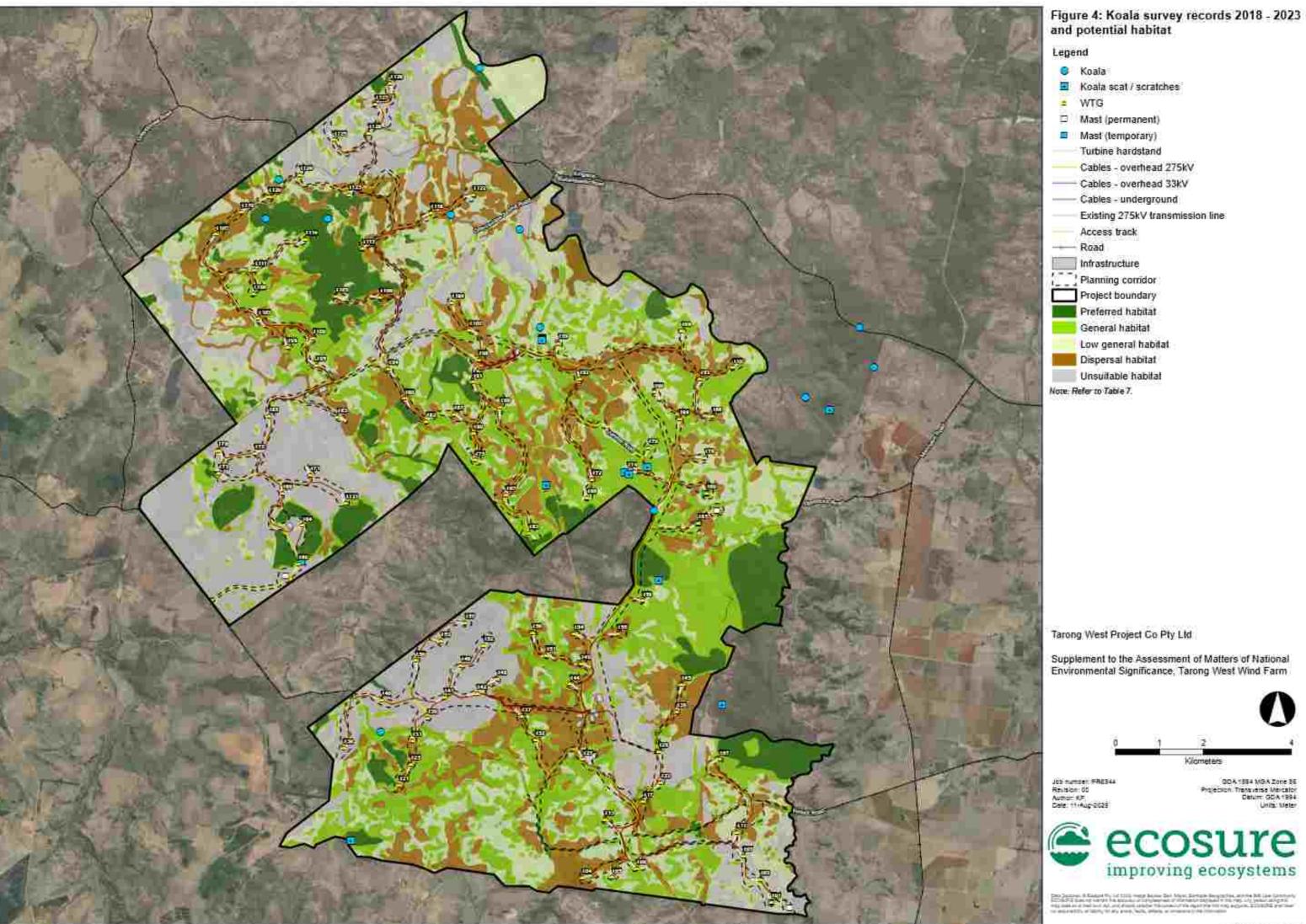
Tarong West Project Co Pty Ltd

Supplement to the Assessment of Matters of National Environmental Significance, Tarong West Wind Farm



GDA 1984 MBA Zone 85 Projection: Transverse Melicator Detum: GDA 1984





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Greater glider habitat assessment 2.5

2.5.1 Methods

The original MNES report modelled Potential greater glider habitat using ground-truthed REs and HVR dominated by REs 11.3.25, 11.11.4, 11.11.15, 11.12.3 and 11.12.6. This identified 1,330.45 ha of remnant habitat and 321.35 ha of HVR habitat within the project site. The clearing footprint impacted 16.98 ha of this combined area.

New modelling was undertaken that supersedes the previous modelling and mapped areas of habital. This model incorporates the requirements of recent guidance and reviews, as discussed below, to more accurately map potential areas and types of greater glider usage across the project site and to identify the relative importance of different areas. To further characterise the impacts of vegetation clearing on greater glider habitat, detailed habitat assessments were undertaken in sites of potential greater glider habitat both within and outside of the planning corridor.

The Commonwealth Conservation Advice for greater glider DCCEEW (2022) provides a broad definition of habitat critical to the survival of greater glider which includes:

- large contiguous areas of eucalypt forest, which contain mature hollow-bearing trees. and a diverse range of the species' preferred food species in a particular region; and
- smaller or fragmented habitat patches connected to larger patches of habitat, that can facilitate dispersal of the species and/or that enable recolonization; and
- cool microclimate forest/woodland areas (e.g. protected gullies, sheltered high elevation areas, coastal lowland areas, southern slopes); and
- areas identified as refuges under future climate changes scenarios; and
- short-term or long-term post-fire refuges (i.e. unburnt habitat within or adjacent to recently burnt landscapes) that allow the species to persist, recover and recolonise burnt areas.

This was refined by the Guide to greater glider habitat in Queensland (Eyre et al., 2022) into habitat and potential habitat where:

- Habitat contains REs with confirmed greater glider records and habitat attributes including denning and feed trees and connectivity across the landscape (referred to as Preferred habitat in the modelling)
- Potential habitat contains REs that do not have confirmed greater glider records but are considered to be potential habitat and contain habitat attributes including denning and feed trees and connectivity across the landscape
- Not habitat REs where there are no records, where the site is not considered to be habitat and where there are no habitat attributes available.

All ground-truthed REs within the project site have confirmed greater glider records except the



vine thicket communities. These REs are dominated by eucalypt forests and woodlands and include preferred food and den species.

Availability of den trees is a key limiting resource for greater glider (Andrew et al., 1994, Lindenmayer et al., 2021; A. Smith, Andrews, et al., 1994, A. Smith, Moore, et al., 1994). Den trees for greater glider preferably have large hollows with a diameter greater than 10 cm. Old, large trees are preferred, and dead trees may also be used (DCCEEW, 2022). A study by Smith et al (2007) determined that some south-east Queensland individuals utilised multiple den trees, with between four and twenty different trees being used.

For survey purposes tree size, rather than hollow presence or absence, was recorded due to the correlation between tree diameter size and the presence of hollows (Eyre et al., 2022). Trees with a DBH greater than 30 cm are preferentially selected for foraging while trees with a DBH greater than 50 cm are more likely to provide suitable tree hollows for greater glider use (Eyre et al., 2022). This also improves survey outcomes due to the variability of results from surveys targeting hollows.

Food trees for greater glider in Queensland were identified (Eyre et al., 2022) and include any species previously recorded as being used by greater glider. Species potentially occurring within the bioregion are listed in Table 9 which also identifies whether these species have been recorded in the local region or within the project site.

Table 9 Greater gilder food and den tree species (Eyre et al., 2022).

Scientific name	Common name	Recorded in local region	Recorded on project site
Aliocasuarina torulosa	forest she-oak (North Queensland, one study)	Yes	Yes
Angophora fioribunda	rough-barked apple	Yes	Yes
Angophora leiocarpa	smooth-barked apple	Yes	×
Casuarina cunninghamiana	river she-oak	Yes	Yes
Corymbia citriodora	lemon-scented gum	Yes	Yes
Corymbia clarksoniana	long-fruited bloodwood	Yes	Yes
Corymbia dallachiana	Dallachy's ghost gum	Yes	æ
Corymbia erythrophloia	red bloodwood	Yes	2
Corymbia intermedia	pink bloodwood	Yes	Yes
Corymbia tessellaris	Moreton Bay ash, carbeen	Yes	Yes
Corymbia trachyphloia	brown bloodwood	Yes	E
Corymbia watsoniana	yellow bloodwood	-	8
Eucalyptus acmenoides	white mahogany	Yes	æ



Scientific name	Common name	Recorded in local region	Recorded on project site
Eucalyptus baileyana	Bailey's stringybark	-	æ
Eucalyptus camaidulensis	river red gum	-	Ω.
Eucalyptus crebra	narrow-leaved red ironbark	Yes	Yes
Eucalyptus decorticans	gum-topped ironbark	-	Ø.
Eucalyptus drepanophylla	narrow-leaved grey ironbark	-	æ
Eucalyptus exserta	Queensland peppermint	Yes	S.
Eucalyptus fibrosa	broad-leaved ironbark	Yes	æ
Eucalyptus laevopinea	silvertop stringybark	1	z.
Eucalyptus longirostrala	grey gum	-	æ
Eucalyptus melanophioia	silver-leaved ironbark	Yes	Yes
Eucalyptus moluccana	gum-topped box	Yes	E
Eucalyptus platyphylla	poplar gum	=	¥
Eucalyptus populnea	poplar box	Yes	•
Eucalyptus saligna	Sydney blue gum	=	=
Eucalyptus tereticomis	forest red gum	Yes	Yes
Lophostemon suaveolens	swamp mahogany	=	=

Almost all the species confirmed on site are listed as dominant or co-dominant in more than 30 greater glider habitat REs within the Brigalow Belt bioregion (Eyre et al., 2022).

Revised modelling was undertaken to map potential areas of greater glider habitat across the project site and to identify the relative importance of different areas. This modelling uses the criteria outlined above (Eyre et al., 2022), which are closely aligned with the areas of remnant habitat and the areas of modelled General koala habitat, which was cross referenced with data related to feed tree presence and tree DBH (as an indicator of potential hollow size). Table 10 details the types of greater glider habitat identified by the model, summarised below:

- Preferred habitat which includes key denning and foraging habitats this includes ground-truthed eucalypt forest and woodlands with confirmed greater glider records and where greater glider food and den tree species are known or likely to be present. This includes all ground-truthed remnant and HVR REs within the project site excluding vine thicket communities (REs 11.3.25, 11.5.20, 11.7.6, 11.11.4, 11.11.15, 11.12.3 and 11.12.6).
- Potential habitat which includes foraging and potential future denning habitats the
 definition suggested by Eyre et al (2022) cannot be applied in this case as there are
 no REs on the project site with suitable habitat attributes but with no confirmed



- greater glider records. Non-remnant vegetation, containing greater glider food trees and future denning trees, in proximity to Preferred habitat and / or with substantial connectivity has been mapped. This includes non-remnant and regrowth vegetation and considers recent clearing, canopy cover and patch size.
- Dispersal habitat which includes areas of low quality modified non-remnant forest or woodland potentially containing some food tree species, that connect to Preferred or Potential foraging and future denning habitat. This includes non-remnant vegetation with sparse coverage. This habitat has a very low potential to support denning, but contains suitable dispersal corridors or narrow clearing between Preferred and Potential greater glider habitats.



Table 10 Greater glider habitat types and descriptions

Greater glider habitat type	Habitat description	Ecological function	General modelling rules (detailed further in text below)
Preferred foraging and denning habitat	Areas within the fragmented landscape that form contiguous patches of ground-truthed remnant and HVR eucalypt open forest and woodland vegetation communities containing greater glider food and den tree species. This includes all suitable remnant and regrowth vegetation ground-truthed within the project site, excluding vine thicket communities (REs 11.3.25, 11.5.20, 11.7.6, 11.11.4, 11.11.15, 11.12.3 and 11.12.6).	Preferred foraging and denning habitat for the species, suitable to support the greater glider throughout its life cycle. This habitat is considered habitat critical to the survival of the greater glider.	all remnant and regrowth vegetation ground-truthed, including REs 11.3.25, 11.5.20, 11.7.6, 11.1.1.4, 11.11.15, 11.12.3 and 11.12.6, excluding vine thicket communities.
Potential foraging and future denning habital	The definition suggested by Eyre et al (2022) cannot be applied in this case as there are no REs on the project site with suitable habital affributes but with no confirmed greater glider records. Non-remnant vegetation, containing greater glider food trees and future derining trees, in proximity to Preferred habital and / or with substantial connectivity. This includes non-remnant and regrowth vegetation and considers recent clearing canopy cover and patch size.	Habitat of higher quality within non- remnant weodiands with reduced foraging availability, potential to support future denning for the species and suitable dispersal comidors. This habitat is considered habitat critical to the survival of the greater glider.	- pre-clear vegetation mapping containing essential habital REs, including eucalypt woodland/forest REs 11.3.4, 11.3.25, 11.5.20, 11.7.6, 11.9.5, 11.10.1, 11.11.4a, 11.11.15, 11.12.3 and 11.12.6 - woodly vegetation foliage projective cover >125 (2014 Landsat) - no evidence of clearing from 1998 to 2018, based on the Statewide Land and Tree Survey - removing small isolated patches <0.3 ha - manual model refinement based on recent (2023) aerial imagery - smooth polygons tool, using Polynomial Approximation with Exponential Kernels (PAEK) algorithm and 200 metre smoothing tolerance - remove holes with Eliminate Polygon Part tool, using "area" parameter in Condition, up to 2 hectares.
Dispersal habitat	Areas of low quality modified non- remnant forest or woodland potentially containing some food tree species, that connect to Preferred or Potential	Habitat of low quality non-remnant woodlands with reduced foraging availability, very low potential to support denning, suitable dispersal	based on recent (2023) aerial imagery connects areas of Preferred and Potential habitat follows tree lines, taking into consideration lidar tree point and height data to account for edges and narrow cleared

Tarong West MNES Supplement



Greater glider habitat type	Habitat description	Ecological function	General modelling rules (detailed turther in text below)
	foraging and future denning habitat. This includes non-remnant vegetation with sparse coverage.	corridors or narrow clearings between (allowing safe glide dispersal) between Preferred and/or Potential habitat	areas providing connectivity between the Preferred and/or Potential habitat layers - excludes paddocks with sparse to very sparse paddock trees (i.e. where scattered trees do not consistently support suitable glide distances)

Tarong West MNES Supplement



The presence of trees of suitable size for hollows and foraging species can be used to distinguish between key and future habitats. Greater glider will use patches of habitat less than 10 ha and potentially less than 3 ha (Eyre et al., 2022). In this regard any ground-truthed area of an RE with confirmed records can have value, regardless of the level of habitat fragmentation in the area. It is noted however that greater gliders disperse poorly across vegetation that is not native forest (Pope et al., 2004) and non-remnant and native regrowth areas have been included to enhance future habitat values and connectivity.

At a total of 25 sites within the project site (Figure 3), plots of 50 X 100 m were traversed and the number of the following trees recorded.

- habitat trees (any species of tree) greater than 30 cm DBH
- habitat or potential den trees (any species of tree) greater than 50 cm DBH
- food trees (from Table 11) greater than 30 cm DBH.

Additional information was requested by DCCEEW to detail the project's potential impact as a result of fragmentation on greater glider. To support this adequacy review request, a more detailed fragmentation assessment was completed including a review of proposed avoidance, mitigation and management actions with regards to fragmentation impacts within the project site.

2.5.2 Results

The results of greater glider tree surveys across the project site are presented in Table 11.

Table 11 Greater glider food and habitat tree survey results

Site	Ground-truthed RE	Modelled habitat type	Food trees >30 cm DBH	Habitat trees >30 cm DBH	>50 cm DBH
P01	11.11.4	Preferred habitat	17	14	5
P02	11.11.15	Preferred habitat	20	18	4
P03	11:11:4	Preferred habitat	27	23	5
P04	11.12.6	Preferred habitat	34	34	9
P05	11.12.6	Preferred habitat	32	32	5
P06	Non-remnant but adjacent 11.12.6/11.11.15	Potential habitat	293	11	3
P07	Non-remnant	Potential habitat	22	23	4
P08	Non-remnant	Dispersal habitat	23	15	8
P09	Non-remnant	Not mapped	0	.0	0
P10	Non-remnant	Potential habitat	2	-4	4
P11	Non-remnant	Potential habitat	9	11	6
P12	Non-remnant	Dispersal habitat	5	5	Ĵ
P13	Non-remnant	Not mapped	ं गू	*	0
P14	Non-remnant	Not mapped	- 55°	:4	
P15	Non-remnant	Potential habitat	ð	7	4



Site	Ground-truthed RE	Modelled habitat type	>30 cm DBH	Habitat trees >30 cm DBH	>50 cm DBH
P16	Non-remnant	Potential habitat	14	16	6
P17:	Non remnant	Potential habitat	17	25	.5
P18	Non-remnant	Not mapped	0	0	0
P19	Non-remnant	Polential habitat	14	14	7
P20	Non-remnant	Dispersal habital	2	2	0
PA	11,11.4	Preferred habitat	21	25	4
P25	Non remnant	Not mapped	3	2	
P26	Non remnant	Dispersal habitat	2	4	1
P27	Non remnant	Dispersal habitat	.8	6	4
P28	Non remnant	Dispersal habitat	9	3	6

Surveys across the project site identified food and habitat trees greater than 30 cm DBH at all but two sites. These same two sites, both non-remnant contained no habitat trees greater than 50 cm DBH. Two additional non-remnant sites also contained no habitat trees greater than 50 cm DBH.

Recorded density of habitat trees greater than 50 cm DBH ranged from 2–18 trees per hectare. In southern Queensland, Eyre et al. (2022) states that greater glider appears to require at least 2–4 live den trees for every 2 ha of suitable forest habitat and the project site meets this attribute at most of the surveyed sites.

Modelling of Preferred habitat and Potential habitat is presented in Figure 5. This figure also shows the location of greater glider observations across the project site. Greater glider observations are almost all within mapped Preferred habitat, with two individuals sighted at one location within Potential habitat. At those survey sites that correspond with previous observations, both food trees greater than 30 cm DBH and potential den trees greater than 50 cm DBH were present. Ground-truthed REs represent six of the surveyed sites and generally recorded higher numbers of greater glider food trees (six of the ten highest totals for food, habitat and den trees). Combined with the den tree density recorded across most sites, the modelled Preferred habitat and Potential habitat areas are considered to be reflective of greater glider habitats across the project site.

The areas of each greater glider habitat type mapped within the project site and the areas within the planning corridor and clearing footprint are identified in Table 12.

Table 12 Modelied greater glider habitat and impacts

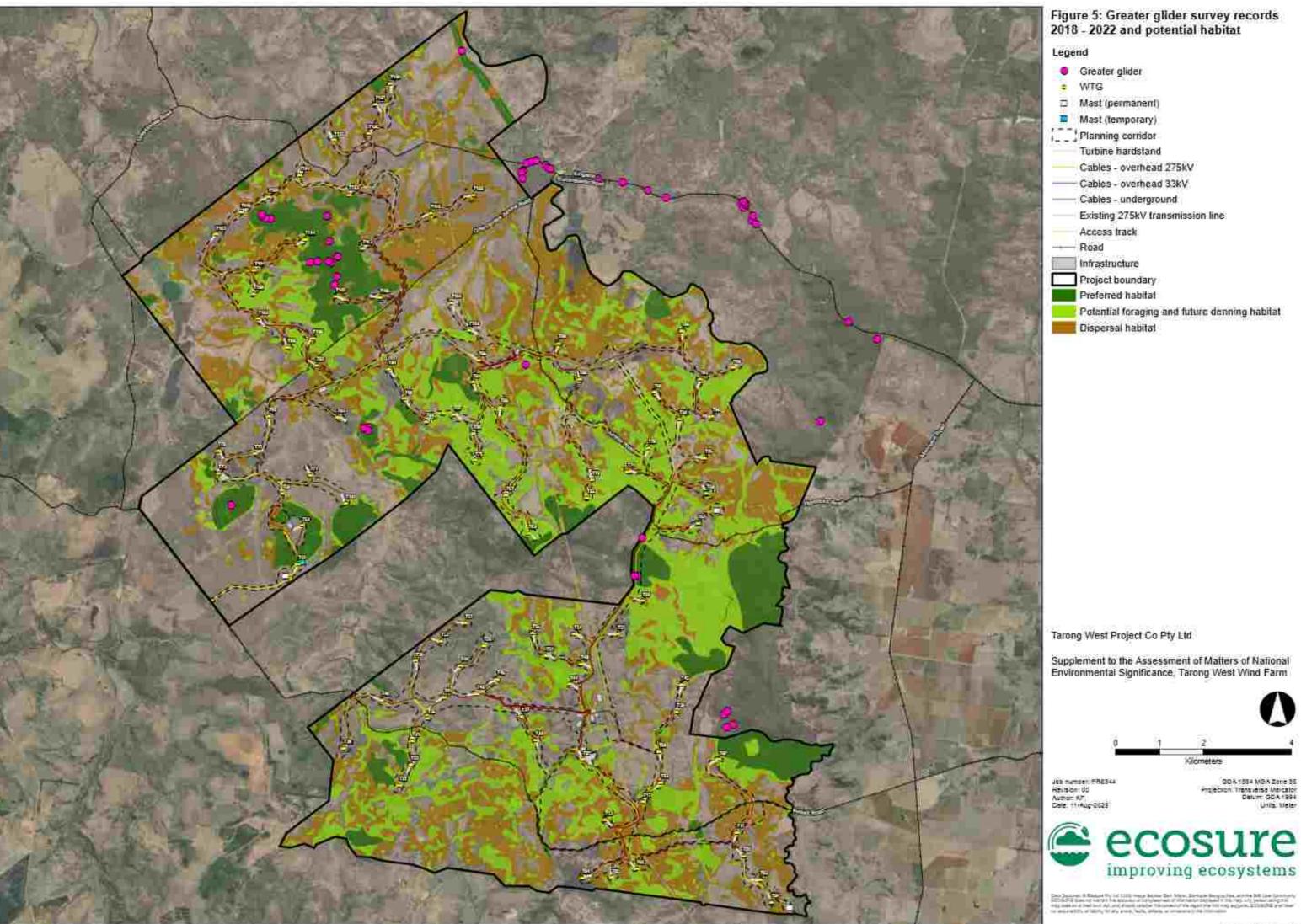
Habitat type	Mapped area (ha)	Planning corridor area (ha)	Clearing footprint area (ha)
Preferred habitat	1,631.71	35.43	15.46
Potential habitat	4,096.20	280.97	112.08
Dispersal habitat	4,113.67	325.97	142.58
Total	9,841.58	642.37	270,12



A fragmentation assessment was completed using DETSI's Landscape Fragmentation and Connectivity (LFC) tool. The project site occurs within a highly fragmented region with remnant and HVR regrowth occurring within generally small and discontinuous patches. Clearing for WTG construction pads and access tracks will cause minor decreases in connectivity of existing vegetation patches and minor fragmentation of fauna movement corridors on the project site.

The LFC tool is used as a guide to determine whether a proposed impact from a prescribed activity is likely to significantly impact connectivity. The tool uses a GIS based script that calculates the quantum of the proposed impact on connectivity values such as size and configuration of impacted polygons. Significance is determined by assessing whether the change in the core ecosystem extent at the local scale is greater than a threshold determined by the level of fragmentation at the regional scale, or if any core area is lost or reduced to patch fragments (core to non-core). If the outcome of either is true, then the overall impact is significant. The tool identified that the proposed clearing would result in a 0.83% reduction in core areas at the local scale and no reduction in the number of core remnant areas, and therefore concluded that impact on connectivity areas was not significant.

A more species specific fragmentation assessment for greater glider is completed and discussed in the section 2.5.3 below.





2.5.3 Fragmentation discussion

The clearing of vegetation and habital associated with the project has the potential to have an indirect impact to greater glider through increased fragmentation of habital and reduced connectivity between patches of habital. To assess these potential indirect impacts it was necessary to review the existing species habital connectivity, along with areas of increased fragmentation, and compare this with species gliding dynamics.

Available studies on glide dynamics are variable among glider species. In one study in low-canopy forest (20 – 30 m tree height), yellow-bellied gliders launched into glides from horizontal branches and landed on the trunks of trees (Goldingay, 2014). The animals observed in this study glided an average distance of approximately 25 m, on average initiating the glide from a height of 18.5 m. Squirrel gliders successfully use 6.5 m glide poles spaced 5 – 12 m apart to cross land-bridges over two roads in which the shortest distance between canopies was 50 – 60 m (Goldingay and Taylor, 2011). The squirrel glider is smaller than the greater glider and has an average glide distance of 21.5 m (Goldingay and Taylor, 2009).

It's been reported that the greater glider is capable of glides up to 100 m (McCarthy and Lindenmayer, 1999), though the gliding distances of the species are not well documented and 100 m is likely to be an extreme outlier, and the height of trees used to achieve this gliding distance was not documented. Although, there are no documented glide angles for greater glider, Jackson (1999) reported a glide angle of 28.26°- 29.69° (glide ratio of approximately 1.8) for the Mahogany Glider and Sugar Glider. Older studies by Wakefield (1970) reported a glide angle of 40° (glide ratio of 1.2) for greater glider, while other anecdotal observations (R. Kavanagh pers. coms.) have measured glide angles of 31° (glide ratio 1.66) for the species (Taylor and Goldingay 2009). Taylor and Goldingay (2009) note that while more research is required on the gliding behaviours of greater gliders and if the species uses gliding poles to cross areas of fragmentation, wooden glider poles 20 m high should facilitate a glide distance of approximately 33 m. Further research by Goldingay (2014) reported a mean glide ratio of 2.0 (glide angle of 27.3°) for the yellow-bellied glider in 20 - 30 m high open forests in Victoria and that this should be used to estimate gliding distance for yellow-bellied gliders when developing connectivity management for the species. The gliding ability of species is dependent on the area of the gliding membrane and other morphological attributes, as such it is reasonable to conclude the gliding behaviour and distance, although also determined by canopy structure, are similar for all gliding marsupials of similar attributes such as the yellowbellied glider and greater glider. Therefore, a maximum glide distance of 2.0 and a precautionary glide ratio of 1.6 has been adopted for the purpose of this assessment.

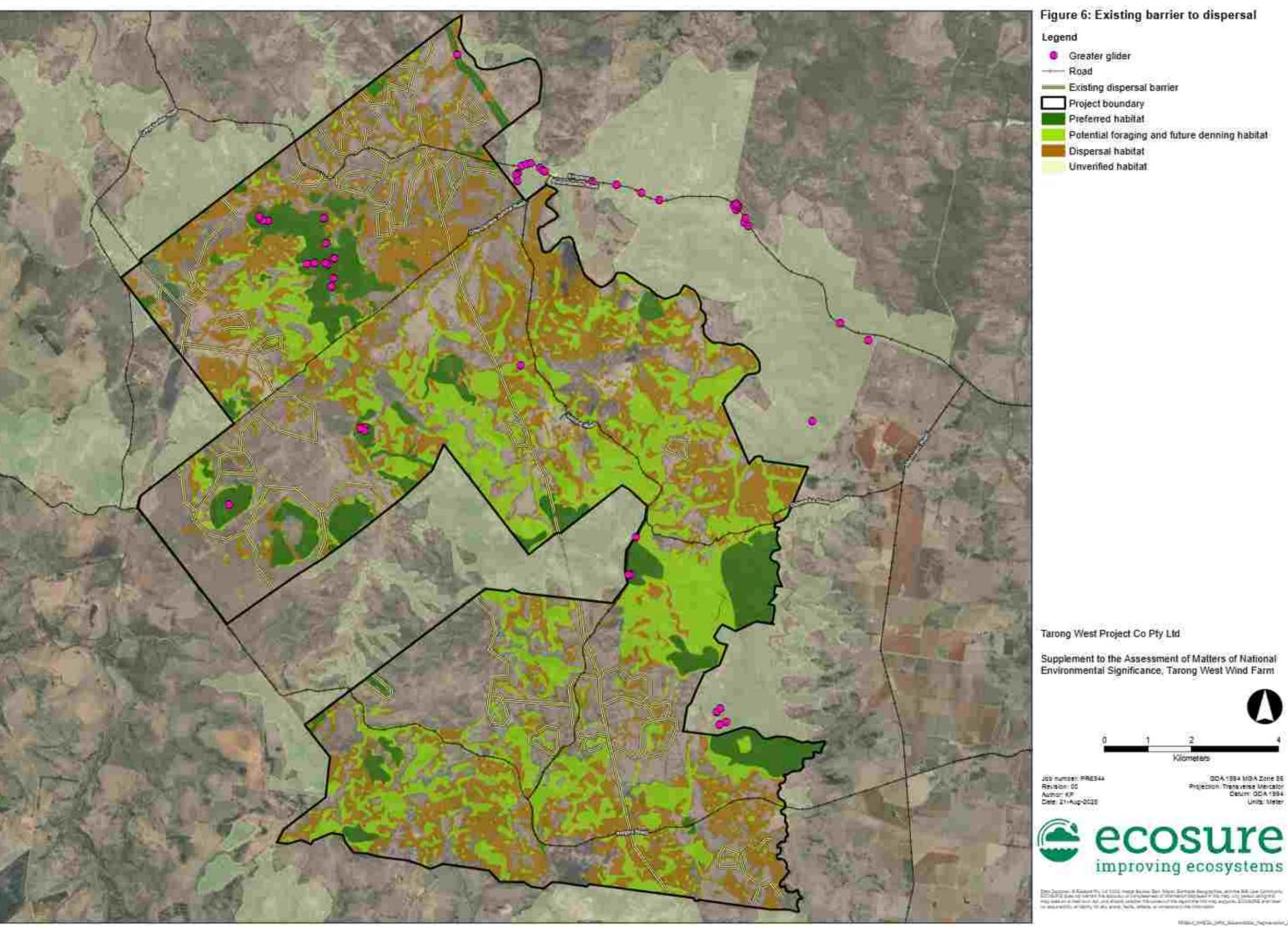
The fragmentation assessment completed, assessed glide barriers from refined greater glider habitat mapping, alongside lidar tree height data. To determine glide distance, buffers were placed on both the edges of vegetation patches (based on average tree height data for each habitat patch/polygon) and on the individual tree point height data, using both a glide ratio of 2.0 (Goldingay 2014) and a conservative ratio of 1.6. The assessment considered adjacent areas of unverified vegetation suitable for dispersal that adjoin the project site, as these areas include available adjacent connectivity and dispersal opportunities for greater glider.

An assessment was completed for existing barriers in the project site between vegetation



patches where gaps exceeded the maximum gliding distance in both directions for greater gliders. This process was done prior to considering the clearing footprint in order to determine pre-existing dispersal barriers. Figure 6 shows the location of the existing barriers and the patches of habitat disconnected and isolated in the landscape from other patches within the project site. Most of these barriers occur in the north west and southern sections of the project site, and are reflective of the land practices in these areas where increased land clearing has resulted in highly fragmented habitat.

An assessment for any additional gliding barriers created by the project (pre-mitigated barriers) and maintained connection points (where retention of tall trees adjacent to the clearing footprint will maintain a suitable glide distance and a connection point across the clearing footprint) was determined by clipping the greater glider habitat to the edge of the clearing footprint and intersecting the tree height data to the remaining greater glider habitat (outside of the clearing footprint). This tree height data (outside the clearing footprint) was used to identify areas where the clearing footprint is greater (for barriers) or smaller (for connection points) than the possible glide distance determined from the adjacent tree height data within the adjacent habitat patch. This assessment considered areas of existing landscape barriers across the project site, patches below 3 ha, habitat quality (Preferred versus Potential versus Dispersal habitat), confirmed species observations and connectivity to adjacent unverified vegetated areas outside of the project site. Figure 7 shows locations of maintained connection points and pre-mitigated dispersal barriers.



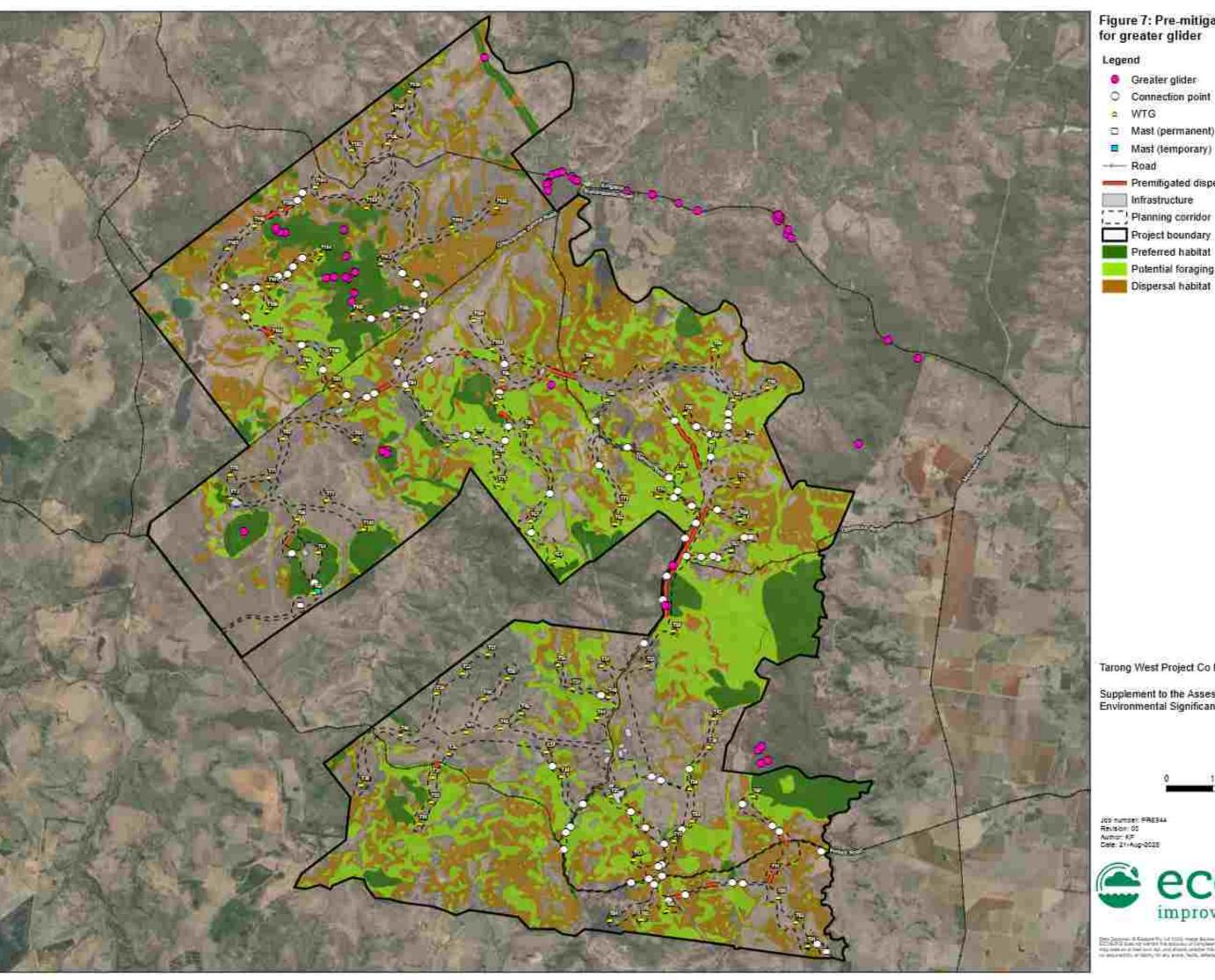


Figure 7: Pre-mitigated dispersal barriers for greater glider

- Greater glider
- O Connection point
- Mast (permanent)
- Mast (temporary)
- Premitigated dispersal barrier
- Infrastructure
- Project boundary
- Preferred habitat
- Potential foraging and future denning habitat
- Dispersal habitat

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GDA 1984 MBA Zone 85 Projection: Transverse Melicator Detum: GDA 1984





Once the barriers were determined mitigation options were identified for each barrier (Table 13) at key locations to minimize fragmentation and maintain landscape connectivity to the greatest extent practicable for greater glider. This also considered examining adjacent and alternate landscape connection points to restore connectivity. The process for assessing the mitigation measures included:

- a) examining alternative landscape connections (i.e. connectivity adjacent to these barriers that can be maintained, or enhanced)
- b) determining areas along project access tracks at a location along the barrier where the clearing footprint can be narrowed (<25 m wide) through detailed design, in order to retain tall trees on either side of the corridor, and thereby maintaining a suitable glide distance for the greater glider at those barriers
- determining areas that through detailed design may include the maintenance of remnant patches of vegetation between tracks and overhead lines where possible (i.e., along Jumma Road)
- d) considering areas that can include the installation of a string of glide poles in areas where the clearing footprint is less likely to be able to be narrowed to an achievable glide distance (i.e. overhead transmission lines) - these have been identified on the map as hatched areas along specific barriers, with one string of glide poles proposed in these locations. The final location of the glide pole string will be subject to detailed design of the tower placement, topography and overhead line sagging profile (minimum heights), along with location of habitat for connectivity. Due to overhead electrical safety considerations, multiple strings of glide poles are unable to be installed at regular intervals, as such, key locations have been determined to best support connectivity in the landscape based on adjacent habitat and existing connection points in the landscape.

Figure 8 show locations of maintained connection points, existing barriers, mitigation points, landscape connection points, indicative locations for glider pole installation where overhead lines occur and mitigated dispersal barriers.

The fragmentation assessment determined that with mitigating measures no small patches of Preferred or Potential habitat were fragmented or are required to be offset for indirect impacts.

Table 13 Miligaled project barriers identified during fragmentation assessment

Berrier number	Infrastructure type	Mitigation details
1	access tracks	narrow clearing to no more than 25 m wide for a minimum of 20 m along the track, poles/retain tree on either side
2	access tracks	narrow clearing to no more than 25 m wide for a minimum of 20 m along the track, poles/retain tree on either side
3	access tracks and underground reliculation lines	narrow clearing to no more than 25 m wide for a minimum of 20 m along the track, poles/retain tree on either side
4	33 kV overhead line and	glide poles/retain tree, maintain near to 33 kV overhead lines poles



Barrier number	Infrastructure type	Mitigation details
	access track	and retain above 15 m in height
5	34 kV overhead line and access track	glide poles/retain tree, maintain near to 33 kV overhead lines poles and retain above 15 m in height
6	access tracks	narrow clearing to no more than 25 m wide for a minimum of 20 m along the track, poles/relain tree on either side
7:	access tracks	retain trees at connection to the south, narrow clearing to no more than 25 m wide for a minimum of 20 m along the track, poles/retain tree on either side
8	access tracks and underground reliculation lines	glide poles/retain tree, maintain overhead lines to above 15 m in height
9	access tracks and underground reficulation lines	string of glide poles under 275 kV line and maintain alternate landscape connection point to the west
10	275 kV overhead line	string of glide poles under 275 kV line
11	275 kV overhead line	string of glide poles under 275 kV line
12	275 kV overhead line	string of glide poles under 275 kV line
13	275 kV overhead line	Jumma Road, strings of glide poles under 275 kV line, pinch points between track and 275 kV
14	underground reliculation lines	Underground reliculation only, narrow clearing to no more than 25 m wide for a minimum of 20 m along the track, poles/retain tree on either side
15	underground reticulation lines	Underground reticulation only, narrow clearing to no more than 25 m wide for a minimum of 20 m along the track, poles/retain tree on either side
16	access tracks and underground reliculation lines	alternate landscape connectivity
17	access tracks and underground reticulation lines	alternate landscape connectivity
18	access tracks	alternate landscape connectivity

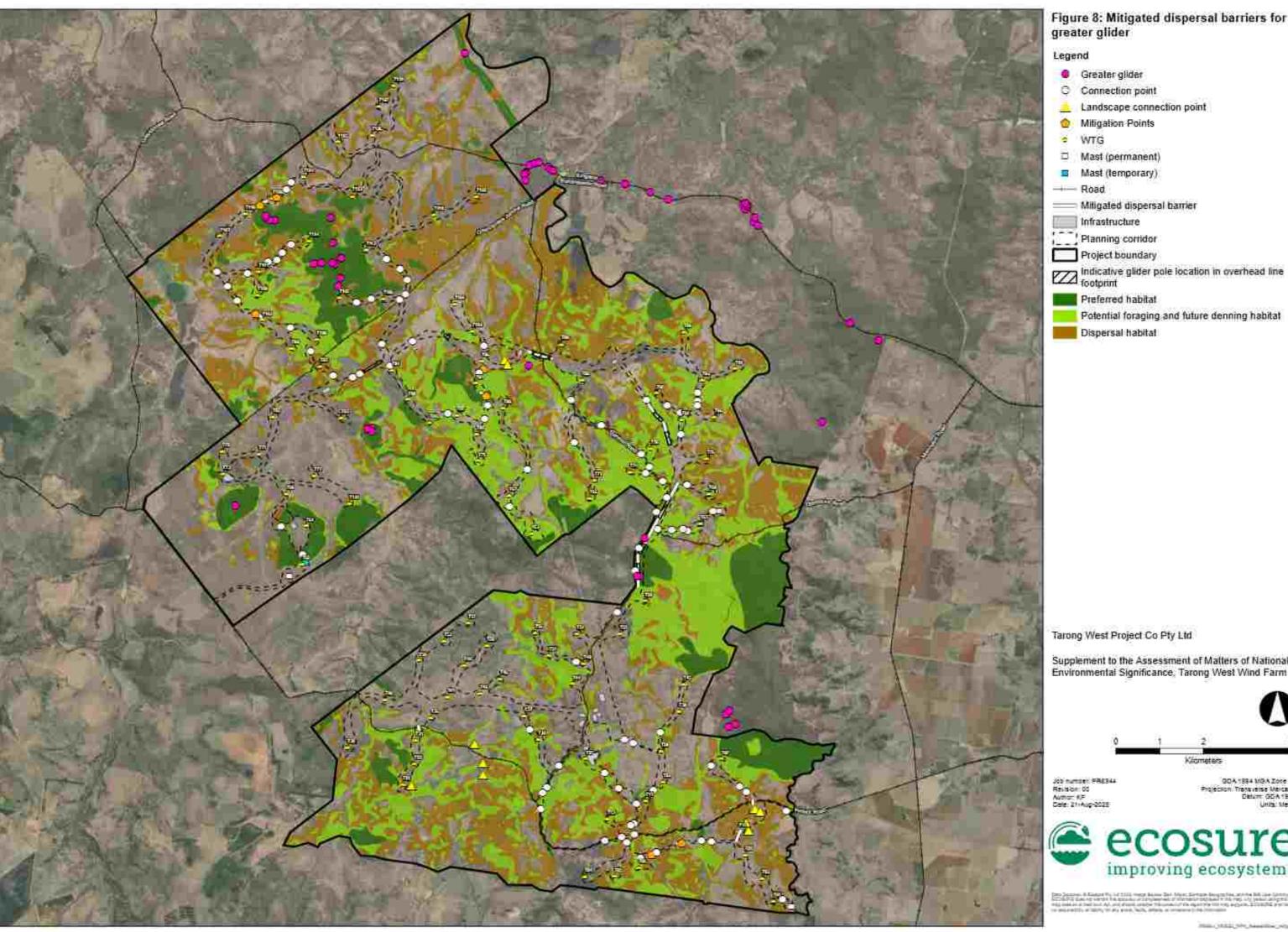


Figure 8: Mitigated dispersal barriers for

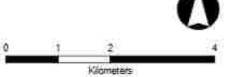
C Connection point

Landscape connection point

Mitigated dispersal barrier

Potential foraging and future denning habitat

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GDA 1884 MBA Zone 85 Projection: Transverse Melicator Deturn: GDA 1984





It is acknowledged in Section 3.2.2 the patch of remnant vegetation providing Preferred greater glider habitat along Jumma Road is the area of main fragmentation concern within the project site. Over time the proposed design in this area has been improved to avoid impacts associated with fragmentation. The initial design proposed a 100 m wide clearing width to accommodate the construction of the 275 KV overhead line that would connect the infrastructure in the north and east of the site to the existing transmission line, alongside the existing road which is proposed to be upgraded to allow for access and transport of project infrastructure and to be a main project access track. The design has now been revised to maintain patches of habitat which provide stepping stones between the overhead transmission line and the access track maintaining connectivity to the remnant areas either side of the clearing footprint. These habitat patches along with the strategic installation of glide poles has reduced the fragmentation impacts along this section of Jumma Road.

The proposed design for the access track and high-voltage overhead transmission line route along Jumma Road was selected for the following reasons:

- Utilisation of existing infrastructure. The access track will follow the existing alignment of Jumma Road, which is already cleared. Jumma Road is an existing vehicle track that continues through the project site from the south east to the north west of the site. Utilising this existing road reduces the overall impact on the natural environment and habitat fragmentation along the lower parts of the project site and in the critical riparian zones of the Boyne River (to the east of Jumma Road).
- Co-location with existing roads: The high-voltage overhead transmission line will run along Jumma Road (the proposed wind farm track), which reduces environmental impact by:
 - using the already cleared width of Jumma Road as part of the required easement.
 - reducing the need for additional and excessive access tracks to each transmission line tower (required during construction and operation) due to the proximity to Jumma Road.
- Existing topography: The access track and overhead transmission line alignment was maintained along the ridgeline wherever possible to reduce earthworks and associated clearing, while also avoiding impacts to the waterways and riparian zones (which act as minor movement corridors within the local landscape) along the lower slopes of the ridgeline, to the east.
 - The sides of ridgeline's terrain are steep (>12%, in some areas >18%), shifting off the ridgeline would result in more earthworks and higher clearing impact and construction/operation safety concerns.
- The overhead transmission line has been designed and placed next to the access track, to avoid further fragmentation that would result from separated cleared. corridors for each item of infrastructure (i.e. one for the access track and one for the overhead line).

The lower slopes to the east of Jumma Road and the remnant vegetation patch were investigated as a possible main access route into the project site. However, this option is considerably more complex due to steep gradients and undulating terrain, as well as several



smaller and higher order waterway crossings. The engineering solutions for this alternative route were considered but would result in the following:

- increased earthworks and a higher level of required clearing of fauna habitat
- a higher risk of access track inundation and downstream impacts (e.g. erosion)
- additional fragmentation of riparian corridors
- the overhead transmission line would be unable to be co-located with the access track (as it requires straight design lines), resulting in increased clearing for transmission installation and maintenance.

The project has addressed fragmentation to fauna, in particular gliders through avoidance. mitigation and offsets of residual impacts.

Avoidance of impacts where possible have included the following:

- The project has gone through several design and layout changes since its first proposal in 2018. Many of these changes have been to avoid impacts on MNES, in particular greater gliders that were first identified in surveys in 2019. The design changes include:
 - Infrastructure refined based on reduction of WTGs, from 151 to 97 WTGs.
 - Site boundary changed to exclude large areas of remnant vegetation from the project site and areas of high glider prevalence along Kingaroy Burrandowan Road (37 glider sightings occurred in vegetation adjacent to the project site area along Kingaroy Burrandowan Road and in properties now excluded from the project site, in habitat identical to that occurring in the site).
 - Shifted WTGs to locations outside patches of remnant vegetation to minimise impacts associated with habitat alienation and minimise clearing of remnant vegetation wherever possible, in turn minimising further fragmenting the project site and reducing edge effects on areas of remnant vegetation. Infrastructure was refined based on the reduced WTG design and in turn a reduced clearing footprint. The areas of remnant vegetation and modelled fauna habitat that will be impacted have been minimised, particularly impacts on the current mapped koala and glider habitat which have reduced by approximately 50% since initial design (applying the same habitat mapping rules).
 - The project design avoided clearing to create new roads by utilising existing internal roads and tracks on the project site wherever possible. This not only minimises clearing across the entire project site, but also reducing the impacts of cut and fill required to traverse areas of increased topography changes (which would create large gaps in the landscape and in turn the mapped fauna habitat [in particular the potential foraging and denning habitat for greater gliders]).
 - Utilising the existing transmission line infrastructure to avoid clearing for new infrastructure required to support the project. Wherever possible proposing to install underground cable to reduce the ongoing potential impacts of overhead transmission infrastructure.

Mitigation of impacts where avoidance is not possible includes:

Impacts to foraging and denning habitat will be reduced by:

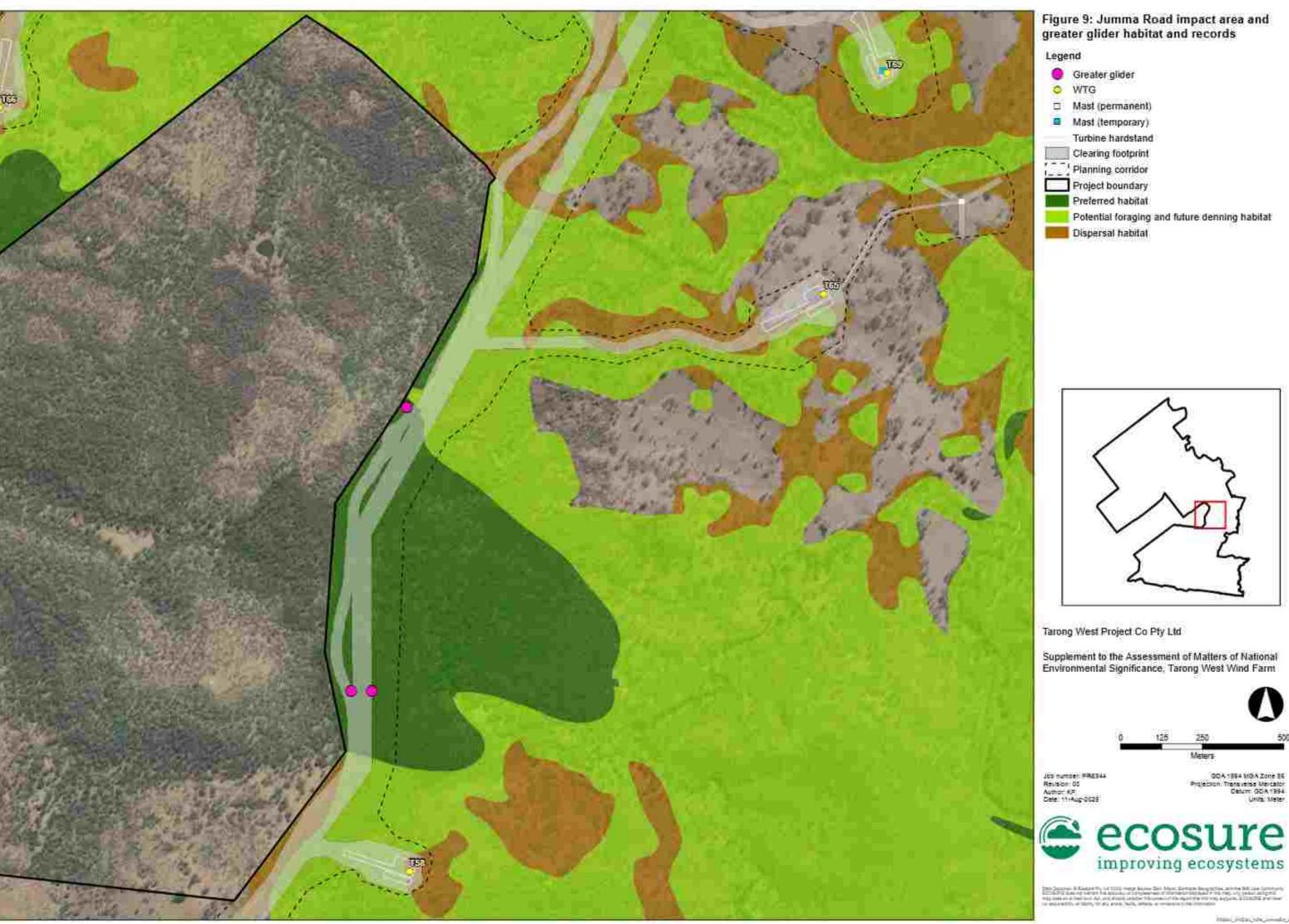


- Ongoing refinement and micro-siting of access tracks and WTGs during construction to reduce clearing of important greater glider denning habitat.
- To facilitate movement across the Jumma Road Preferred habitat, the project design has maintained patches of remnant vegetation between the access track and overhead transmission line clearing footprint. These patches of vegetation are approximately 20 - 30 m wide and 200 - 300 m long and will provide gliding and resting opportunities for gliders traversing this section of Jumma Road (Figure 9).
- The project is committed to installing glide poles within the project 257kV overhead transmission line corridor (where safety restrictions allow) and where possible between the access tracks and/or transmission lines to allow gliders to traverse the clearing footprint between the remnant vegetation patches. The design and spacing of the glide poles will be completed during detail design with inputs from both suitably qualified engineers and ecologists and will be designed with a glide ratio of 1.6 - 2.0 to ensure gliders can traverse without having to go to ground. The remainder of the Project design has generally limited clearing widths of <50 m, however, where detailed design for the track, drainage and corridor for electrical reticulation results in clearing wider than the maximum glide distance (based on tree height data and a glide ratio of 1.6) in greater glider habitat, glide poles will be installed at key points to avoid gliders having to traverse the ground. Monitoring of glide poles will be completed and organised to ensure the data has a meaningful contribution to the scientific knowledge of the species biology and movement. Installation and monitoring of glide pole strings in the rural environment of the project site to facilitate the crossing of the Jumma Road corridor will help to mitigate the impact of fragmentation at this location.
- Additional mitigation measures to reduce fragmentation impacts to greater glider include:
 - pre-clear surveys, sequential clearing and use of fauna spotter-catchers to identify and allow greater gliders to self-relocate during construction or be relocated (if required)
 - strict traffic management procedures (e.g. limited access routes, speed controls, limited night traffic with reduced speeds at <40 km/hr)
 - weed and pest animal management during the construction and operational phase of the project
 - post construction rehabilitation in areas of the clearing footprint not required to remain clear for operation (e.g. temporary laydowns, construction compounds, unused verges alongside tracks).
 - installation of temporary exclusion fencing during the construction phase in areas of mapped glider habitat
 - installation of nestboxes in adjacent habitat at a ratio of 2.1 of similar size and structure for each hollow removed from the clearing footprint suitable for greater glider. Nest boxes will be installed in advance of clearing active glider hollows, to allow the resident population to become aware of their availability
 - avoid clearing and retain any large hollow-bearing trees (where engineering allows) that provide important denning habitat for threatened species (e.g. greater glider)
 - where scheduling requirements allow and where agreed upon between the construction team and project ecologist, construction will be scheduled to avoid seasonal foraging or breeding seasons of threatened fauna



- trees to be retained adjacent to work sites will be protected via tree protection zones
- clearly identify and mark out the extent of clearing and "no-go" zones prior to clearing activities
- appropriate environmental management procedures will be developed in a construction environmental management plan (e.g. erosion and sediment control, dust suppression, stockpile management, weed and pest animal management, offsite rubbish disposal)

Offsets are proposed for the residual significant impact to greater glider of approximately 270.12 ha of modelled greater glider habitat, including 15.46 ha of Preferred foraging and denning habitat, 112.08 ha of Potential foraging and future denning habitat and 142.58 ha of Dispersal habitat. The direct impacts to greater glider habitat will be offset in accordance with the EPBC Act offsets assessment guide and spreadsheet (DSEWPAC 2012) and an Offset Management Strategy (OMS) and OAMP which will be developed to offset for 100% of the residual impact to the greater glider from the proposed project.





2.6 Grey-headed flying-fox

2.6.1 Methods

Additional information was requested by DCCEEW to detail the quality and suitability of potential grey-headed flying-fox habitat within the project site and clearing footprint. To support this adequacy review request, a more detailed assessment including a review of updated vegetation data for potential habitat within and adjacent to the project site, and available habitat and known camps within the broader regional context were completed. To round out the assessment of potential impacts an update to this species' significant impact assessment was completed (refer to Section 3.2).

To inform the refined habital definitions the National recovery plan for the grey-headed flyingfox (DAWE, 2021) considers habital critical to the survival of the species to include the following:

 areas containing important winter and spring flowering vegetation (including Eucalyptus tereticornis, E. albens, E. crebra, E. fibrosa, E. melliodora, E. paniculata, E. pilularis, E. robusta, E. seena, E. sideroxyion, E. siderophiola, Banksia integrifolia, Castanospermum australe, Corymbia citriodora citriodora, C. eximia, C. maculata, Grevillea robusta, Melaleuca quinquenervia or Syncarpia glomulifera

Additionally, areas that don't contain those species but are:

- areas which contain native species that are known to be productive as foraging habitat during the final weeks of gestation, and during the weeks of birth, lactation, and conception (August to May)
- areas which contain native species used for foraging and occur within 20 km of a nationally important camp as identified on the national flying-fox monitoring viewer (DCCEEW, 2024)
- areas which contain native and / or exotic species used for roosting at the site of a nationally important grey-headed flying-fox camp as identified on the national flyingfox monitoring viewer (DCCEEW, 2024).

2.6.2 Results

Although, surveys have been completed in various seasons between 2018 – 2023, a total of approximately 12 individuals were seen or heard during nocturnal spotlighting surveys over three separate nights, within fig trees. Seasonal surveys (2018 -2021) and the quarterly preconstruction surveys (2022 - 2023) did not detect any mass flowering or fruiting events of canopy species and it is likely the project site does not provide a seasonally consistent source of flowering and fruiting foraging resources. There are no grey-headed flying-fox roosts identified within the project site and it is unlikely the project site is utilised for roosting. The project site is likely to be used only for foraging when feed tree species are in flower or fruit.

Table 14 provides a summary of the refined habitat mapping for grey-headed flying-foxes



within the project site. The habitat mapping is refined to identify areas of foraging habitat on the project site that are considered critical to the survival of the species and are more likely to provide seasonal foraging resources. The species generally forages within 15 km of their day roost site (Tidemann, 1998) and Westcott et al (2015) reported in the National recovery plan for the species (DAWE, 2021a), that the mean distance individuals travel from the camp in which the animal had roosted and to which it returns was 10.9 km. The project site lies 25 km from the nearest known camp used by grey-headed flying-fox, however, as the species is known to travel further distances from camps to forage, the project site may be utilised for foraging when feed species are in flower or fruit. Areas critical to the survival of the grey-headed flying-fox were considered foraging resources within remnant and high-value regrowth habitat (thereby providing a mature mix of Eucalypt and Corymbia species), and non-remnant areas with canopy species (including Eucalyptus, Corymbia, Grevillea, Melaleuca, and Syncarpia species) which may provide occasional seasonal flowering (noting consistent annual seasonal flowering has not been observed on the project site) (Tromp-van Meerveld & McDonnel, 2006).

Table 14 Grey-headed flying-fox refined habital mapping for Tarong West Wind Farm project site

Grey-headed flying-fox habitat type	Description	Available in the project site	Area of available in habitat in the project site (ha)
Potential foraging	includes important winter and spring flowering vegetation (including E. crebra, E. fibrosa, Corymbia citriodora citriodora, among other species of Eucalyptus, Corymbia, Castanospermum, Grevillea, Melaleuca, and Syncarpia)).	Yes, however, reliable seasonal flowering has not been recorded on the project site and no mass flowering events observed during	5;270:43
	This includes all suitable ground-truthed remnant and regrowth vegetation and higher quality non remnant woodland habitat.	seasonal surveys (2018 – 2025)	
Lower quality potential foraging	Includes important winter and spring flowering vegetation (including E. crebra, E. fibrosa, Corymbia citriodora citriodora, among other species of Eucalyptus, Corymbia, Castanospermum, Grevillea, Melaleuca, and Syncarpia), in in open non remnant woodlands with sparse -very sparse vegetation cover, noting seasonal mass flowering does not occur and is less likely to be able to consistently support foraging in these areas.	Yes, project site contains Eucalypt species to provide some limited availability of foraging	4,321,01

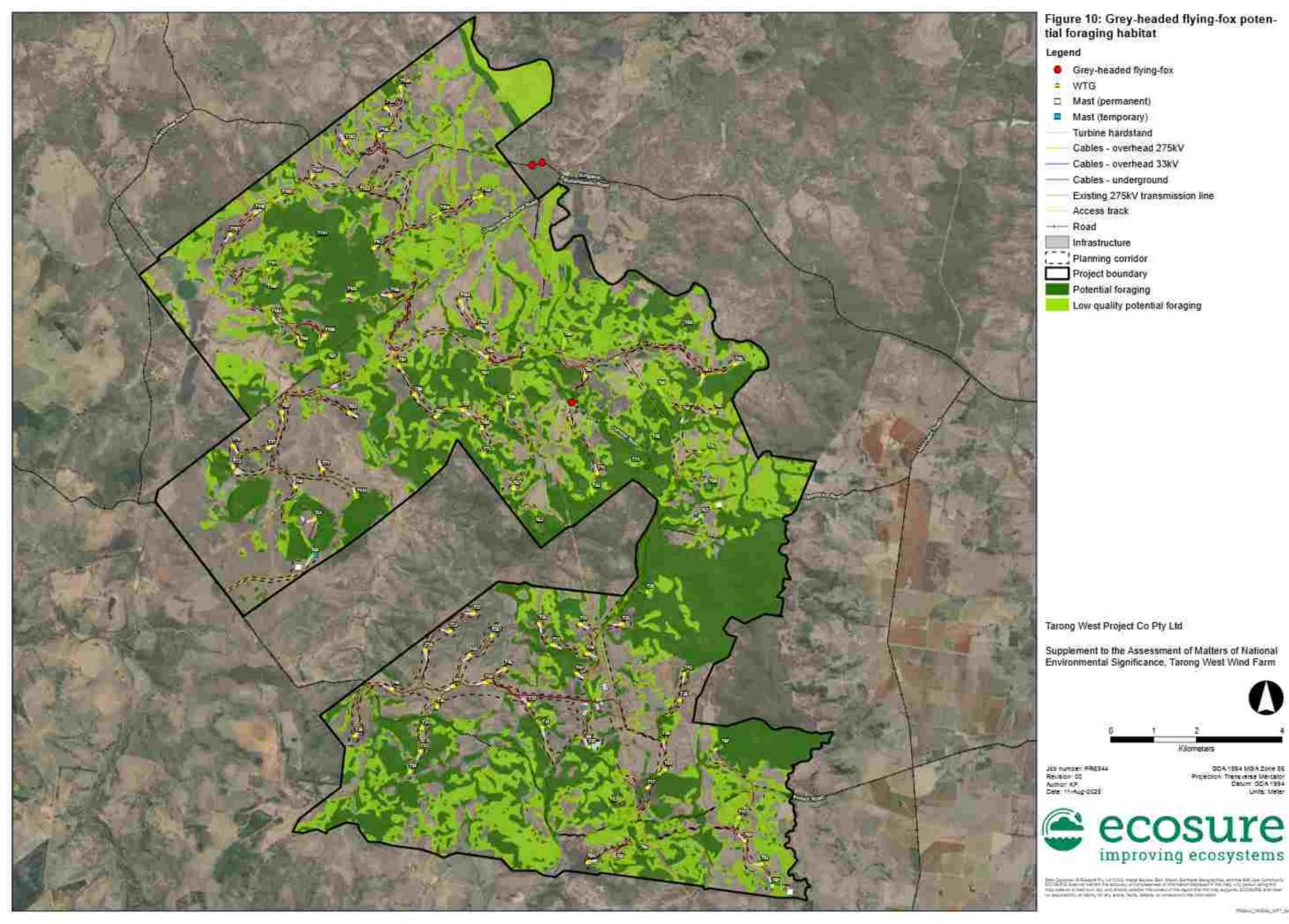
The species moves over longer distances to access seasonal abundances in food supply. This is reflected in migration on an irregular basis (Eby 1991). Any air space or forested areas traversed between seasonal foraging and roosting sites can be considered dispersal habitat.

Prior correspondence with DCCEEW has indicated grey-headed flying-foxes are known to forage within habitats similar to the koala (i.e. eucalypt dominated communities). All potential grey-headed flying-fox foraging habitat was modelled as the ground-truthed extent of remnant and HVR vegetation with eucalypt and vine thicket species containing foraging resources, and non-remnant areas modelled as General habitat and General (low quality) habitat for the koala, where there is sufficient density of mature trees to provide food resources for grey-



headed flying-fox.

The remapping of grey-headed flying-fox habitat on the project site (Figure 10), a total of 9,591.44 ha of potential foraging habitat for the grey-headed flying-fox, (including 5,270.43 ha of potential foraging vegetation and 4,321.01 ha of low quality potential foraging vegetation). This results in an impact to 130.65 ha of potential foraging habitat critical to the survival of the species and 139.86 ha of low quality foraging habitat.





2.7 Glossy black-cockatoo

2.7.1 Methods

Additional information was requested by DCCEEW to detail the quality and suitability of glossy black-cockatoo across the project site. To support this adequacy review request an assessment of available habitat types within and adjacent to the project site, the species known biology and behaviours, and an assessment of the regional known occurrence were completed. To round out the assessment of potential impacts an update to this species' significant impact assessment was completed (refer to Section 3.2).

Priority areas within the project site and adjacent offset site (where foraging locations were known) that may contain potential nesting locations were mapped based on the following rules:

- within 1.5 km of a permanent water sources
- within 200 m of a permanent dam
- within 1 km of a known foraging location
- within 1 km of a known roosting location
- contains trees/stags (based on lidar tree height data) greater than 8 m in height (to achieve nest height requirements).

Areas where all of these attributes overlap on the project site are classified as priority areas, and highlight key areas to conduct nesting location searches during construction and monitoring programs for the project.

To date, surveys between 2018 – 2025 have not detected nesting locations on the project site. Remnant vegetation on the project site contains some understorey foraging resources and some large older trees with suitable hollows, however, these areas have previously undergone selective timber harvesting, removing much of the older growth trees that would have provided suitable nesting locations for glossy-black cockatoo.

2.7.2 Results

Glossy black-cockatoo habitat was defined to provide additional information on the potential ecological functions of the available habitat on the project site. Table 15 provides a summary of the available habitat types on the project site and those that are critical to the survival of the species.

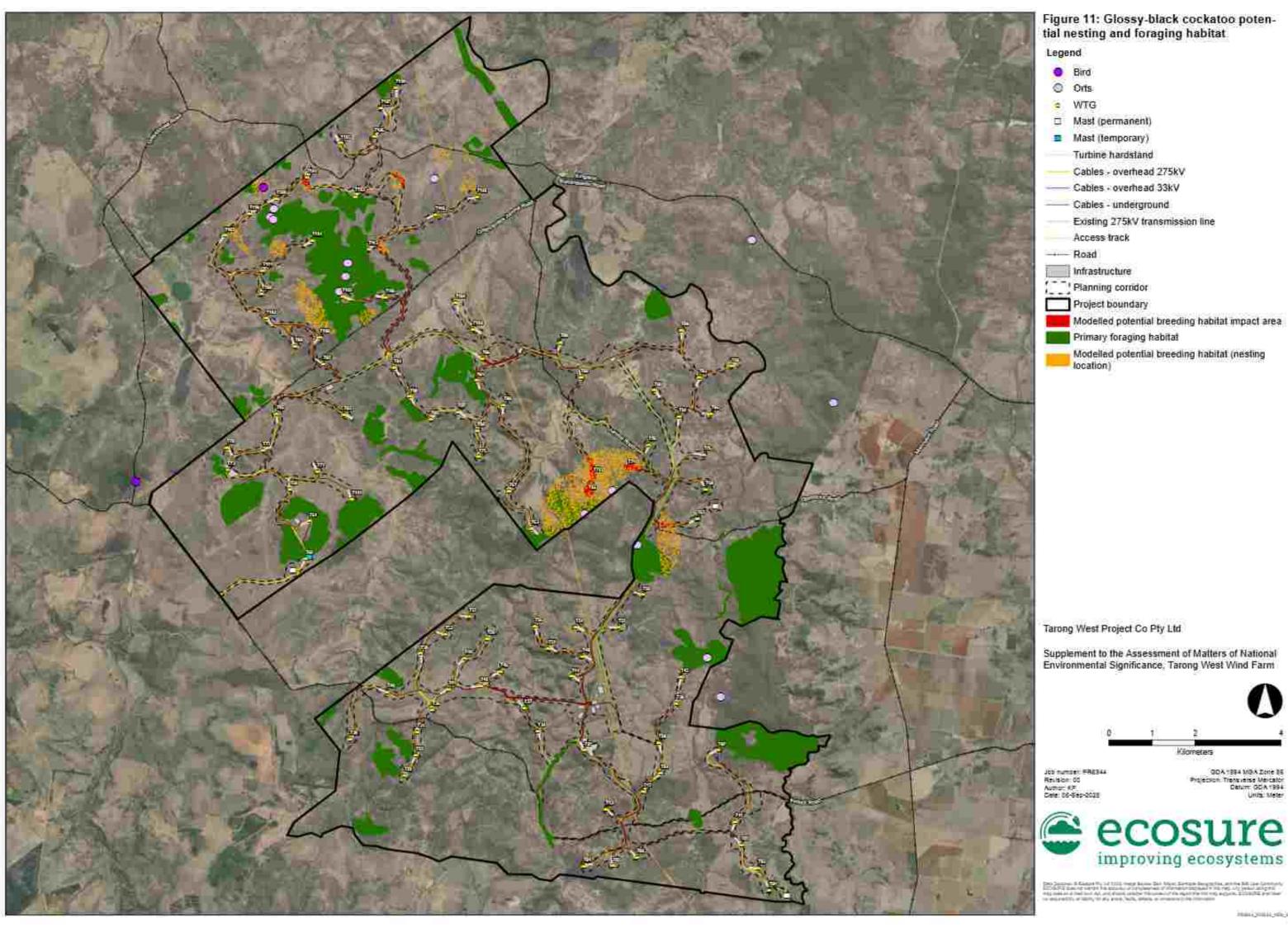
Table 15 Refined glossy black-cockatoo habitat within the project site

Habitat type	Description	Habitat critical to species survival	Available habitat within the project site
Breeding	Known nesting locations within the project site, or Areas of potential nesting locations	Yes	Yes, although there are no known nesting locations on the project site for this species, there is up to 1,851.45 ha (containing 3,064 trees)



Habitat type	Description	Habitat critical to species survival	Available habitat within the project site
	within a suitable distance from known foraging (1 km buffer), water sources (200 m dam and 1.5 km of a watercourse) (Mooney and Pedler 2005) and including trees known to be >8 m (based on lidar height data) (Cameron 2006, Glossy Black Conservancy 2010) are mapped as priority areas for potential nesting locations.		of modelled potential breeding (nesting) habital within a suitable distance from known foraging and water sources within the project site (refer to Figure 11).
Foraging	Ground-truthed extent of remnant and HVR vegetation which is most likely to contain large hollows and/or contain Allocasuarina or Cesuarina food trees	Yes	Yes, this includes all remnant and HVR eucalypt and woodland forest within the project site. Non-remnant areas of the Project Site have a predominately cleared understorey to support grazing practices and available sheoak stands in non-remnant areas is limited. There are known foraging locations where chewed cones / 'orts' have been detected on the project site.
Dispersal	The species can move up to 30 km per day to access seasonal abundances in food supply. However, it can spend approximately 85% of its day foraging and feeding (Morcombe 2004, Mooney and Pedler 2005). Any air space or forested areas traversed between seasonal foraging and roosting/nesting sites can be considered dispersal habitat.	No	Yes, this includes the airspace within the project site to access foraging or nesting locations identified in the habitat types above

The updated habitat mapping for the glossy black-cockatoo is provided in Figure 11. There is a total of up to 1,631.71 ha of habitat suitable to contain foraging resources (remnant and HVR areas with intact understory which may contain feed trees) of which 15.46 ha occurs within the clearing footprint. Non-remnant areas of the project site have experienced clearing in the past including understory clearing and are unlikely to contain feed trees of suitable quality to support glossy black-cockatoo foraging across the project site. Additionally, searches in stands of feed trees have indicated those with signs of foraging (chewed cones, 'orts') occur dominantly within the remnant and HVR areas of the project site. There is 1,851.45 ha (containing 3.064 trees) of modelled potential breeding habitat, which may contain suitable nesting locations across the project site. An impact area of up to 72.4 ha (containing 108 potential nesting trees) of this modelled potential breeding habitat occurs within the clearing footprint. The total impact area to glossy black-cockatoo includes the 15.46 ha of foraging habitat and 72.4 ha (containing 108 potential nesting trees) of modelled potential breeding habitat.





2.8 Yellow bellied glider

2.8.1 Methods

DCCEEW raised the request to provide further information on defining the available potential habitat within the project site and clearing footprint for yellow-bellied glider during the adequacy review. To support this adequacy review request an assessment of available habitat types within and adjacent to the project site, the species known biology and behaviours, and an assessment of the regional known occurrence were completed. To round out the assessment of potential impacts to this species a significant impact assessment was completed (refer to Section 3.2).

The conservation advice states that habitat critical to the survival of the yellow-bellied glider (south-eastern) is broadly defined as areas containing:

- large contiguous areas of floristically diverse eucalypt forest, which are dominated by winter-flowering and smooth-barked eucalypts, including mature living hollow-bearing trees and sap trees
- areas identified as refuges under future climate change scenarios
- short or long-term post-fire refuges (i.e., unburnt habitat within or adjacent to recently burnt landscapes) that allow the species to persist, recover and recolonise burnt areas
- habitat corridors required to facilitate dispersal of the subspecies between fragmented habitat patches and/or that enable recolonization or movement away from threats. Yellow-bellied gliders (south-eastern) have a glide ratio (horizontal distance/height dropped) of around 2.0, and corridors spanning gaps larger than the distance gliders are likely to be able to travel should be considered critical to the survival. There is not enough evidence to define the canopy and width characteristics of appropriate comdors. In the absence of such information, a precautionary approach should be taken to maximise dispersal by considering all habitat corridors in the species' range to be habitat critical to the survival
- areas in which some trees have evidence of use for sap extraction by yellow-bellied glider (south-eastern).

Other attributes associated with a particular area can help evaluate its value and role in a species' life cycle, (e.g. frequency of use of that area or the area's ability to become habitat for the species, the area's ability to provide habitat during times of stress, or the area's ability and the cost-effectiveness of it to be managed for the species so that the species can be reestablished in that area.

2.8.2 Results

Yellow-bellied glider occurs at attitudes ranging from sea level to 1,400 m above sea level and has a widespread but patchy distribution from SEQ to far south-eastern South Australia, near the South Australia to Victorian border (DAWE, 2022c). In Queensland distribution is mostly



coastal, extending southward along the eastern seaboard from north of Mackay to the Queensland border. Inhabits tall mature eucalypt forest (either wet or dry forest) and shelters in hollows (DAWE, 2022c).

The distribution is highly disjunct due to a combination of biogeographic processes and land clearing, as well as the specific habitat requirements, even in continuous sections of forest (Eyre 2004). Species generally occur in small social groups that occupy large and exclusive home ranges and occur at low densities (0.03-0.14 individuals/ha).

Yellow-bellied glider shows a preference for large patches of mature old growth forest that provide suitable trees for foraging and shelter (DAWE, 2022c). Home ranges are large due to the dispersed nature of foraging trees and the seasonal changes in use (DAWE, 2022c). It is suggested by Goldingay and Possingham (1995) that minimum habitat areas of 180–350 km² are required to maintain a viable subpopulation with a figure of 320 km² suggested for south east Queensland (Eyre, 2002).

Habitat corridors are required to facilitate dispersal of yellow-bellied glider between fragmented habitat patches and/or to enable recolonization or movement away from threats (DAWE, 2022c). This species has very low dispersal capabilities which reinforces its dependence on contiguous areas of forest (DAWE, 2022c). State and regional corridors adjoin the project site and could provide fauna movement within these corridors between contiguous patches of habitat where the species are known to reside (Figure 12). The yellow-bellied glider (south-eastern) requires large areas of forest to support large, exclusive home ranges, and has an inability to cross even small areas of cleared land (Kambouris et al. 2013; Woinarski et al. 2014). It may not persist in small, isolated forest fragments (Lindenmayer 1999, cited in Taylor & Rohweder 2020). As such, the project site does not provide breeding habitat or foraging habitat suitable to support this species. The habitat although contains some denning and suitable foraging trees, is marginal for this species and is likely to only support the species in a limited dispersal function. A summary of the available habitats within the project site including those considered habitat critical to the survival of the species is presented in Table 16.

Yellow-beilied glider has previously been recorded in the region (e.g. within 80 km of the project site in Diamondy State Forest [14,200 ha], Barakula State Forest [283,500 ha], Benarkin State Forest [16,160 ha], Tarong State Forest [1,500 ha] and Squirrel Creek State Forest [8,655 ha]) where there are large continuous patches of habitat occur (refer to Figure 12).

Marginal habitat exists within the project site due to the absence of large contiguous patches of mature old growth forest. No WildNet records exist within 10 km but two records occur within 20 km within Diamondy State Forest to the west of the project site (Figure 12).

A total of 1,396 person minutes (23.27 person hours) were spent spotlighting and conducting call playback for yellow-bellied glider over four days. In addition, no V-shaped feeding scars (which are characteristic of yellow-bellied gliders (Goldingay and Kavanagh 1991)) were detected on any suitable foraging trees. Locations of call playback, spotlighting transects and spotlighting via vehicle are found in Figure 3. No presence or signs of yellow-bellied glider



were detected during the targeted 2025 surveys or during the targeted surveys previously conducted on the project site 2018 – 2023 (Ecosure 2023).

High numbers of other glider species were detected on site, indicating that suitable habitat features for gliders is present in the form of den sites and foraging tree species for greater glider, squirrel glider and sugar glider. However, yellow-bellied gliders reliance on large areas of contiguous habitat and the absence of sufficiently large contiguous patches of forest on the project site, indicates that suitable breeding and or foraging habitat for this species is unlikely to be present or marginal at best on the project site. The project site is considered to provide suitable dispersal habitat for the species as they may disperse through the landscape between forested habitat patches.

Based on these findings, and the fragmented nature of the project site compared to the large continuous patches of habitat where known records of yellow-bellied glider have previously been recorded in the region, there is a low likelihood of this species occurring within the impact area or project site.

Table 16 Yellow-bellied glider habitat definitions within the project site

Habitat type	Description	Habitat critical to species survival	Available habital within the project site
Breeding	Large patches of mature old growth forest that provide suitable trees for denning, foraging and shelter to support and important population	Yes	No, the project sile does not contain mature old growth forest suitable to support a breeding subpopulation of the species
Foraging	Large patches of mature old growth forest that provide suitable trees for denning, foraging and shelter, including suitable sap trees (as per Appendix A of the Conservation Advice, DAWE, 2022c)	Yes	No, there is no evidence of foraging on the project site, although suitable sap trees (e.g. Corymbia citriodora and Eucalyptus tereticomis) occur in some patches across the project stie
Dispersal	Contains suitable habital to support the species foraging, denning and gliding when dispersing between subpopulations	No	Yes, project site contains suitable resources to support dispersal of the species

Habitat mapping was completed for the yellow-bellied glider identifying the project site provides up to 9,841.58 ha of potential dispersal habitat for the species with an impact of up to 270.12 ha within the clearing footprint. The impact area includes 15.46 ha of remnant and HVR vegetation and 254.66 ha of non-remnant and regrowth vegetation within the clearing footprint (Figure 13).

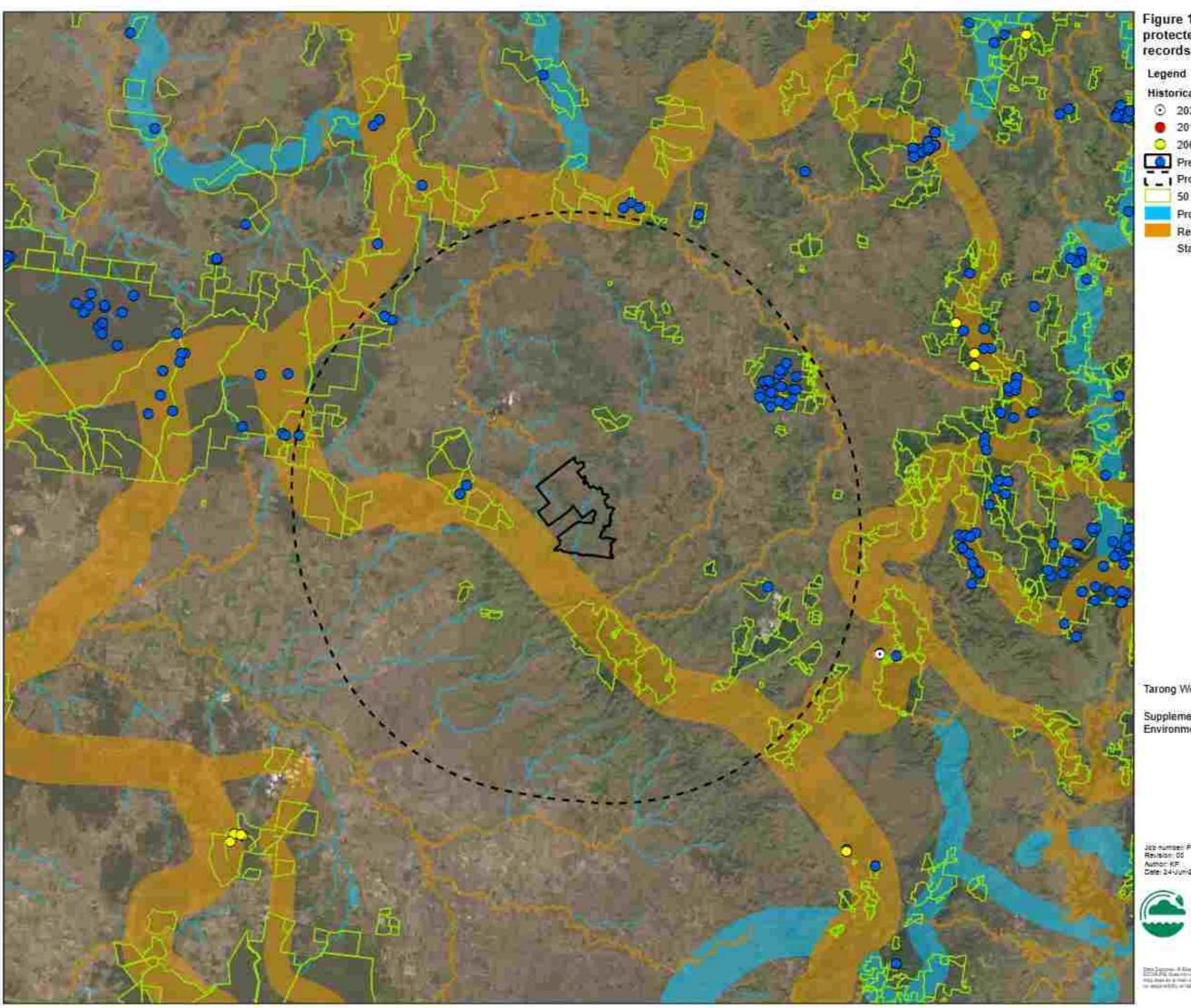


Figure 12: Yellow-bellied glider regional protected areas, corridors and historical records

Historical records

O 2020 - 2025

0 2015 - 2020

2005 - 2015

Pre-2005
Project boundary

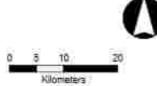
50 km buffer

Protected area Regional corridor

State corridor

Tarong West Project Co Pty Ltd

Supplement to the Assessment of Matters of National Environmental Significance, Tarong West Wind Farm



Job number PRES44 Resistor 66 Author KF Cafe: 34-Jun-2525

9DA 1884 MSA Zone 86 Projection Transperse Mercalor Desum: GDA 1884 Units Meter



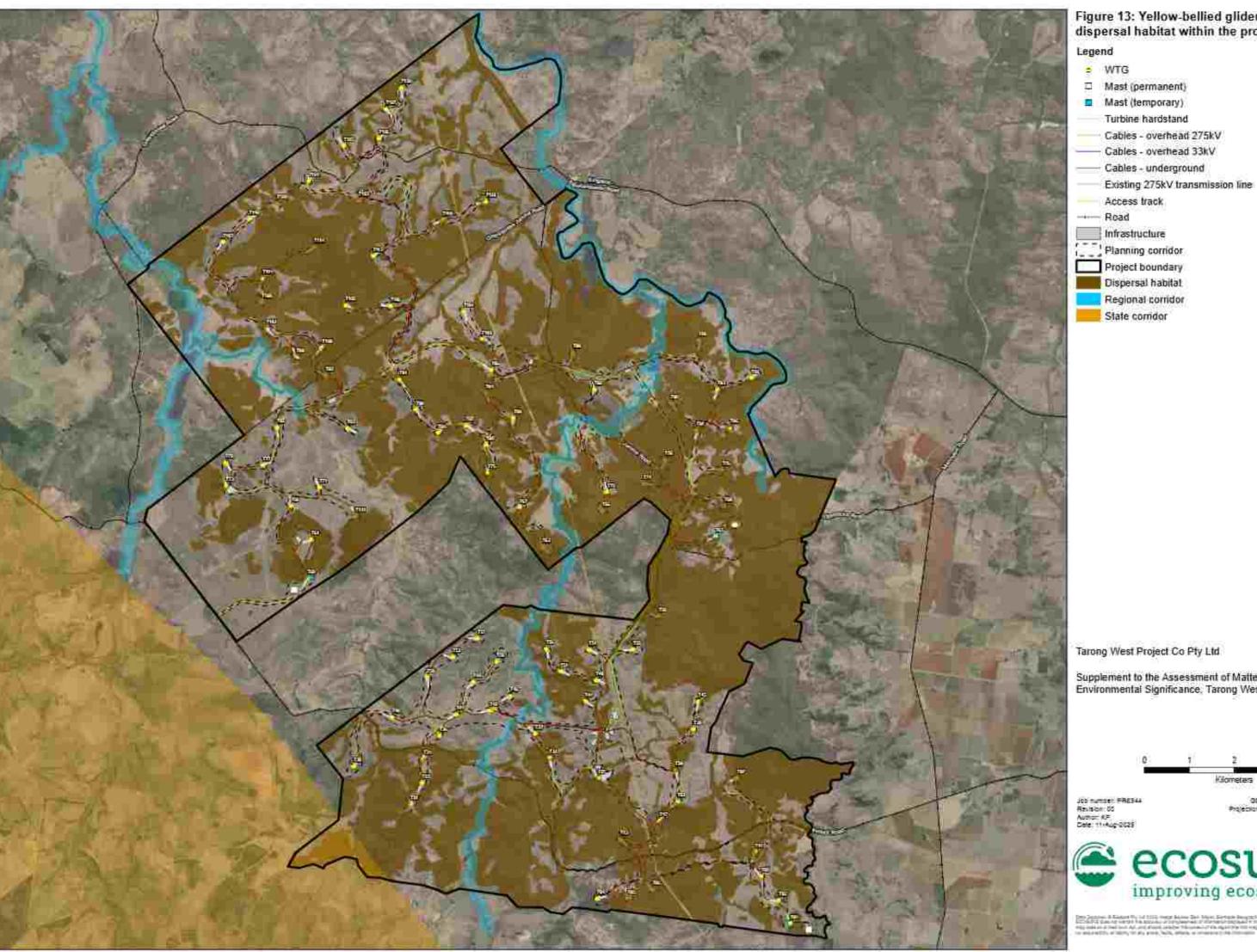


Figure 13: Yellow-bellied glider potential dispersal habitat within the project site

Supplement to the Assessment of Matters of National Environmental Significance, Tarong West Wind Farm



GDA 1884 MBA Zone 85 Projection: Transverse Melicator Deturn: GDA 1984





3 Impact assessment

3.1 Detailed design changes

The planning corridor presented in the original MNES referral documentation report contained a maximum clearing footprint of 1,062.14 ha. The planning corridor in the detailed design contains a maximum clearing footprint of 871.87 ha. Changes in the detailed design which affect the habitat impact areas for MNES include:

- fragmentation and road widths in greater glider habitat around Jumma Road
- minor changes elsewhere.

The original impact areas presented in the referral documentation and the updated impact areas for MNES habitat within the Tarong West Wind Farm project site are presented in Table 17. This includes data records from the recent 2025 surveys (SLR Consulting 2025).

Table 17 Original and updated impact areas and sighting counts for threatened and migratory species

Species	MNES referral report (Ecosure, 2023)		Current supplement report		
Species	Habital impact area	Individual sightings	Habitat impact area	Individual sightings	
Koala	186.03 ha (16.98 ha of remnant vegetation and 169.05 ha of modelled habitat within non-remnant areas)	15 sightings, 21 other detections (scats or scratches)	130.86 ha (15.46 ha of Preferred habitat in remnant vegetation and 115.2 ha of modelled General habitat within non-remnant areas) 139.86 ha of modelled Low general habitat within non-remnant areas. 347.16 ha of modelled Dispersal habitat within non-remnant areas.	16 sightings, 21 other detections (scats or scratches) from 2018 to 2024 No additional sightings in 2025 surveys	
greafer glider	16.98 ha of remnant vegetation	70 sightings (33 sightings within project site)	127 54 ha (15 46 ha of Preferred habital in remnant vegetation and 112.98 ha of Potential habital with future food and den trees in non-remnant areas). 142.58 ha of modelled Dispersal habital within non- remnant areas.	76 sightings (36 sightings within project site) from 2018 to 2025	
grey-headed flying-fox	186.03 ha (16.98 ha of remnant	12 sightings	130.65 ha of potential foraging habitat	12 sightings from 2018 to 2024	



Paration	MNES referral report (Ecosure, 2023)		Current supplement report	
Species	Habitat impact area	Individual sightings	Habitat impact area	Individual sightings
	vegetation and 169.05 ha of modelled habitat within non-remnant areas)		(remnant and HVR, and modelled non- remnant woodland habitat) 139.86 ha of low quality potential foraging habitat (non remnant habitat)	No additional sightings in 2025
white-throated needletail	16.98 ha of potential roosting habitat	232 sightings	15.46 ha of reminant vegetation	364 sightings from 2018 to 2024 No additional sightings in 2025
glossy black- cockatoo	16.98 ha of remnant vegetation	4 sightings, 21 other detections (feeding signs)	15.46 ha of foraging habital (remnant vegetation). Up to 72.4 ha (containing 108 potential nesting trees) of modelled potential breeding habitat, mapped as priority areas for potential nesting locations	7 sightings, 22 other detections (feeding signs) from 2018 to 2025
fork-lailed swift	Species does not roost in Australia, no impact to habitat	2 sightings	Species does not roost in Australia; no impact to habitat	3 sightings from 2018 to 2024 No additional sightings in 2025
yellow-bellied glider	Til.	=	270.12 ha of modelled Dispersal habital (15.46 ha of remnant and HVR vegetation and 254.66 ha of non- remnant and regrowth vegetation)	No detections from 2018 to 2025
wandering peppercress	15:28 ha of potential habitat associated with riparian areas	No detections	11.68 ha of potential habital associated with riparian areas	No detections from 2018 to 2025
austral toadflax	15.28 ha of potential habitat associated with riparian areas	No detections	11 68 ha of potential habitat associated with riparian areas	No detections from 2018 to 2025

3.1.1 Transport route impacts

The proposed project will require transport of turbine infrastructure along a transport route from Brisbane Port to the project site. While the majority of the route follows major roads, some minor clearing and road-widening may be required at some intersections before the route enters the project site along Ironpot Road (on the southern edge of the project site).



An ecological assessment of the proposed transport route (Ecosure 2023b) concluded that the small extent of clearing associated with the transport route outside of the project site was unlikely to result in a significant impact or increase the cumulative impact of the project on any MNES. There are no changes to this outcome as a result of the changes in the projects detailed design.

3.2 Listed threatened species

The likelihood of occurrence of MNES species within the project site was revised to incorporate recent survey results for the project and offset areas, species records from updated WildNet and PMST searches, and recent changes in MNES species listings. The updated likelihood assessment (Appendix 4) has removed several species which have been delisted as migratory species (black-faced monarch [Monarcha melanopsis], rufous fantall [Rhipidura rufifrons], satin flycatcher [Myiagra cyanoleuca] and spectacled monarch [Symposiachrus trivirgatus]) and some species are no longer returned within the PMST search sandpiper [Tringa stagnatilis]. Lepidium monoplocoides, grandispiculatum, Sarcochilus weinthalii). One newly uplisted species returned in the updated PMST search, Belson's panic (Homopholis belsonii) was included in the likelihood assessment. The likelihood assessment also takes into consideration additional survey effort completed in 2025 (SLR Consulting 2025) and a precautionary assessment to address DCCEEW adequacy review comments for yellow-bellied glider.

3.2.1 Koala

The koala opportunistically sighted in autumn 2023 was observed in a Queensland blue gum (Eucalyptus tereticornis) during a fixed-point count bird survey (survey site 177), in an area mapped as General habitat in the koala habitat modelling (Figure 4). The project site is located on the southern border of the Brigalow Belt bioregion, with the southern edge of the project site overlapping into the South-East Queensland bioregion on two properties. In both the South East Queensland and Brigalow Belt bioregions, Queensland blue gum is considered a LIKT (Youngentob et al., 2021). As the koala sighting occurred within mapped non-remnant koala habitat using a known koala habitat tree, the known habitat requirements of the species on the project site have not changed.

The number and nature of koala sightings has not substantially changed nor has the nature of impacts associated with construction and operation. Revised habitat modelling was completed in 2025, taking in consideration current requirements for Preferred, General, Low quality general and Dispersal koala habitat. Minor changes to the development have reduced the clearing footprint area by 190.27 ha. This has reduced the impact on the combined area of Preferred and General koala habitat by 55.37 ha, or 29.8%. Low quality general habitat maps low quality non-remnant woodlands with reduced foraging availability, a low potential to support breeding, suitable dispersal corridors or narrow clearings between (allowing safe dispersal) between Preferred and/or General habitat. Dispersal habitats maps areas containing higher densities of paddock tree, sparser regrowth vegetation and vegetated corridors. These areas provide limited food and shelter resources for koala during movement between the better quality Preferred and General habitat areas.



The clearing footprint will impact up to 347.16 ha of Dispersal habitat which represents 10.3% of the total Dispersal habitat (3,370.89 ha) mapped on the project site. When considering areas of koala dispersal habitat, such as open spaces and grasslands with scattered trees, the habitat quality lies in the facility of the land for koalas (Dr Bill Ellis, pers comm, April 2024). While this is an additional clearing of koala habitat, due to the linear nature of the infrastructure generally proposed in these areas, it is considered to maintain safe koala dispersal between areas of Preferred and General habitats (including low quality general) and will not interfere long term with the provision of ecological function of the Dispersal habitat.

For open spaces that are used by koalas for travel and to access landscape features critical to survival (particularly Preferred and General habitat), the impact will only last for as long as this facility is removed. Balanced against security of habitat and long-term management of feral pests, the management of koala movement and dispersal habitat may improve at sites where good management follows from an approved action (Dr Bill Eilis, pers comm, April 2024). Additional management measures such as no fencing of access tracks, pest animal management, and traffic management including low speed (<40 km/hr) internal maintenance access tracks, will ensure the facility of the Dispersal habitat will remain post construction.

While this is an additional clearing of a small number of paddock trees within the Dispersal habitat, due to the linear nature and narrow clearing widths of tracks (generally less than <40 m), safe koala movement and dispersal opportunities will be maintained within the Dispersal habitat and will not interfere with the ecological function of the Dispersal habitat. As such the clearing actions within the Dispersal habitat are not considered to contribute to a significant impact for koala and an offset for Dispersal habitat is not required.

An updated assessment for koala (Table 18) demonstrates that the proposed project is likely to adversely affect habitat critical to the survival of the species and therefore is likely to have a significant impact on koala.

Table 18 EPBC Act significant impact assessment for endangered koala

Significant impact criteria	Assessment of the project site
lead to a long-term decrease in the size of a population	1
ine size of a population	The number of koals sightings/signs and significant areas of Preferred and General habitat distributed throughout the project site suggest that the local population of koalss is likely to be regionally significant.
	The local population could be reduced by loss or degradation of habitat, direct injury/mortality, and increased predation. Clearing of up to 15.46 ha of Preferred koala habitat in remnant vegetation, and 115.2 ha of General and 139.86 ha of Low quality general habitat within non-remnant woodland vegetation is proposed, which represents a total of 2.69% of these habitat types available for foraging and breeding present on the project site. This habitat is recognised as habitat critical to the survival of the species and any clearing of this habitat has the potential to result in the decrease of the size of the local koala population. However, the clearing area will be further reduced by ongoing refinement and micro-siting during the construction phase to minimise impacts to koala habitat.
	The clearing footprint will additionally impact up to 347.16 ha of Dispersal habitat which represents 10.3% of the total available Dispersal habita (3,370.89 ha) on the project site. When considering areas of koala dispersal habitat, such as open spaces and grasslands with scattered trees, the habital quality lies in the facility of the land for koalas (Dr Bill Ellis, pers comm. April



Significant impact criteria	Assessment of the project sits
	2024) While this is an additional clearing of koala habitat, due to the linear nature of the infrastructure generally proposed in these areas, it is considered to maintain safe koala dispersal between areas of Preferred and General habitat and will not interfere long term with the facility or ecological function of the Dispersal habitat.
	For open spaces that are used by koalas for travel and to access landscape features critical to survival (particularly Preferred and General habitat), the impact will only last for as long as this facility is removed. Balanced against security of habitat and long-term management of feral pests, the management of koala movement and dispersal habitat may improve at sites where good management follows from an approved action (Dr Bill Elis, pers comm, April 2024). Additional management measures such as no fencing of access tracks, pest animal management, and traffic management including low speed (<40 km/hr) internal maintenance access tracks, will ensure the facility of the Dispersal habitat will remain post construction.
reduce the area of occupancy	Unlikely.
of the species	The project will clear up to 270.52 ha of Preferred and General (including low quality) koala habitat and reduce the area of occupancy for the local populations by approximately 2.69% of the potential habitat within the project site. Impacts will be further reduced by ongoing refinement and micro-silling to reduce clearing. Provided that recommended mitigation measures are successfully implemented. The project will not displace koalas from a significant proportion of the project site. However, it is still likely that the area of occupancy of the species will be reduced in the local area.
fragment an existing population into two or more populations	Fragmentation of koala habital through the construction of access tracks and other infrastructure may make koalas more vulnerable to vehicle collisions and predators such as wild dogs. However, given the already fragmented nature of the project site and the relatively small proportion of suitable habital to be cleared, the current project is unlikely to increase fragmentation of habitat to result in a significant impact to the species. Strict traffic management procedures during both construction and operation (e.g. limited access routes, speed controls, limited night traffic with reduced speeds during breeding season) and pest animal management will reduce potential impacts of access tracks resulting in fragmentation. Rehabilitation works, where possible, will include planting of locally important koala trees, especially in areas that provide connectivity between larger habitat patches.
adversely affect habitat critical	Likely.
to the survival of a species	The current koala guidelines do not specify areas of critical koala habitat. Under the repealed previous koala guidelines (DoE, 2014b), the project site contains habital critical to the survival of the koala within inland areas. The project will result in the clearing of up to 270.52 ha of Preferred and General (including low quality) koala habitat that would provide foraging, breeding or shelter. An additional 347-16 ha of Dispersal habitat, however, habitat critical to the survival of the koala is considered to occur within the Preferred and General (including low quality) foraging habitats at the project site. The Dispersal habitat is not considered to meet the definition of habitat critical based on information provided in the species'. Conservation Advice, summarised as follows:
	 Dispersal habitat will not be critical for the species' survival during periods of stress
	Dispersal habital contains scattered foraging opportunities, but is not critical to support the species' essential life cycle requirements (foraging, shelter and breeding) at the project site:
	 Dispersal habitat is not necessary to maintain genetic diversity, given the suitable connectivity available within the Preferred and General habitat to move through the landscape resulting in Dispersal habitat unlikely to be preferred by the species for traversing the project site.



Significant impact criteria	Assessment of the project site
	 Dispersal habitat does not play a critical role to ensure the long-term future of the koala through reintroduction or re-colonisation
	While proposed mitigation measures (ongoing refinement and micro-siting o infrastructure, weed and pest animal management, rehabilitation) will further reduce direct and indirect impacts on habitat, the project is likely to adversely affect critical koala habitat (Preferred and General habitats).
disrupt the breeding cycle of a population	Likety Koala home ranges vary widely from 3 to 500 ha, with the home range of the dominant male overlapping with home ranges of several females (DECC 2008, DAWE, 2022a). Koalas are most active during the breeding seasor from September to February with males seeking females and sub-adult dispersing from their mother's home range (Dique et al., 2003, DAWE 2022a). The removal of subadult males by trauma has the potential to critically disrupt geneflow (DAWE, 2022a). The risk of geneflow disruption is
	exacerbated by the higher mobility in subadult males compared to their female counterparts, increasing their vulnerability to fatal encounters with vehicles and dogs. During the breeding season, koalas are at a greater risk of mortality from predation and vehicle strike, especially in fragmented landscapes.
	Measures to mitigate impacts to breeding cycles will include ongoing refinement and micro-siting to reduce clearing and fragmentation (although the project site is already highly fragmented), strict traffic management procedures (e.g. limited access routes, speed controls, limited night traffic with reduced speeds during breeding season), and monitoring and control of predators (including the implementation of a pest animal management plan). However, as clearing and construction operations are likely to occur during breeding season disruption to the breeding cycle of the local population cannot be discounted, although this would be temporary during the construction period only, with no disruption to breeding expected during operation.
modify, destroy, remove,	Unlikely.
isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	The project will require clearing of up to 270.52 ha of Preferred and General (including low quality) koala habitat, which represents 2.69% of these habitat types within the project site. Clearing of up to 347.16 ha or 10.3% of available Dispersal habitat will also occur. Impacts to these habitats will be furthe reduced by ongoing refinement and micro-siting to reduce clearing.
	The project site contains habitat critical to the survival of the koala, including Preferred and General habitat. Reduction in areas of koala habitat containing food tree species may reduce the availability of food resources for koalas and may lead to trees being unsustainably over-browsed or koalas leaving the area in search of new and higher quality food resources. These impacts, while possible on a local level, will not occur on a scale that will likely cause the species to decline.
	Measures to minimise impacts to habital quality will include weed and pes- animal management, erosion and sediment control, dust suppression and offsite rubbish disposal
	The project will lead to some clearing and limited fragmentation of koals habitat. However, given the relatively small percentage of available habitat to be cleared within the project site and the already fragmented nature of the project site due to existing farming practices, it is unlikely to decrease the availability or quality of habitat to the extent that the species is likely to decline
result in invasive species that are harmful to a critically	Unlikely. Koalas are threatened by dogs (domestic and wild) when they come down to
endangered or endangered species becoming established in the critically endangered or endangered species' habitat	the ground between trees or travel to new areas. Dogs are already well established within the region, so the proposed activity is unlikely to result in dogs becoming more prevalent or moving into previously uninhabited areas. However, the project may increase population levels of introduced predators.



Significant impact criteria	Assessment of the project sits
	during the operation phase, through an increase in available food resources (e.g. carcasses from turbine strike during operation or rubbish and food scraps during construction). Provided pest animal management is undertaken along with carcass monitoring, introduced predator populations can be managed to avoid impacts to the koala population.
introduce disease that may cause the species to decline	Unlikely. Koalas have been impacted by chlamydia, which is prevalent in some populations, including those in Queensland. Most koalas observed during the surveys displayed the tell-tale dirty bottom appearance of chlamydia infection. Stress caused by land clearing and habital reductions are known to exacerbate chlamydia in koalas. The proposed project will result in clearance of koala habital that could increase stress in the short term but is unlikely to cause a long term increase in stress-induced disease. Stress will be further reduced by sequential clearing, which involves staged clearing of trees to allow koalas to relocate without human intervention, and the temporary retention of any tree in which a koala is present.
interfere with the recovery of the species.	Unlikely. The proposed activity in its current form will clear up to 270.52 ha of Preferred and General (including low quality) koala habitat, leading to a reduction in the availability of these koala habitats in structural terms and in the form of local food availability. Provided that recommended mitigation measures as described above and in Fauna Management Plan (Ecosure, 2025c) are successfully implemented, the project is unlikely to interfere with the recovery of the species on a regional or national level.
Overall impact assessment	The proposed project is likely to have a significant impact on koala, after all practical impact mitigation measures are applied.

3.2.2 Greater glider

The previous assessment concluded that 16.98 ha of greater glider habitat (aligns with Preferred habitat) would be impacted and that the project was unlikely to have a significant impact on greater glider.

Revised habitat modelling was completed (Section 2.5) which takes into consideration current guidance regarding Preferred foraging and breeding habitat and Potential foraging and future denning habitat for greater glider. The area of Preferred habitat within the clearing footprint is 15.46 ha. This includes REs with confirmed records in Queensland and with known habitat attributes (food and den trees). These areas typically coincide with the observations of greater glider on the project site. Additional mapping of Potential habitat, which includes areas of non-remnant and regrowth vegetation with attributes such as future den and food trees, increases likely impacts by 112.08 ha (clearing footprint). An additional 142.58 ha of greater glider dispersal habitat may also be cleared. However, only 2.75% of all mapped greater glider habitat within the Project Site is proposed to be cleared.

This increase in mapped habitat, in conjunction with design changes which result in widening the existing tracks and increasing the risk of fragmentation of Preferred habitat for greater



glider along Jumma Road warrant an update of the SIA for this species. An updated assessment for greater glider is provided in Table 19 which demonstrates that the proposed project is likely to adversely affect habitat critical to the survival of the species and therefore is likely to have a significant impact on greater glider.

Table 19 EPBC Act SIA for endangered greater gliders

Significant impact criteria	Assessment of the project site
lead to a long-term	Unlikely
decrease in the size of a population	The number of greater glider sightings and significant areas of suitable habitat distributed throughout the project site suggest that the local population of greater gliders is likely to be regionally significant.
	The local population could be reduced by loss or degradation of habitat, direct injury/mortality and increased predation. The project will require clearing of up to 15.46 ha of Preferred habitat and 112.08 ha of Potential habitat, which provides future habitat attributes; and an additional 142.58 ha of Dispersal habitat. These areas represent a small proportion of 2.75% of available habitat within the project site (all habitat types). Approximately, 99% of the Preferred habitat and 97.3% of the Potential habitat on the project site will remain unimpacted and be retained to maintain the existing greater glider population within the project site and ensure future food and den tree resources. Additionally, 96.5% of dispersal habitat on the project site will remain.
	Immediately adjacent to the project site, there is significant vegetation supporting greater glider, particularly along Kingaroy-Burrandowan Road and the remnant vegetation to the north-east. This is supported by surveys completed by Ecosure early in the project and again by SLR in 2025, which recorded large numbers of greater gliders in these extensive areas of suitable habital (Ecosure, 2023 and SLR, 2025). As the project design has progressed the project footprint has been reduced and these areas removed from the project site, minimising the potential impacts to greater glider.
	Impacts to foraging and denning habitat will be reduced by ongoing infrastructure layout refinement and WTG micro-siting to reduce clearing. Measures to minimise injury/mortality will include pre-clear surveys, sequential clearing and use of fauna spotter-catchers to identify and allow greater gliders to self-relocate during construction or be relocated (if required), traffic management to minimise collisions (i.e. reduced speed limits to <40 km per hour), minimise track widths, retention of tall trees adjacent to the clearing footprint, install and monitor permanent fauna movement infrastructure (e.g., glider poles), undertake pest management and install temporary exclusion fencing during the construction phase in areas of mapped glider habitat. Although, there is limited research of glide pole use by greater gliders, which are considered to have high site fidelity and limited dispersal (Suckling, 1982, A. C. Taylor et al., 2007), there are studies to show glide poles have been successful at repeated use by more active species such as yellow-bellied gliders (Petaurus australis) in northern New South Wales (B. D. Taylor & Rohweder, 2020). Installation and monitoring of glide poles in the rural environment of the project site to facilitate the crossing of the wide clearing areas will inform the degree of success of this mitigation measure. This is particularly relevant to facilitate movement across the Jumma Road Preferred habitat, where the project design has maintained two patches of remnant vegetation within the clearing footprint (approximately 20 - 30 m wide and 200 - 300 m long), as shown in Figure 9. These patches will provide gliding and resting opportunities for gliders traversing this section of Jumma Road. Provided these measures are successfully implemented, the project is unlikely to lead to a long term decrease in the size of the local population.
reduce the area of	Unlikely
occupancy of the species	The project will require clearing of up to 15.46 ha of Preferred foraging and denning greater glider habitat, which represents only 0.95% of the Preferred habitat within the project site. Potential foraging and future denning habitat (112.08 ha) to be impacted represents 2.74% of the 4,096.2 ha of this habitat type mapped on the project site. Dispersal habitat (142.58 ha) to be impacted



Significant impact criteria

Assessment of the project site

represents 3.47% of the available 4,113.67 ha of this habitat type mapped on the project site. Additionally, surveys recorded large numbers of greater gliders in extensive areas of suitable habitat immediately north of the project site that will not be impacted by this project. The area of habitat available for occupation by greater glider across the project site will not be significantly reduced by the proposed project.

Impacts will be further reduced by ongoing refinement and micro-siting to reduce clearing of important greater glider denning habitat. Provided the recommended mitigation measures are successfully implemented, the project will not displace greater gliders from a significant proportion of the project site and will therefore not reduce the area of occupancy of the local population.

fragment an existing population into two or more populations Likely

Fragmentation of greater glider habitat through the construction of access tracks and other infrastructure may result in greater gliders moving across the ground making them more vulnerable to vehicle collisions and predators such as wild dogs. The planning corridor avoids most large blocks of Preferred habitat and Potential habitat for greater glider, which primarily occurs in the hilltop remnant vegetation. However, there is one section of Preferred habitat along Jumma Road where clearing has the potential to increase fragmentation of a habitat patch known to previously support greater glider (no records of greater glider were observed during the 2025 surveys). Clearing in this section will be minimised as far as possible. To facilitate movement across the Jumma Road remnant Preferred habitat the project design has maintained two patches of remnant vegetation within the clearing footprint (approximately 20 - 30 m wide and 200 - 300 m long) and will install glide pole strings in the overhead transmission line clearing footprint.

During the ongoing project design the clearing will be kept to less than the maximum glide distance for greater glider wherever possible. Where detailed design for the track, drainage and corridor for electrical reticulation will clear spans wider than the maximum glide distance (determined by tree height data and a precautionary glide ratio of 1.6), potential mitigation measures such as glide poles will be installed at key points to avoid gliders having to traverse the ground. Although, glide poles have had limited success in southern states when installed for road crossings, installation (along with monitoring) of these structures in this rural area will aid in minimising the impact of habitat fragmentation of glider habital particularly where overhead transmission lines are required. Strict traffic management procedures (e.g. limited access routes, speed controls, limited night traffic with reduced speeds at <40 km/hr) will further reduce potential impacts of access tracks on habital fragmentation, along with pest animal management during operation phases of the project. As discussed above although there is limited evidence of greater glider use of glide poles (GHD, 2017), there are studies to show glide poles have been successful with repeated. use by more active species such as yellow-bellied gliders (Petaurus australis) in northern New South Wales (B. D. Taylor & Rohweder, 2020).

The fragmentation assessment detailed above, along with the mitigation measures for any identified barriers detailed in Table 13. The fragmentation assessment determined that with mitigating measures no small patches of greater glider habitat were fragmented or required to be offset for indirect impacts.

Greater gliders were recorded across the project site in a range of habital patches and given the separation between habital patches and records, are likely to have well separated discreet home ranges. The population occupies separate remnant habital patches across the project site. The clearing area will result in predominately narrow linear clearing widths (generally <50 m wide), however there are some sections such as Jumma Road where clearing widths exceed this width and the proposed project may result in further fragmentation of the local population in these small habital patches, without mitigation measures. The design and spacing of the mitigation measures and glide pole strings will be completed during detail design and will be designed with a glide ratio of 1.6 - 2.0, taking into consideration engineering, safety and ecological requirements as directed by suitably qualified experts in these areas, any/all relevant quidelines.



Significant impact criteria	Assessment of the project site
	and in agreement with DCCEEW.
adversely affect habitat critical to the survival of a species	Likely. Habital critical to the survival of greater glider is defined in Section 2.5 (Eyre et al., 2022) and habital meeting any one of the criteria is considered critical. This includes large contiguous areas of vegetation containing suitable food and den trees and smaller patches that provide connectivity. Habital modelling shows there is Preferred foraging and denning habital, comprised of REs with confirmed records and suitable habital attributes, and Potential foraging and future denning habital which offers food resources and potential future den trees, present on the project site. There are 36 sighting records of greater glider across the project site and a further 40 sightings in habital adjacent to the project site.
	The proposed project will remove 15.46 ha of Preferred habital, which is 0.95% of the 1,631.71 ha of mapped Preferred habitat within the project site. It will further impact 112.08 ha or 2.74% of the 4.096.2 ha of mapped Potential habitat. A further 142.58 ha of Dispersal habitat will be impacted, which is 3.47% of the available 4.113.67 ha available on the project site.
	While proposed mitigation measures (ongoing refinement and micro-siting of infrastructure, weed and pest animal management, rehabilitation) will further reduce direct and indirect impacts on habitat, the combined removal of up to 270.12 ha of habitat critical to the survival of greater glider is likely to have an adverse impact.
disrupt the breeding cycle of a population	Unlikely Strict traffic and construction management procedures (e.g. limited access routes into Preferred habital areas, speed controls on all internal tracks <40 km/hr and limiting activities to daylight use as far as possible) will minimise impacts on this nocturnal species. Although, there is limited observations of greater glider using nest boxes (Goldingay et al., 2020, Menkhorst, 1984), installation of nest boxes for all hollows unavoidably removed, may assist in mitigating impacts of the loss of any breeding hollows. The proposed level of clearing and ongoing disturbance is unlikely to disrupt the breeding cycle of greater glider.
modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	Unlikely. The loss of 15.46 ha of mapped Preferred habitat is unlikely to decrease the availability or quality of habitat within the project site to the extent the species will decline. Up to 112.08 ha of Potential habitat will also be impacted, this being non-remnant and regrowth vegetation identified as a resource for future food and den trees. A further 142.58 ha of Dispersal habitat will also be impacted.
	The proposed clearing will be restricted to WTG pads, access tracks and associated infrastructure, which will not result in large areas of Habitat loss. Where possible, large hollow-bearing trees will be avoided by micro-siting of infrastructure guided by pre-clearing surveys. Potential habitat will eventually provide the habitat attributes necessary for the survival of local populations. The removal of 112.08 ha of Potential habitat represents 2.74% of the 4,096.2 ha of this habitat type mapped on the project site, with this unimpacted area retained to ensure future food and den tree resources are available. Clearing of Potential habitat in the form of linear clearance to access WTG pads and other infrastructure, it is not considered likely to decrease the availability or quality of habitat available for greater glider to the extent that the species will decline.
result in invasive species that are harmful to a critically endangered or endangered species becoming established in the critically endangered or endangered species' habitat	Unlikely. Greater gliders are known to be taken by wild dogs, dingoes and foxes (Maloney, 2007), and these predators were observed at the project site during field surveys. The project is not likely to result in an invasive fauna species becoming further established in the species habitat. However, the project may increase population levels of introduced predators during the operation phase, through an increase in available food resources (e.g. carcasses from turbine strike). The implementation of a pest animal management including carcass monitoring and removal, will manage predator populations to avoid impacts to the greater glider population. A pest animal management plan will be developed and implementated.



Significant impact criteria	Assessment of the project site
	prior to operation, detailing the ongoing pest animal management during wind farm operation. Additionally, installation of fauna movement infrastructure (e.g. glide poles) on tracks wider than the maximum glide distance (determined by tree height data and a precautionary glide ratio of 1.8) through Preferred habitat willimit gliders traversing the ground, where they are at higher risk of predation. Some invasive weeds can increase the flammability of the habitat, amplifying wildfire risks. The proposed project will implement appropriate week management in accordance with a Vegetation Management Plan for the areas within and adjacent to the cleaning footprint, therefore is unlikely to result in the establishment of an invasive weed species that could harm greater glider habitat
introduce disease that may cause the species to decline	Unlikely. Greater gliders are not threatened by any disease that could be brought into the species' habitat by the project
interfere with the recovery of the species	Unlikely The small amount of proposed clearing of mapped Preferred habitat is unlikely to exacerbate the existing extent and degree of fragmentation across the entirely of the project site, only within a 1 km section of Jumma Road (Figure 9). However, the clearing may also slightly reduce the availability of large hollows which provide important greater glider denning resources across the project site. The area of Preferred habitat to be impacted is 15.46 ha or 0.95% of the 1.631.71 has mapped. The majority of impacts are to Potential habitat areas where trees are not yet of sufficient size to offer large hollows for denning.
	Protecting and retaining hollow-bearing trees is an important recovery action for the greater glider. Pre-clearing surveys will allow micro-siting of project infrastructure to minimise the loss of tree hollows, clearing and fragmentation of habital, avoiding any significant impact on species recovery. Avoidance of the majority of the mapped Preferred habital will minimise interference with the recovery of the species. The loss of 112.08 ha of Potential habital, which represents 2.74% of the 4.096.2 ha mapped on the project site, along with the loss of 142.58 ha of Dispersal habital, is unlikely to interfere with the recovery of the species.
	A Bushfire Management Plan (LEC, 2024) has been developed for the project and will be implemented to mitigate inappropriate fire regimes (such as high frequency or intensity fires) as a result of the projects actions.
	Where landowner requirements (e.g. stock management) or safety measures (e.g. surrounding electrical substations) do not require it, fencing will not include barbed wire, to minimise the risk of glider entanglement.
	Pest animal management in accordance with a project specific pest anima management plan will be undertaken during the operational life of the project alongside carcass monitoring, in order to manage predator populations and avoid impacts to the greater glider population.

Overall impact assessment. The proposed project is likely to have a significant impact on greater glider. assuming all practical impact mitigation measures are applied.

3.2.3 Grey-headed flying-fox

No grey-headed flying-fox camps or foraging grey-headed flying-foxes were observed within or adjacent to the project site from autumn 2023 to spring 2023. However, seasonal surveys (2018 - 2025) and the quarterly preconstruction surveys (2022 - 2023) did not detect any mass flowering or fruiting events of canopy species and it is likely the project site does not provide a seasonally consistent source of flowering and fruiting foraging resources.



Habitat for grey-headed flying-fox includes foraging resources within ground-truthed REs containing eucalypt forests and woodland, regrowth and non-remnant areas. There is a total of 9,591.44 ha of available potential foraging habitat for grey-headed flying-fox modelled across the project site, including 5,270.43 ha of potential foraging and 4,321.01 ha of low quality potential foraging habitat within non-remnant areas. Based on revised project design, up to 270.51 ha of foraging habitat, consisting of 130.65 ha of potential foraging habitat (remnant and HVR) and 139.86 ha of low quality potential foraging habitat (within non-remnant areas) for grey-headed flying-fox will be impacted.

The number and nature of grey-headed flying-fox sightings has not changed, and the impacted area of mapped habitat has reduced. An updated assessment for grey-headed flying-fox (Table 20) demonstrates that the proposed project is unlikely to adversely affect habitat critical to the survival of the species and therefore is unlikely to have a significant impact on the species.

Table 20 EPBC Act significant impact assessment for vulnerable grey-headed flying-fox

Significant impact criteria	Assessment of the project site
Lead to a long-term decrease in the size of an important population of a species	Unlikely
	Grey-headed flying-fox is considered to exist within a single, national population due to its highly mobile and fluid nature between colonies. Therefore, an important population of grey-headed flying-fox does not occur within the project site. The project site does not contain an important population of grey-headed flying-fox and there are no Nationally Important camps within 40 km of the project site.
	The project may clear up to 270.51 ha of potential foraging habitat, including 130.65 ha of potential foraging habitat and 139.86 ha of low quality potential foraging habitat. These two foraging habitats together represent only 2.82% of available potential foraging habitat within the project site. There are no known grey-headed flying-fox camps within 20 km of the project site.
	Ample foraging habitat exists within the surrounding landscape (within 50 km of the project site in large patches of vegetation). The removal of potential foraging habitat for the project is unlikely to lead to a long-term decrease in the population size of this species.
	Operational impacts may include collision with WTGs and behavioural disturbance in potential foraging habitat. Behavioural disturbance will be minimised by micro-siting WTGs as far away as practicable from remnant vegetation. The risk of collisions will be monitored and adaptive management measures applied in accordance with a Bird and Bat Management Plan.
Reduce the area of occupancy of an important population	Unlikely.
	The project site does not contain an important population of grey-headed flying-fox. There are no camps within 40 km of the project site identified as A Nationally Important camp. The project may clear up to 270.51 ha of potential foraging habitat, including 130.65 ha of potential foraging habitat and 139.86 ha of low quality potential foraging habitat. These two foraging habitats together represent only 2.82% of available potential foraging habitat within the project site. There are no known grey-headed flying-fox camps within 20 km of the project site.
	The project will result in the loss of some foraging habitat, but large tracts of foraging habitat are present in the surrounding landscape. Therefore, the impact to this highly mobile species is minimal and unlikely to result in a significant reduction in area of occupancy.
Fragment an existing	Unlikely.
important population into two or more populations	The grey-headed flying-fox is a highly mobile species which occurs as a single national population due to its ability to move between colonies. Ample foraging habitat is available within 50 km of the nearest known camp (38 km south-east



Significant impact criteria	Assessment of the project site
	of the project site). This project is therefore unlikely to fragment an existing important population of grey-headed flying-fox.
Adversely affect habitat critical to the survival of a species	Vegetation communities containing potential foraging resources are identified as habitat critical to the survival of the species. Reliable foraging resources in spring are critical to the survival of grey-headed flying-fox to avoid poor reproductive success (DCCEEW, 2023c). The project site contains eucalypt species that could provide foraging resources when flowering. The project will clear up to 270.51 ha of potential foraging habitat but large areas of potential foraging habitats will remain within the project site and surrounding landscape. The habitats on site are not within 20 km of Nationally Important camps and given the distance from other camps within 40 km, are unlikely to provide a key resource during the late stages of pregnancy, birth or lactation. There is also a low level of use of the project site expected by grey-headed flying-fox (determined by over six years of seasonal surveys), due to the unreliable seasonal flowering and fruiting of flora species at the project site. Approximately 97.2% of the available foraging habitats on-site will be preserved, however, the project will remove up to 270.51 ha of potential foraging habitat available to the species.
Disrupt the breeding cycle of an important population	Unlikely. The proposed works will remove 270.51 ha of potential foraging habitat, but large areas of foraging habitat will remain within the project site and surrounding landscape, and there are no known camps within 20 km of the project site.
	Given the high mobility of this species and the abundance of flowering eucalypts in the region, the project is unlikely to disrupt the breeding cycle of grey-headed flying-fox. Nevertheless: as reliable foraging resources in spring are critical to the survival of grey-headed flying-fox, removal of flowering eucalypts should be avoided during this period where possible.
Modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	Unlikely. No roosting grey-headed flying-fox have been observed during field surveys. The proposed works will remove potential foraging habitat, but there are no known camps within 20 km of the project site. Given the amount of available foraging habital remaining within the wider locality, the proposed cleaning is unlikely to cause the species' population to decline.
Result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat	Unlikely. Clearing of vegetation which may provide foraging habitat for grey-headed flying-fox has the potential to allow for weed species to establish in place. Provided appropriate mitigation measures (e.g., adopting effective weed hygiene measures and progressive rehabilitation of disturbed areas) are implemented during the proposed works, it is highly unlikely an invasive species will impact the grey-headed flying-fox.
Introduce disease that may cause the species to decline	Unlikely. The impact of disease on flying foxes is relatively unknown (DAWE, 2021). Grey-headed flying-foxes generally exist in equilibrium with Lyssavirus, but population impacts have been observed when the species is under significant ecological stress (DCCEEW, 2023c).
	Grey-headed flying-foxes can be susceptible to Angiostrongylosis and a number of other diseases, however, the impact of these diseases at a population level is unknown (DAWE, 2021). It is unlikely the proposed project works will result in significant ecological stress to the species, and result in increased rates of the disease through the population.
Interfere substantially with the recovery of the species.	Unlikely. National key recovery targets focus on improving the national population trend of grey-headed flying-fox by reducing the impact of threats. Recovery objectives include protecting and increasing foraging habital, increasing public awareness and improving management of camps (DCCEEW, 2023c).



Significant impact criteria	Assessment of the project site	
	The project site contains vegetation which may provide foraging habital for the species. Though potential foraging habital is proposed to be cleared as part of the clearing, given the availability of large tracts of vegetation within the wider landscape, this is not considered a substantial interference to this species recovery.	
Overall impact assessment	The proposed project is considered unlikely to have a significant impact on grey- headed flying-fox, with the implementation of all practical impact mitigation measures, even though up to 270.51 ha of potential foraging habitat is proposed to be removed.	

Although the assessment was determined to be unlikely to result in an overall significant impact on the grey-headed flying-fox, the Proponent proposes to incorporate and implement measures in the OMS and OAMP to offset for the loss of the potential foraging resources for the grey-headed flying-fox foraging habitat (270.51 ha critical to the survival of the species) collocated with the proposed offsets for residual significant impacts to koala and greater glider (which would provide sufficient resources to offset for the impact to critical foraging habitat). However, given the low site utilisation by the grey-headed flying-fox, successful detection of the species on the offset site may be difficult and should not be considered a defining factor of offset success.

3.2.4 White-throated needletail

The previous assessment concluded that 16.98 ha of potential white-throated needle-tail roosting habitat would be impacted and the project was likely to have a significant impact due to disruption of the migration or feeding behaviour of an ecologically significant proportion of the species. This was due to the presence of and potential for collision with WTGs.

A large number of individuals was sighted in spring 2023, including a flock of approximately 100 individuals. This should not change the outcome of the SIA as the flocks were seen in spring, when the species is known to inhabit the area. No roosting was observed on site. Habitats where white-throated needle-tail were observed were similar to areas previously observed – over eucalypt woodland and cleared pasture. Flight heights and behaviours were similar to sightings reported in the MNES report, with the species being observed flying at the height of the rotor-swept area (RSA). The area of impact has reduced to 15.46 ha however this is unlikely to change the outcome of the SIA.

The original MNES assessment recommended ongoing monitoring of bird use and collision risk within the project site to inform actions outlined in the Bird and Bat Management Plan (BBMP). Additional surveys were completed, and collision risk modelling was undertaken as part of the BBUS (Ecosure 2025b) which used StochLab models and comparative data from nearby wind farm projects to assess the level of risk to different species. The assessment concluded that white-throated needletail is the conservation significant species most at risk from unmittigated impact due to WTG collision. The StochLab (Band model) collision risk model indicated that mortality estimates were less than one individual (0.012 [99.9% avoidance] to 0.612 [95% avoidance]) per migratory season depending on avoidance rate (Ecosure 2025b). To further mitigate the collision risk the BBUS recommended the implementation of radar-



based curtailment systems to reduce impacts on this species however any outcomes from the application of this technology will form part of the post construction adaptive management (if required) (Ecosure 2025a) and has not been factored into the current assessment.

An updated assessment for white-throated needletail (Table 21) demonstrates that the proposed project is likely to lead to a potential long-term decrease in the size of an important population and therefore is likely to have a significant impact on white-throated needletail.

Table 21 EPBC Act significant impact assessment for vulnerable white-throated needletail

Significant impact criteria	Assessment of the project site
lead to a long-term decrease in the size of an important population of a species	Likely. White-throated needletail were detected in five of the nine survey periods, predominately during spring and summer periods. Total sighting numbers ranged from 1 to 191 individual sightings over six day periods and flock sizes ranged from a single individual to 100 birds. DoE (2015) considers 100 individuals to be an internationally significant proportion of the population and 10 individuals to be a nationally significant proportion of the population. The project site therefore contained an internationally important population of white-throated needletail Sightings were more prevalent during suitable almospheric conditions, such as summer storms. White-throated needletail may aerially forage above the entire site and could potentially roost within remnant/HVR woodland (although no roosting was recorded during surveys).
	Construction will have minimal impact on foraging habitat and will clear up to 15.46 ha of potential roosting habitat, which is only 0.95% of available habitat within the project site. Additionally, the project site is not close to the species distribution limit and is surrounded by equivalent habitat containing known records of the species.
	White-throated needletail rarely roost in Australia, and so operational impacts (including collision with WTG blades) represent a higher risk of impact through direct mortality. Collision risk model mortality rate estimates for a population size of 1,000 white-throated needletails per migratory season, ranged from 0.012 (99.9% avoidance) to 0.612 (95% avoidance) individuals per migratory season (Ecosure, 2025b). The risk of collisions will be monitored and adaptive management measures applied in accordance with the Bird and Bat Management Plan.
reduce the area of occupancy of an important population	Unlikely The estimated area of occupancy in Australia is over 18,000 km² (Threatened Species Scientific Committee, 2019). Clearing of 15.46 ha of roosting habitat will not significantly reduce the area of occupancy.
fragment an existing important population into two or more populations	Unlikely A nationally important population of white-throated needletail has been observed within the project site, however the species is a highly mobile aerial forager, so the project is highly unlikely to fragment existing populations.
adversely affect habitat critical to the survival of a species	Unlikely. Critical breeding habitat for the species does not occur in Australia. The project will require clearing of 15.46 ha of potential roosting habitat, but this represents only 0.95% of similar habitat within the project site.
disrupt the breeding cycle of an important population	Unlikely. White-throated needletail does not breed in Australia and so we consider for the purposes of this assessment that disruption of breeding activities (through removal of potential nesting habitat or behavioural disturbance) is unlikely to occur. However, turbine strike could impact the breeding cycle through the reduction of the population size. Ongoing carcass monitoring and revised risk assessments will be completed during the operational phase of the project to



Significant impact criteria	Assessment of the project site
	continue to assess strike numbers and population impacts of white-throater needletail as detailed in the Bird and Bat Management Plan.
modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	Unlikely. The project will require clearing of 15.46 ha of potential roosting habitat, but this represents only 0.95% of similar habitat within the project site. While-throater needletail is a highly mobile species that forages aerially over most habitats, so the small clearing footprint is unlikely to significantly reduce foraging habitat.
result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat	Unlikely. No invasive species are known to threaten the white-throated needletail. The proposed project will not result in the establishment of an invasive species that could harm white-throated needletails or their habitat.
introduce disease that may cause the species to decline, or	Unlikely. White-throated needletails are not threatened by any known disease that could be brought into the species habitat by the project.
interfere substantially with the recovery of the species.	Unlikely. A recovery plan has not been prepared for this species. However, conservation actions focus on working with East Asia to protect breeding habitat and identify areas of important habitats in Australia. Although the project will clear a small area of up to 15.46 ha of potential roosting habitat this is unlikely to impact or this highly mobile aerial species.
	The approved conservation advice identifies collision with WTGs and overhead wires as a threat to the species and a research priority is improving knowledge about potential threatening processes including the impacts of infrastructure (ie. WTGs and overhead wires). Although surveys have shown the project site may at times support both an internationally (100 individuals) and nationally significan population (10 individuals) of white-throated needletall, the collision rist modelling identifies that only a small number of white-throated needletal individuals may collide with WTGs during operation. Mortality rates for a population size of 1,000 white-throated needletalis (per season), ranged from 0.012 (99.9% avoidance) to 0.612 (95% avoidance) individuals per migratory season (Ecosure, 2025b). However, ongoing monitoring of the strike risk to the population, including a comparison of annual fatalities against pre-determined significant impact thresholds, during the operational phase will help to mitigate impacts to the species and improve strike risk knowledge. Should fatalities exceed the threshold then an appropriate response and adapting management measures as detailed in the Bird and Bat Management Plan will be implemented if adaptive management measures are implemented (as required), the collision risk model results suggest that the risk of collision mortality is unlikely to be of sufficient magnitude to interfere with the recovery of the species.

Overall impact assessment

The proposed project may have a significant impact on white-threated needletall due to a risk of WTG strike after all practical impact mitigation measures are applied. However, the small area of up to 15.46 ha of potential roosting habitat is not considered to contribute to this significant impact given this is a highly mobile aerial species.

3.2.5 Glossy black-cockatoo

Three glossy black-cockatoos were observed at fixed-point count control site NT6 in spring 2023. The site is remnant eucalypt forest adjacent to the study area, and two individuals were observed at this same site during the spring 2022 surveys. The glossy black-cockatoos sighted



in spring 2023 were flying at a height of 20 m just above the canopy towards the project site. This suggests that an important resource such as a nesting hollow, stand of feed trees, or water source may be located in proximity to site NT6.

This sighting provides additional information on the flight heights of glossy black-cockatoos. Most detections of the species were made by identifying orts (chewed seed cones) under feed trees (orts identified at 22 locations), and in total only seven individuals have been observed in flight. During all sightings the species was recorded at canopy height. However, there is still not sufficient data to rule out the possibility that glossy black-cockatoos may fly at RSA height, particularly when flying long distances between feeding, nesting, or roosting resources. The risk rating for WTG collision for the species therefore remains at medium, as the species is resident to the area and may occasionally fly at RSA height.

The project will impact up to 15.46 ha of foraging habitat and 72.4 ha (containing 108 potential nesting trees) of modelled potential breeding (nesting) habitat. This area has reduced from the referral assessment of 16.98 ha of foraging habitat, although the number and nature of glossy black-cockatoo sightings has not changed considerably. An update to the glossy blackcockatoo SIA is presented in Table 22.

An updated assessment for glossy black-cockatoo (Table 22) demonstrates that the proposed project is unlikely to have a significant impact on this species, assuming all practical impact mitigation measures are applied.

Table 22 EPBC Act significant impact assessment for vulnerable glossy black-cockaton

Significant impact criteria Assessment of the project site lead to a long-term decrease in the size of an Important glossy black-cockatoo populations have not been identified on the important population of a project site species Construction will clear up to 15.46 ha of potential foraging (0.95% of available habital within the project site) and an additional 72.4 ha (108 potential nesting trees) of modelled potential breeding (nesting) habitat (3.91% of available potential nesting habitat within the project site). Impacts to stands of preferred feed trees and nesting hollows will be managed by identification of areas during preclearing surveys and micro-siting of WTGs to avoid clearing these areas where possible. Operational impacts may include collision with WTG blades and behavioural disturbance in nesting/roosting habital. The risk of collisions and behavioural disturbance will be minimised by siting WTGs as far away as practicable from remnant vegetation and watering points. Monitoring of collision mortality, in addition to nest site monitoring to determine any behavioural changes or disturbance, will allow implementation of adaptive management measures applied in accordance with a Bird and Bat Management Plan (Ecosure, 2025a). as required. reduce the area of occupancy of an important An important population of glossy black-cockatoo does not occur within the population project site. An important population of glossy black-cockatoos is not considered to occur within the project area, due to: It is not a key source population, as there are extensive areas of vegetation surrounding the project site which are likely to provide similar habital values. There are records of this species and evidence of their



Significant impact criteria Assessment of the project site activity has been recorded from areas adjacent the project site over several years (Golder Associates, 2018). It is not required to maintain genetic diversity, as there are many records of the species within the wider region. Much of the vegetation within the project site is fragmented and isolated, which limits genetic exchange. The project site is not at the limit of the species range. Clearing of up to 15.46 ha of foraging and an additional 72.4 ha (108 potential nesting trees) of modelled potential breeding habitat will not significantly reduce the area of occupancy in the broader region. fragment an existing Unlikely. important population into An important population of glossy black-cockatoo does not occur within the two or more populations project site. The project is unlikely to create barriers to movement or fragment populations of this highly mobile species adversely affect habitat Likely. critical to the survival of a The project will require clearing of 15.46 ha of potential foraging and 72.4 ha (108) species potential nesting trees) of modelled potential breeding habitat. This represents only 0.95% of similar foraging and 3.91% of similar breeding (nesting) habitat available within the project site. There is also significant habital immediately adjacent to the project site and surrounding landscape where known nesting locations occur (Golder Associates, 2018). Field-verified habital modelled as potential foraging habital, includes areas of remnant patches of vegetation communities, including REs 11.5.20, 11.11.4, 11.11.15. 11.12.3 and 11.12.6 known to contain Allocasuarina and Casuarina species within the understorey for foraging. The characteristics of nesting hollows: required for breeding of this species is highly specific. No known glossy blackcockatoo nesting locations are identified within the project site, however, some large hollows have been recorded within remnant areas of the project site (although none identified to meet the criteria suitable for this species). Breeding habitat where potential nesting locations may occur across the project site. include areas modelled as within a suitable distance from known foraging (1 km from recorded foraging areas), water sources (200 m dam and 1.5 km from a watercourse) (Mooney and Pedler 2005) and only trees known to be >8 m (based on lidar height data, to gain trees suitable to house nests at or above & m) (Cameron 2006, Glossy Black Conservancy 2010). This species usually occurs in woodlands and it has been suggested they are seasonal migrants in south east Queensland, moving in response to seasonal availability of food resources and during breeding seasons (DCCEEW, 2022a). Preferred feed free species vary by region and season, with the species displaying preference for individual feed trees and cones; despite the presence of suitable trees of the same species nearby (DCCEEW, 2022a). The project site contains scattered patches of suitable feed trees primarily within the understorey of remnant vegetation, however, feeding signs "orts" have only been detected at some of these patches and primarily outside of the planning Impacts to stands of preferred feed trees and nesting hollows will be managed by identification of areas during preclearing surveys and micro-siting of WTGs to avoid clearing these areas where possible. Regardless, the project will remove up to 15.46 ha of foraging habitat considered critical to the survival of the species and 72.4 ha (108 potential nesting trees) of modelled potential breeding (nesting) habitat. disrupt the breeding cycle Unlikely. of an important population An important population of glossy black-cockatoo does not occur within the project site. Pre-clearance surveys will be undertaken prior to the removal of vegetation to identify potential nesting hollows or valuable foraging areas. To mitigate any potential impacts to breeding cycles, it is recommended the removal of glossy black-cockatoo foraging and breeding habitat be scheduled outside of the breeding season (March - August), which is identified in a detailed Bird and Bat Management Plan (Ecosure, 2025a). Nest boxes are



Significant impact criteria Assessment of the project site proposed to be installed for all hollows of suitable size and structure within the clearing footprint, that cannot be suitably avoided during micrositing. Nest boxes are to be installed at a ratio of 2:1 and must be suitable to house glossy. black-cockatoos. The location of installed hollows will be placed nearby to those removed and/or within identified priority potential nesting locations of the proposed offset site (refer Figure 11) The Bird and Bat Management Plan (Ecosure 2025a) identifies targeted monitoring surveys for glossy black-cockatoo, to monitor wind farm operation and changes to glossy black-cockatoo behaviour, including avoidance of feeding habitat and avoidance of roosting and nesting trees. Monitoring will include targeted surveys for their feeding activity, completed at known feeding sites, particularly those in close proximity to WTGs, and nesting hollow searches within 500 m of each WTG. Prior to (during pre-clear surveys), during and post-construction (operation), potential nesting hollow searches will be completed and if any nesting resources are identified, surveys will be completed to determine if nesting activity is occurring/has occurred, for further monitoring during breeding season, or if signs of abandonment are present. If abandonment or avoidance is defected adaptive management measures will be implemented. A small area of up to 72.4 ha of modelled potential breeding habitat, which based on lidar data contains up to 108 potential nesting trees, will be impacted by the proposed project. However, provided the avoidance, monitoring and adaptive management is implemented the project is unlikely to significantly disrupt the breeding cycle of an important population of glossy black-cockatoo. modify, destroy, remove, Unlikely. isolate or decrease the The project will require clearing of 15.46 ha of potential foraging (0.95% of availability or quality of available habitat within the project site) and an additional 72.4 ha (108 potential habitat to the extent that the nesting trees) of modelled potential breeding habitat (3.91% of available species is likely to decline potential breeding habitat within the project site). The project site contains scattered patches of suitable feed trees primarily within the understorey of remnant vegetation, however, feeding signs "orts" have only been detected at some of these patches and primarily outside of the planning corridor. Given the amount of habitat remaining within the wider locality (including known foraging areas adjacent to the project site), the scattered nature of the available foraging habitat within the impact area, the proposed clearing is unlikely to decrease the availability or quality of the habital to the extent the species' population will decline. result in invasive species Unlikely. that are harmful to a No invasive species are known to threaten the glossy black-cockatoo. However, vulnerable species invasive weeds can after the characteristics of habitat, thereby changing becoming established in the foraging and nesting resource availability and some weeds may increase the vulnerable species' habitat flammability of the habital, amplifying wildfire risks. The proposed project will implement appropriate weed management in accordance with the Vegetation Management Plan (Ecosure, 2025d) for the areas within and adjacent to the clearing footprint, therefore it is unlikely to result in the establishment of an invasive species that could harm glossy black-cockatoos or their habitat. introduce disease that may cause the species to Glossy black-cockatoos are not threatened by any known disease that could be decline brought into the species habitat by the project. interfere substantially with the recovery of the species. The project site contains vegetation which provides foraging and nesting habitat for glossy black-cockatoo. Some habitat is proposed to be cleared, however, given the availability of large tracts of vegetation within and adjacent to the project site that will remain, it is unlikely that construction of this project will significantly impact the species.



Significant impact criteria	Assessment of the project site	
Overall impact assessment	The proposed project is unlikely to have a significant impact on glossy black- cockatoo, assuming all practical impact mitigation measures are applied.	

Although the assessment was determined to overall be unlikely to result in a significant impact on the glossy black-cockatoo, the Proponent is committed to an offset (land-based or financial) in agreement with DCCEEW for impact to the glossy black-cockatoo foraging habitat and nesting locations within breeding habitat. The proposed offset would be collocated with the offset for residual significant impacts to koala and greater glider as detailed in the OMS and to be developed in an OAMP. However, given the low site observations of the species across the project site, successful detection of the species on the offset site identified in the OAMP may be difficult and should focus on signs of suitable foraging ('ort' searches). Species presence on the offset site should not be considered a defining factor of offset success.

3 2 6 Austral toadflax

No additional records of austral toadflax were observed within or adjacent to the impact area between autumn 2023 to autumn 2025.

Potential habitat for the austral toadflax is modelled as 980.19 ha across the project site associated with riparian areas. Based on revised project design up to 11.68 ha of potential habitat will be impacted, which represents 1.18% of available habitat within the project site. An important focus of ongoing project refinement has been to avoid riparian areas where possible, and the current design has substantially reduced proposed clearing of riparian areas. Further surveys were completed in 2025 to search within the current planning corridor for populations of Austral toadflax.

No additional sightings of austral toadflax have been made during the additional surveys, and the impacted area of mapped habitat has reduced. An updated assessment for austral toadflax (Table 23) demonstrates that the proposed project is unlikely to adversely affect habitat critical to the survival of the species and therefore is unlikely to have a significant impact on the species.

Table 23 EPBC Act significant impact assessment for vulnerable Austral toadflax

Significant impact criteria	Assessment of the site	
Lead to a long-term decrease in the size of an important population of a species	Unlikely. An important population of Austral toadflax is not known to not occur within the project site. No individuals were detected during surveys, although two records are known from a riparian area approximately 1 km west of the project site.	
Reduce the area of occupancy of an important population	Unlikely:	



Significant impact criteria	Assessment of the site	
Fragment an existing important population into two or more populations	Unlikely. An important population of Austral toadflax is not known to occur within the project site. Watercourse crossings for the proposed project may cause minor fragmentation along riparian corridors. Clearing at crossing points will be minimised as far as possible and is unlikely to result in significant barriers to pollination and seed dispersal. Proposed riparian clearing is also unlikely to impact on host grass species (e.g. kangaroo grass).	
Adversely affect habitat critical to the survival of a species	Unlikely. There is no advice relating to what habitat is considered habitat critical to the survival of the species. Surveys within suitable habitat did not detect this species, with the nearest known records about 1 km west of the project site Current negative survey results suggest that the project site does not contain critical habitat for this species.	
Disrupt the breeding cycle of an important population	Unlikely.	
Modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	Surveys within suitable habital did not detect this species, with the neares known records about 1 km west of the project site. Current negative survey results suggest that the project site does not contain critical habital for this species. The proposed project will remove up to 11.68 ha of potential ripariar habital, which is only 1.18% of available habital within the project site. Ongoing micro-siting of infrastructure will further reduce proposed clearing of potential habital. Other potential impacts on habital quality could include weed invasion increased grazing pressure; changed fire regimes and riparian erosion Measures to minimise impacts to habital quality will include weed and pes animal management and erosion and sediment control.	
Result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species* habitat	Unlikely. Austral toadflax and its host grass species may be heavily grazed by domestic stock such as cattle and horses, and some feral herbivores such as rabbits (Scarlett, Branwell and Earl, 2003). Given the current land use (e.g. grazing) these impacts are already present and the project is unlikely to exacerbate the impact. Riparian weeds may also outcompete and smother Austral toadflax and its host grass species. An Environmental Management Plan, along with a Vegetation Management Plan and Fauna Management Plan have been developed to manage weed and pest animal management (refer Appendices G, H and M). This will include appropriate weed hygiene measures and treatment of weeds prior to and during construction.	
Introduce disease that may cause the species to decline	Unlikely. Austral loadflax is not known to be susceptible to any diseases that may cause the species to decline.	
Interfere substantially with the recovery of the species.	Unlikely. The project may remove up to 11.68 ha of potential riparian habitat, but this represents only 1.18% of available habitat within the project site. If further surveys detect a population of this species, it is likely that micro-siting or infrastructure would be able to avoid the population. The small amount or proposed clearing is unlikely to be substantial enough to interfere with the recovery of the species.	

Overall impact assessment The proposed project is unlikely to have a significant impact on Austral toadflax.



Significant impact criteria	Assessment of the	Sile	1
	with the implementation	of all practical impact miligation measures.	

3.2.7 Wandering peppercress

No additional records of wandering peppercress were observed within or adjacent to the impact area between autumn 2023 to autumn 2025.

Potential habitat for the wandering peppercress is modelled as 980.19 ha across the project site associated with riparian areas. Based on revised project design up to 11.68 ha of potential habitat will be impacted, which represents 1.18% of available habitat within the project site. An important focus of ongoing project refinement has been to avoid riparian areas where possible, and the current design has substantially reduced proposed clearing of riparian areas. Further surveys were completed in 2025 to search within the current planning corridor for populations of wandering peppercress.

No additional sightings of wandering peppercress have been made during the additional surveys, and the impacted area of mapped habitat has reduced. An updated assessment for wandering peppercress (Table 24) demonstrates that the proposed project is unlikely to adversely affect habitat critical to the survival of the species and therefore is unlikely to have a significant impact on the species.

Table 24 EPBC Act significant impact assessment for endangered wandering peppercress

Significant impact criteria	Assessment of the project site	
Lead to a long-term decrease in the size of a population	Unlikely: No individuals were detected during surveys, and the nearest known records are about 20 km to the south in the Bunya Mountains. Based on current desktop and field results, it is only possible that a population exists within the proposed development area. Nevertheless, further targeted surveys will be required in clearing is proposed in riparian areas outside of the current planning corridor to search for any potential populations. The corridor contains sufficient buffers, so that any defected individuals could likely be avoided by micro-siting or infrastructure.	
Reduce the area of occupancy of the species	Unlikely. No individuals were detected during surveys, and the nearest known record are about 20 km to the south. Based on current desktop and field results, it unlikely but taking into account the precautionary principle is considered to be possible that a population exists within the proposed clearing footprint. The proposed project will remove up to 11.68 ha of potential riparian habitat, which is only 1.18% of available habitat within the project site, project refinement have substantially reduced proposed clearing of riparian habitat within the project site. Ongoing micro-siting of infrastructure will further reduce proposed clearing of potential habitat.	
Fragment an existing population into two or more populations	Unlikely. Watercourse crossings for the proposed project may cause minor fragmentation along riparian corridors. Clearing at crossing points will be minimised as far as possible and is unlikely to result in significant barriers to pollination and seed dispersal.	
Adversely affect habitat critical to the survival of a species	Unlikely. There is no advice relating to what habitat is considered habitat critical to the survival of the species. Surveys within suitable habitat did not detect this species, with the nearest known records about 20 km to the south in very different montane habitat in the Bunya Mountains. Current negative survey	



Significant impact criteria	Assessment of the project site
	results suggest that the project site does not contain critical habital for this species.
Disrupt the breeding cycle	Unlikely.
of a population	Seeds have a mucilaginous coat so are likely to be dispersed by attaching to feathers and fur of passing animals (Heenan and de Lange, 2011). This is supported by records of introduction into New Zealand and Europe on sheep fleeces. Pollinators are unknown, but related species are pollinated by bees and other insects (Robertson and Klemash, 2003). The proposed project will remove up to 11.68 ha of potential riparian habitat, which is only 1.18% of available habitat within the project site. This level of clearing is unlikely to result in significant impacts to pollination or seed dispersal.
Modify, destroy, remove or	Unlikely.
isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	No individuals were detected during surveys, and the nearest known records are about 20 km to the south. Current negative survey results suggest that the project site does not contain critical habitat for this species. The proposed project will remove up to 11.68 ha of potential riparian habitat, which is only 1.18% of available habitat within the project site. Ongoing micro-siting of infrastructure will further reduce proposed clearing of potential habitat.
	Other potential impacts on habitat quality could include weed invasion, increased grazing pressure and riparian erosion (DoE, 2014a). Measures to minimise impacts to habitat quality will include weed and pest animal management and erosion and sediment control.
Result in invasive species	Unlikely:
that are harmful to a vulnerable species becoming established in the vulnerable species* habitat	Wandering peppercress may be grazed by domestic stock such as cattle and horses, and some feral herbivores such as rabbits (DoE, 2014a). Given the current land use (e.g. grazing) these impacts are already present, and the project is unlikely to exacerbate the impact.
	Riparian weeds may also outcompete and smother this species. A Construction Environmental Management Plan along with a Vegetation Management Plan and Fauna Management Plan have been developed to manage weed and pest animal management. This will include appropriate weed hygiene measures and treatment of weeds prior to and during construction.
Introduce disease that may cause the species to decline	Unlikely. Wandering peppercress is not known to be susceptible to any diseases that may cause the species to decline.
Interfere with the recovery	Unlikely.
of the species.	The project may remove up to 11.68 ha of potential riparian habitat, but this represents only 1.18% of available habitat within the project site. If further surveys detect a population of this species, it is likely that micro-siting of infrastructure would be able to avoid the population. The small amount of proposed clearing is unlikely to be substantial enough to interfere with the recovery of the species.
Overall impact assessment	The proposed project is unlikely to have a significant impact on wandering peppercress, with the implementation of all practical impact mitigation measures.

3.2.8 Yellow-bellied glider

Habitat mapping was completed for the yellow-bellied glider identifying the project site provides up to 9,841.58 ha of potential dispersal habitat for the species. There is 270.12 ha of dispersal habitat within the clearing footprint, which includes 15.46 ha of remnant and HVR vegetation and 254.66 ha of non-remnant and regrowth vegetation. Given the species' requirements for large areas of old growth forest, exclusive home ranges, along with a limited



ability to traverse through fragmented landscapes (such as moving from areas of known occupancy to the project site) and that the species is unlikely to persist in small patches of habitat, the project site does not provide breeding habitat or foraging habitat suitable to permanently support this species. The habitat although contains some denning and suitable foraging trees, is marginal for this species and is likely to only support the species in a limited dispersal function. There are no records of the species occurring within the project site, either historically (DETSI, 2025) or across the project's surveys between 2018 - 2025. Additionally, no signs of feeding scars were observed during surveys, including targeted species surveys between 2018 - 2025.

The yellow-bellied glider is listed as vulnerable, which requires a determination of an important population. There are no known important populations within the project site or broader South Burnett region (nearest being Carnarvon Range to the north, which occurs approximately 400 km north west of the project site).

Other populations important to the survival of the yellow-bellied glider (south-eastern) include:

- stronghold populations
- ecologically or genetically distinct populations (e.g., those at the limits of the subspecies' range, outlying populations)
- research populations
- other populations where recovery actions are being implemented.

There has been no record of a population occurring within the project site, the project site is not at the limit of the subspecies range, there is no research population present on the project site and the project site land management is consistent with active grazing properties. There is no proposed change to the land use or management practices (including maintaining cleared grazing areas and selective removal of timber resources from non-remnant areas) by landowners during the life of the project (minimum 30 years) and as such the project site does not consist of a population where recovery actions are proposed to be implemented or that would provide refuge areas for future use of the subspecies or increase the suitability of the project site as potential habitat.

A precautionary impact assessment for yellow-bellied glider is provided in Table 25 which demonstrates the proposed project is unlikely to adversely affect habitat critical to the survival of the species and therefore is unlikely to have a significant impact on yellow-bellied glider.

Table 25 EPBC Act StA for vulnerable yellow-ballied glider

Significant impact criterio	Assessment of the project site	
Lead to a long-term decrease in the size of an important population of a species	Unlikely. There was no population of yellow-belied glider recorded during surveys between 2018 – 2025 on the project site and there is no important population recorded within the project site or adjacent areas.	
	The project site provides potential dispersal habitat for populations historically recorded in surrounding state forests. The available dispersal habitat could be reduced by loss or degradation of habitat, and the dispersing individuals	



Significant impact criteria

Assessment of the project site

impacted by direct injury/mortality and increased predation if occurring on the project site. The project will require clearing of up to 15.46 ha of remnant dispersal habitat and 254.66 ha of non-remnant dispersal habitat. Approximately, 2.75% of the total available dispersal habital (9.841.58 ha) on the project site will remain unimpacted and be retained to maintain dispersal habital resources for yellow-bellied glider if they utilise the project site in the future

As the project design has progressed the project footprint has been reduced and to limit impacts to areas of high glider observations (greater gliders, and squirrel and sugar gliders) from the clearing footprint, this will minimise the potential impacts to yellow-bellied glider dispersal habitat.

Impacts to habitat will be reduced by ongoing infrastructure layout refinement and WTG micro-siting to reduce clearing. Measures to minimise injury/mortality will include pre-clear surveys, sequential clearing and use of fauna spottercalchers to identify and allow gliders to self-relocate during construction or be relocated (if required), traffic management to minimise collisions (i.e. reduced speed limits to <40 km per hour), minimise track widths, install and monitor. permanent fauna movement infrastructure (e.g. glider poles), retain adjacent tall trees alongside tracks, undertake pest management and install temporary exclusion fencing during the construction phase in areas of mapped glider

There are studies to show glide poles have been successfully used repeatedly by active species such as yellow-bellied gliders (Petaurus australis) in northern New South Wales (B. D. Taylor & Rohweder, 2020). Installation and monitoring of glide poles in the rural environment of the project site to facilitate the crossing of the Jumma Road corridor (varies between 35 m - 120 m wide sections) will be completed to facilitate movement across the Jumma Road remnant habitat. Additionally, the project design has maintained two patches of remnant vegetation within the clearing footprint (approximately 20 - 30 m wide and 200 -300 m long), as shown in Figure 9. These patches will provide gliding and resting opportunities for gliders traversing this section of Jumma Road

Provided these measures are successfully implemented, the project is unlikely to lead to a long term decrease in the size of the local population.

Reduce the area of occupancy of an important population

Unlikely.

The project will require cleaning of up to 270.12 ha of yellow-bellied glider dispersal habitat, which represents only 2.75% of the available dispersal habitat within the project site. No records of yellow-bellied glider occur in the project site and historical records occur in large patches of habitat in the broader region (Figure 12), with only one tract of vegetation (Diamondy State Forest) containing the species within 20 km from the project site. The area of habitat available for occupation by yellow-bellied glider across the project site will not be significantly reduced by the proposed project.

The project will not displace yellow-belied gliders from a significant proportion of the project site and will therefore not reduce the area of occupancy of the local population.

Fragment an existing important population into two or more populations

Fragmentation of glider habital through the construction of access tracks and other infrastructure may result in gliders moving across the ground making them more vulnerable to vehicle collisions and predators such as wild dogs. The planning corridor avoids most contiguous blocks of habitat for gliders, which generally occurs in the hilltop remnant vegetation. Clearing for the upgrade of one section of Jumma Road will increase fragmentation of one habitat patch known to support greater glider (no records of yellow-bellied glider were observed during the surveys between 2018 -2025). Clearing in this section will be minimised as far as possible. To facilitate movement across the Jumma Road remnant habitat the project design has maintained two patches of remnant vegetation within the clearing footprint (approximately 20 - 30 m wide and 200 -

In other strategic locations across the project site and clearing footprint, where detailed design for the track, drainage and corridor for electrical reticulation will



Significant impact criteria	Assessment of the project site
	clear spans wider than the maximum glide distance (determined by tree height data and a precautionary glide ratio of 1.6), mitigation measures such as glide poles will be installed at key points to avoid gliders having to traverse the ground. Glide poles and maintaining narrowed sections of clearing with adjacent tall tree retention, along with strict traffic management procedures (e.g. limited access routes speed controls limited night traffic with reduced speeds at <40 km/hr) will further reduce potential impacts of access tracks on habital fragmentation, along with pest animal management during operation phases of the project. There are studies to show glide poles have been successful with repeated use by yellow-bellied gliders (*Petaurus australis*) in northern New South Wales (B. D. Taylor & Rohweder 2020). Glide poles will be designed and engineered during the detailed design phase with input from suitably qualified ecologist and implemented as part of the Fauna Management Plan for the project. Assuming these mitigation measures are implemented the project is unlikely to have a residual impact of fragmentation on the limited potential dispersal habitat for this species on the project site.
Adversely affect habitat critical to the survival of a species	Unlikely. Habital critical to the survival of yellow-bellied glider is defined in Section 2.5.8. The project site does not contain habital considered critical to the survival of the species, such as large contiguous areas of old growth forest containing suitable food and den trees. Habital modelling shows the project site contains some dispersal habital for the species, which offers some foraging and denning resources to support dispersal. There are no sighting records of yellow-bellied glider across the project site and all historical records occur in large contiguous patches with limited connection to the project site.
	The proposed project will remove 270.12 ha of potential dispersal habitat, which is 2.75% of the mapped potential dispersal habitat within the project site. While proposed mitigation measures (ongoing refinament and micro-siting of infrastructure, weed and pest animal management, rehabilitation) will further reduce direct and indirect impacts on this habitat, the combined removal of up to 270.12 ha of dispersal habitat for the yellow-bellied glider is unlikely to have an adverse impact.
Disrupt the breeding cycle of an important population	Unlikely. Breeding habital for the yellow-beilled glider is not mapped on the project site and is considered to occur in large contiguous patches of habitat in the broader region (refer Figure 12). Although highly unlikely, given the available habitat and the competition for denning resources with greater glider, which have evidence of populations occupying the project site, mitigation measures including strict traffic and construction management procedures (e.g. limited access routes into Preferred habitat areas, speed controls on all internal tracks <40 km/hr and limiting activities to daylight use as far as possible) will minimise impacts on noctumal species such as the yellow-bellied glider. Additionally, installation of nest boxes for all hollows unavoidably removed, may assist in mitigating impacts of the loss of any denning or breeding hollows. The proposed level of cleaning and ongoing disturbance is unlikely to disrupt the breeding cycle of yellow-bellied glider.
Modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	Unlikely The loss of 270.12 ha of mapped dispersal habital is unlikely to decrease the availability or quality of habital within the project site to the extent the species will decline. The proposed clearing will be restricted to WTG pads, access tracks and associated infrastructure, which will not result in large areas of habital loss. Where possible, hollow-bearing trees will be avoided by micro-siting of infrastructure guided by pre-clearing surveys. The project site land management is consistent with active grazing properties. There is no proposed change to the land use or management practices (including maintaining cleared grazing areas and selective removal of timber resources from non-remnant areas) during the life of the project (minimum 30 years) and as such the project site is unlikely to provide refuge areas for future use of the subspecies.



Significant impact criteria	Assessment of the project site
	Clearing of potential dispersal habital in the form of linear clearance to access WTG pads and other infrastructure, is not considered likely to decrease the availability or quality of habital available for yellow-bellied glider to the extent that the species will decline.
Result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat	Vellow-bellied gliders are known to be taken by foxes (DAWE, 2022c), and these predators were observed at the project site during field surveys. The project is unlikely to result in an invasive fauna species becoming further established in the species' dispersal habitat. However, the project may increase population levels of introduced predators during the operation phase, through an increase in available food resources (e.g. carcasses from turbine strike). The implementation of a pest animal management plan, including carcass monitoring and removal, will manage predator populations to avoid impacts to the yellow-bellied glider population. A pest animal management plan will be developed and implemented prior to operation, detailing the ongoing pest animal management during wind farm operation. Additionally, installation of fauna movement infrastructure (e.g. glide poles) on tracks wider than the maximum glide distance through known glider habitat will limit the need for gliders to traverse the ground, where they are at higher risk of predation.
	Some invasive weeds can increase the flammability of the habitat, amplifying wildfire risks. The proposed project will implement appropriate weed management in accordance with a Vegetation Management Plan for the areas within and adjacent to the clearing footprint, therefore is unlikely to result in the establishment of an invasive weed species that could impact glider habitat.
Introduce disease that may cause the species to decline	Unlikely. Yellow-bellied gliders are not threatened by any disease that could be brought into the species' habitat by the project.
Interfere substantially with the recovery of the species.	Unlikely. The small amount of proposed clearing of mapped dispersal habitat is unlikely to exacerbate the existing extent and degree of fragmentation across the entirety of the project site, other than a 1 km section of Jumma Road (Figure 9). However, the clearing may also slightly reduce the availability of large hollows which provide limited denning opportunities during dispersal for yellow-bellied glider across the project site. The area of dispersal habitat to be impacted is 15.46 has remnant areas or 0.95% of the 1.631.71 ha mapped remnant dispersal habitat, and 254.66 ha of non-remnant areas which represents 3.1% of the 8.209.87 ha of non-remnant dispersal habitat. The majority of impacts are to non-remnant habitat areas where trees are not yet of sufficient size to offer large hollows for denning.
	Protecting and retaining hollow-bearing trees is an important recovery action for the yellow-bellied glider. Pre-clearing surveys will allow micro-siting of project infrastructure to minimise the loss of tree hollows, along with the minimising of clearing widths and fragmentation of habitat, and identifying key trees adjacent to tracks to be maintained, will help to avoid any significant impact on species recovery. A Bushfire Management Plan (LEC, 2024) has been developed for the project
	and will be implemented to mitigate inappropriate fire regimes (such as high frequency or intensity fires) as a result of the project's actions. Where landowner requirements (e.g. stock management) or safety measures (e.g. surrounding electrical substations) do not require it, fencing will not include barbed wire, to minimise the risk of glider entanglement.
	Pest animal management in accordance with a project specific pest animal management plan will be undertaken during the operational life of the project, alongside carcass monitoring, in order to manage predator populations and avoid impacts to the yellow-bellied glider population that could possibly occur within the project site.



Significant impact criteria	Assessment of the project site
Overall impact assessment	The proposed project is unlikely to have a significant impact on yellow-bellied glider, assuming all practical impact miligation measures are applied.

3.3 Listed migratory species

3.3.1 Fork-tailed swift

One additional sighting of fork-tailed swift was made in the spring 2023 survey. The individual was foraging aerially with a flock of white-throated needletails. The species occurs only transiently on site, being sighted on two occasions with a total of three individuals. The risk rating for the fork-tailed swift therefore remains at medium as the species only rarely occurs on site but regularly flies within the RSA. No update to the fork-tailed swift SIA is considered necessary.



4 Conclusions

Ongoing preconstruction BBUS resulted in new sightings of four EPBC Act-listed fauna species (koala, glossy black-cockatoo, white-throated needletail, and fork-tailed swift). These are all species previously recorded on the project site. Targeted surveys for threatened flora species did not detect any individuals in suitable habitats within the impact area.

Additional detailed surveys for koala and greater glider were undertaken and revised modelling of habitat developed which considered:

- Conservation Advice for Phascolarctos cinereus (Koala) combined populations of Queensland, New South Wales and the Australian Capital Territory (DAWE, 2022a)
- Identifying habitat for the endangered Koala (DCCEEW, 2024)
- A review of koala habitat assessment criteria and methods (Youngentob et al., 2021)
- National Recovery Plan for the Koala Phascolarctos cinereus (combined populations of Queensland, New South Wales and the Australian Capital Territory) (DAWE, 2022b)
- Conservation Advice for Petauroides volans (greater glider (southern and central))
 (DCCEEW, 2022)
- Guide to greater glider habitat in Queensland (Eyre et al., 2022).

This has resulted in the mapping of Preferred, General and Dispersal habitat for koala, with an additional 139.86 ha of Low quality general habitat and 347.16 ha of Dispersal habitat mapped. Revision of the project design has reduced the area of Preferred and General habitat likely to be impacted however the outcome of the previous SIA for this species, that a significant impact is likely, has not changed.

The original MNES assessment concluded that no significant impact on greater glider was likely. Following additional detailed surveys to address the PER guidelines Preferred foraging and denning habitat, Potential foraging and future denning habitat and Dispersal habitat for greater glider was modelled. Potential habitat includes areas of non-remnant and regrowth vegetation with trees which may provide future denning and foraging resources. Although the area of Preferred habitat for greater glider impacted has been reduced by the detailed design, with this additional mapping of Potential and Dispersal habitat the likely impacts are increased by 253.1 ha. A revised SIA was completed for greater glider which concluded that a significant impact is likely.

Additional observations of white-throated needle-tail and the slight reduction in impact area does not change the outcome of the SIA for that species. The likely impact on other species addressed in the original MNES assessment have not changed. However, DCCEEW through the adequacy review assessment has indicated impacts to species habitat for grey-headed flying-fox and glossy black-cockatoo would require offsets.

The proposed project is considered likely to have a significant impact due to impacts on:



- koala
- greater glider
- white-throated needle-tall (through potential strike risk).



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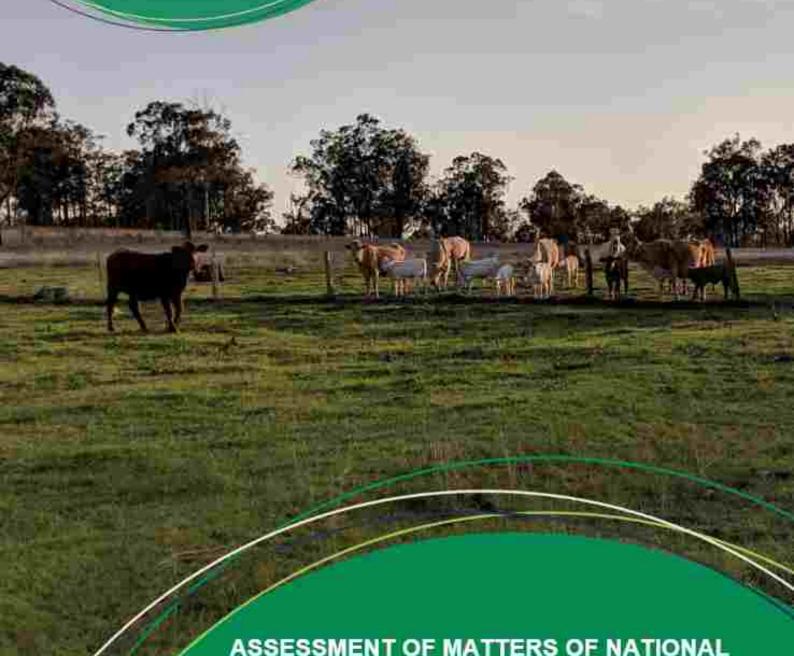
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Appendix 1 Assessment of MNES (referral document)



Note for reader: Parts of this report are superseded by Appendix E. Supplement to the Assessment of Matters of National Environmental Significance report prepared by Ecosure (2025). This report was prepared in 2023 and contains species no longer listed as Matters of National Environmental Significance (MNES). Therefore, this report should be reviewed in parallel with the 2025 assessment and the Public Environment Report (PER) prepared by AECOM Australia Pty Ltd for Tarong West Project Co Pty Ltd.



ENVIRONMENTAL SIGNIFICANCE FOR TARONG

WEST WIND FARM, IRONPOT, QUEENSLAND

August 2023

RES AUSTRALIA PTY LTD



Executive summary

RES Australia Pty Ltd engaged Ecosure Pty Ltd to conduct an assessment for Matters of National Environmental Significance for the proposed Tarong West Wind Farm project in the locality of Ironpot, in south east Queensland. The project was formerly known as the Iron Leaf Wind Farm. The entire project site is approximately 17,500 ha in size, encompassing 15 properties. The project site involves construction of up to 97 wind turbine generators and associated supporting infrastructure and comprises:

- the planning corridor, a 1,952.96 ha subset of the project site, which contains a clearing footprint (1,062.14 ha) for wind turbine generators, tracks, and supporting infrastructure to be developed
- the transport route from Brisbane Port to the project site, most of which is currently suitable for conveying wind turbine blades and other large equipment to the wind farm project site, although some sections such as intersections, access points and narrow road easements will require widening.

Ecological surveys were conducted within the project site and transport route from 2018 to 2023 for conservation significant flora, fauna, and ecological communities listed under the Commonwealth Environment Protection and Biodiversity Conservation Act 1999. A likelihood of occurrence assessment based on desktop data was completed for conservation significant species potentially present in the project site and was used to guide targeted field assessments. Potential habitat for each species was modelled based on known species information, species occupancy records, Queensland Department of Resources regional ecosystem modelling, and ground-truthed vegetation mapping.

Impacts on Matters of National Environmental Significance within the project site have been refined through avoidance in the design phase of the project. Throughout development, several planning corridors and wind turbine generator layouts were considered, and the corridor revised to avoid impacts on remnant vegetation, threatened ecological communities and areas of high value habitat (for example riparian habitats and habitats of high incidence of threatened species). Impacts to one threatened ecological community have been avoided completely (semi-evergreen vine thickets of the Brigatow Belt [North and South] and Nandewar Bioregions), located to the east of the project site.

Targeted surveys detected the presence or likely occurrence of eight Matters of National Environmental Significance listed under the *Environment Protection and Biodiversity* Conservation Act 1999 within the project site:

- koala (Phascolarctos cinereus), listed as endangered
- greater glider (Petauroides armillatus), listed as endangered
- glossy black-cockatoo (Calyptorhynchus lathami lathami), listed as vulnerable
- grey-headed flying-fox (Pteropus poliocephalus), listed as vulnerable
- white-throated needletail (Hirundapus caudacutus), listed as vulnerable and migratory

NOTE: See Appendix E: Supplement to the Assessment of MNES, Section 3.1, Table 12, and Section 3.2 for detailed design changes and additional context



- rufous fantail (Rhipidura rufifrons), listed as migratory
- satin flycatcher (Myiagra cyanoleuca), listed as migratory
- fork-tailed swift (Apus pacificus), listed as migratory.

Significant impact assessments were conducted for these species confirmed or considered likely to occur and two flora species, wandering peppercress (Lepidium peregrinum) and Austral toadflax (Thesium australe), considered possible to occur within the project site. Assessments were completed in accordance with the Significant Impact Guidelines 1.1 -Matters of National Environmental Significance. Provided all practical mitigation and minimisation measures detailed in sections 7 and 8 of this report are applied, it is considered unlikely the proposed development will result in a significant impact to the following Matters of National Environmental Significance:

- threatened fauna (greater glider, glossy black cockatoo and grey-headed flying-fox)
- threatened flora (austral toadflax and wandering peppercress)
- migratory fauna (rufous fantail, satin flycatcher and fork-tailed swift).

After mitigation and minimisation measures have been implemented, but before offsets; there is likely to be a direct and indirect impact that is considered significant to the following species:

- koala (due to loss of habitat/feeding trees during the construction phase of the project)
- white-throated needletail (through operational impacts due to potential direct mortality resulting from wind turbine strike).

Minimisation of residual impacts to koala will involve management of land-based environmental offsets, and residual impacts to white-throated needletail will be managed using adaptive management measures applied in accordance with a future approved bird and bat management plan. RES Australia Pty Ltd has purchased a property contiguous with the project site to be dedicated for use as land-based environmental offsets. The management of this offset will be subject to a future management plan required under a future Approval.



Glossary, acronyms and abbreviations

ALA Atlas of Living Australia

as! Above sea level

BBMP Bird and Bat Management Plan
BBUS Bird and bat utilisation survey

BoM Bureau of Meteorology

Conservation Species listed as threatened (critically endangered, endangered,

significant species vulnerable) and/or migratory under EPBC Act

DAWE Commonwealth Department of Agriculture, Water and the

Environment (now DCCEEW)

DBH Diameter at breast height

DCCEEW Commonwealth Department of Climate Change, Energy, the

Environment and Water

DES Queensland Department of Environment and Science

DNRM Queensland Department of Natural Resources and Mines (now DOR)

DNRME Queensland Department of Natural Resources, Mines and Energy

(now DoR)

DoE Commonwealth Department of the Environment (now DCCEEW)

DoR Queensland Department of Resources

EHP Queensland Department of Environment and Heritage Protection (now

DES)

EPBC Act Environment Protection and Biodiversity Conservation Act 1999

(Commonwealth)

HVR High value regrowth

MNES Matters of national environmental significance NC Act Nature Conservation Act 1992 (Queensland)

OHL Overhead line

PMST Protected matters search tool (Commonwealth)

RE Regional ecosystem
RES RES Australia Pty Ltd
RSA Rotor swept area

SAT Koala spot assessment technique SBRC South Burnett Regional Council

SEQ South-east Queensland SEVT Semi-evergreen vine thicket

TEC Threatened ecological community

TSSC Threatened Species Scientific Committee

UG Underground

VM Act Vegetation Management Act 1999 (Queensland)



WoNS Weed of National Significance

WTG Wind turbine generator



Contents

Execut	tive s	ummary	
Gloss	агу, а	cronyms and abbreviations	
Conter	nts		X
List of	figuri	25	VII
List of	table	S	
		ction	
1.1	Ra	nckground	
1.2	Re	port conventions	
1.3		ope	
1.4	2.4	ne description	
4	4.1	Site locality	
717	4.2	Watercourses and wetlands	
	4.3	Landforms, geology and soils	
1.	4.4	Climate	
1.5	Pr	oject description	
1.	5.1	Wind farm design	
1	5.2	Design development	
1.	5.3	Design limitations	5
2 De	eskto	p assessment	12
2.1	Me	ethods	12
2.2	17.00	relihood of occurrence assessment	12
2.3	# C C C C C	apped MNES	
2.4		apped vegetation	
2.5	Lik	relihood of presence of EPBC Act listed species	21
3 Fi	eld s	urvey methods	22
3.1	Flo	ora methods	22
3	1.1	Threatened ecological communities	25
3.	1.2	Regulated vegetation and REs	26
3.	1.3	Vegetation surveys	27
3.	1.4	Threatened plant survey	27
3.	1.5	Biosecurity matters	28
3.2	Fa	una methods	29
3.	2.1	Fauna habitat assessment	38
3	2.2	Threatened fauna survey	
3.	2.3	Migratory fauna survey	
0.753	2.4	Level one avian risk investigation	
3.	2.5	Quarterly BBUS	38
3.3	Po	stential habitat modelling	
3.4		rvey limitations	
4 Fi		urvey results	



4.1	Sui	rvey timing and conditions	51
4	1.1	General ecology surveys	51
	1.1.1	Spring 2018	
	1.1.2	Autumn 2019	
00%	1.1.3	Spring 2020	53
	1.1.4	Spring 2021	53
-	1.2	BBUS	
	121		
		Autumn 2022	
	123	Winter 2022	
0.00	124	Spring 2022	
	125	Summer 2023	56
4.2	Ve	getation communities	57
4.2	2.1	Remnant/HVR vegetation	57
4.2	2.2	Non-remnant vegetation	69
4.3	Flo	ra species	69
4.4	10.50	una habitat	
4.5	Fai	una species	74
4.6	Intr	oduced species	78
5 Ma	atters	of National Environmental Significance in project site	80
5.1	The	reatened ecological communities	80
5.	1.1	Semi-evergreen vine thickets of the Brigalow Belt (North and South) and	
Na	andev	var Bioregions	
5.2	Lis	ted threatened flora species	81
5.2	2.1	Wandering peppercress	82
5.2	2.2	Austral toadflax	
5.3	Lis	ted threatened fauna species	
5.3	3.1	Koala	85
5.3	3 1 1	Koala non-remnant habitat model	87
5.3	3.2	Greater glider	
5.3	3.3	Grey-headed flying fox.	94
5.3	3.4	Glossy black-cockatoo	
5.3	3.5	Black-breasted button quail.	95
5.3	3.6	White-throated needletail	95
5.4	Lis	ted migratory species	101
5.4	4.1	Rufous fantail	102
5.4	4.2	Satin flycatcher	102
5.4	4.3	Fork-tailed swift.	103
5.4	4.4	Other migratory species.	103
6 Im	pacts	of proposed project	107
6.1	Sui	mmary of impacts	107
6	1.1	Construction impacts	
1,50	12	Operational impacts	
62		pacts on flora and vegetation	
100	11111	CHANGE WAS TRAINED BUTTER TO SECURITY PRODUCTION OF THE PROPERTY OF THE PROPER	



6.2.1	Clearing of vegetation	109
6.2.2	Threatened flora impacts	
6.3 lm	pacts on fauna and habitats	
6.3.1	Construction impacts	110
6.3.2	Operational impacts	111
6.3.3	General threatened fauna impacts	111
6.3.4	Impacts to koalas	
6.3.5	Impacts to greater gliders	
6.3.5	Impacts to grey-headed flying-fox	
6.3.7	Impacts to glossy black-cockatoo	
6.3.8	Impacts to white-throated needletail	113
6.3.9	Impacts to migratory species	
6.4 Tr	insport route impacts	116
7 Recom	mended mitigation measures	117
7.1 Av	oidance of impacts	117
7.2 Mi	nimisation of impacts	118
7.3 Mi	ligation of impacts	119
8 Signific	ant impact assessment	122
8.1 Th	reatened ecological communities	122
8.2 Th	reatened species	122
8.3 Th	reatened flora species	124
8.3.1	Austral toadflax	124
8.3.2	Wandering peppercress	126
8.4 Th	reatened fauna species	128
8.4.1	Koala	128
8.4.2	Greater glider	
8.4.3	Grey-headed flying-fox	
8.4.4	Glossy black-cockatoo	136
8.4.5	White-throated needletail	
8.5 Mi	gratory species	139
8.5.1	Rufous fantail	139
8.5.2	Satin flycatcher	
8.5.3	White-throated needletail	
8.5.4	Fork-tailed swift	
	mmary of impacts to MNES	
9 Conclu	sion	
References		148
Appendix 1	Database search results	155
Appendix 2	Likelihood of occurrence assessment	160
Appendix 3	Flora survey sites	150
Appendix 4	Flora species recorded in detailed vegetation survey sites	157
Appendix 5	Fauna species recorded in surveys (2018 – summer 2023)	167
Appendix 6	Koala assessment information under repealed referral guidelines	179



List of figures

Figure 1 Project site location	4
Figure 2 Proposed development layout and proposed clearing footprint	10
Figure 3 Threatened and migratory species records identified from Wildnet database	_16
Figure 4 Regional ecosystems mapped within the project site	20
Figure 5 Flora survey sites and state mapped REs	. 23
Figure 6 Fauna survey sites and state mapped REs	_31
Figure 7 Ground-truthed REs and TECs	59
Figure 8 Field-verified fauna habitat	71
Figure 9 Threatened and migratory fauna detected during surveys 2018 - 2023	77
Figure 10 Potential habitat for wandering peppercress, Austral toadflax and Austral comflower	83
Figure 11 Comparison of woody vegetation projective foliage thresholds on modelling of koala habitat	89
Figure 12 Koala survey records 2018 - 2023 and potential habitat within clearing footprin	t. 90
Figure 13 Regional and local koala connectivity	. 92
Figure 14 Greater glider survey records 2018 – 2022 and potential habitat	. 97
Figure 15 Grey-headed flying-fox survey records 2018 – 2023 and potential foraging hab	itat 98
Figure 16 Glossy black-cockatoo survey records 2018 – 2023 and potential habitat	99
Figure 17 White-throated needletall survey records 2018 – 2023 and potential roosting habitat	100
Figure 18 Rufous fantail survey records 2018 - 2023 and potential habitat	104
Figure 19 Satin flycatcher survey records 2018 – 2023 and potential habitat	105
Figure 20 Fork-tailed swift survey records 2018 – 2023 and potential roosting habitat	106



List of tables

Table 1 Lot on Plan of properties located within the site	1
Table 2 Design iterations for Tarong West Wind Farm	8
Table 3 TECs and their mapped occurrence within the site based on desktop data	14
Table 4 REs mapped as occurring on the site	19
Table 5 Survey effort for threatened flora species potentially occurring within the project	site 28
Table 6 Fauna survey methods and effort employed during field surveys	30
Table 7 Survey effort for threatened and migratory fauna species potentially occurring with the project site.	/ithin 40
Table 8 Weather conditions during the spring 2018 survey period	51
Table 9 Weather conditions during the autumn 2019 survey period	52
Table 10 Weather conditions during the spring 2020 survey period	53
Table 11 Weather conditions during the spring 2021 survey period	54
Table 12 Weather conditions during the summer 2022 survey period	54
Table 13 Weather conditions during the autumn 2022 survey period	55
Table 14 Weather conditions during the winter 2022 survey period	56
Table 15 Weather conditions during the spring 2022 survey period	56
Table 16 Weather conditions during the summer 2023 survey period	57
Table 17 REs identified within the site	57
Table 18 Areas of ground-truthed REs in remnant and HVR condition	60
Table 19 Description of RE 11.3.25 recorded within site	61
Table 20 Description of RE 11.5.20 recorded within site	62
Table 21 Description of RE 11.7.6 recorded within site	63
Table 22 Description of RE 11.8.3 recorded within site	64
Table 23 Description of RE 11.11.4 recorded within site	65
Table 24 Description of RE 11.11.15 recorded within site	66
Table 25 Description of RE 11.12.3 recorded within site	67
Table 26 Description of RE 11.12.6 recorded within site	68
Table 27 Threatened species recorded during surveys	70
Table 28 Fauna habitats recorded within site	70
Table 29 Threatened and migratory fauna results for fauna surveys within and adjacent the project site	300 E S
Table 30 Pest flora and fauna species recorded during surveys	78
Table 31 Assessment of vine thicket patch against TEC community characteristics	80
Table 32 Results of surveys for EPBC Act listed flora species	81
Table 33 Results of surveys for EPBC Act listed fauna species	2/



Table 34 Known koala food/habitat species recorded during surveys	86
Table 35 Important habitat for migratory species potentially occurring within the project s	ite . 101
Table 36 Impact of project infrastructure on remnant vegetation	. 109
Table 37 Impact of project infrastructure on threatened flora habitat	110
Table 38 Impact of project infrastructure on threatened fauna habitat	111
Table 39 Potential impacts to ecological values and recommended mitigation measures	. 120
Table 40 Significant impact criteria for vulnerable and endangered species	122
Table 41 Assessment of important populations for vulnerable species	. 123
Table 42 EPBC Act significant impact assessment for vulnerable Austral toadflax	125
Table 43 EPBC Act significant impact assessment for endangered wandering peppercre	ss . 126
Table 44 EPBC Act significant impact assessment for endangered koala	. 129
Table 45 EPBC Act significant impact assessment for endangered greater gliders	. 131
Table 46 EPBC Act significant impact assessment for vulnerable grey-headed flying-fox	134
Table 47 EPBC Act significant impact assessment for vulnerable glossy black-cockatoo	136
Table 48 EPBC Act significant impact assessment for vulnerable white-throated needlets	ail . 138
Table 49 EPBC Act significant impact assessment for rufous fantail	140
Table 50 EPBC Act significant impact assessment for satin flycatcher	141
Table 51 EPBC Act significant impact assessment for white-throated needletail against migratory criteria	. 142
Table 52 EPBC Act significant impact assessment for fork-tailed swift	143
Table 53 Summary of impacts to MNES	. 143
Table 54 Koala habitat assessment	179



1 Introduction

1.1 Background

RES Australia Pty Ltd proposes to develop the Tarong West Wind Farm (formerly known as the Iron Leaf Wind Farm) in the locality of Ironpot in south-east Queensland. The project site comprises 15 properties with an approximate combined area of 17,500 ha (including reserves and easements) (Table 1).

Table 1 Lot on Plan of properties located within the site

Lot	Plan	Area (ha)
5	BO330	3721.19
60	BO188	509.43
66	BO 190	412.34
67	BO490	493.51
10	SP168643	1924.15
68	RP800291	511.94
43	FTZ37338	72.84
62	BO188	501 89
63	BO188	507.04
36	80236	1982 99
7	RP890694	971.60
(4)	RP890694	922.98
6	BO250	2355 45
29	BO243	1711.42
64	BO190	512.08
Reserves / easements	E:	385 39
	Total area	17,496.23



1.2 Report conventions

The following conventions are used throughout the report.

- The project site comprises the properties identified in Table 1. The project boundary defines the outer perimeter of the project site.
- The proposed development comprises the spatial data presented in the shapefiles provided by RES in July 2023.
- The planning corridor is the area for all infrastructure and development to occur
 within the project site and contains the clearing footprint.
- The clearing footprint represents the maximum disturbance footprint of the project, with the flexibility to move this via micro siting within the planning corridor.
- The study area used in desktop searches comprises the project site and a buffer around the site. Two buffer distances were used:
 - a 10 km buffer which contains similar vegetation and habitat to the project site
 - a 20 km buffer that includes the Bunya Mountains, which contains high altitude rainforest habitat not occurring within the project site.
- Conservation significant species include flora and fauna species that are listed as threatened (critically endangered, endangered or vulnerable) and/or migratory under the Commonwealth Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act).
- Common and scientific names of flora and fauna species follow the Department of Environment and Science (DES) WildNet database (DES 2022a).
- Introduced species are denoted by an asterisk (*).

1.3 Scope

The scope of this assessment includes:

- a desktop review of potential Matters of National Environmental Significance (MNES) listed under the EPBC Act that potentially occur at the site
- surveys to confirm existing desktop information (i.e. mapping) for the site and assessment of vegetation condition
- surveys for MNES in the pre-wet spring season and post-wet autumn season
- a level one bird utilisation survey of the site (Ecosure in prep)
- assessment of the likelihood of MNES to occur within the site based on desktop and field results
- an assessment of the potential impacts of the proposed development and recommended measures to avoid, minimise and mitigate impacts on MNES that are known or likely to occur within the site
- significant impact assessments in accordance with the Significant Impact Guidelines
 1.1 MNES (DoE 2013a).



1.4 Site description

1.4.1 Site locality

The site is located within the South Burnett Regional Council (SBRC) area and lies approximately 30 km west of Kingaroy and approximately 85 km east of Chinchilla. It is currently used for cattle grazing with areas of cleared paddocks and standing vegetation. Access to the site is via Ironpot Road (Figure 1).

1.4.2 Watercourses and wetlands

The project site occurs within the Boyne-Auburn Rivers drainage sub-basin in the Burnett drainage basin, which drains to the Great Barrier Reef lagoon.

One major mapped watercourse flows generally south to north within the site. The Boyne River begins as a second order stream in the south of the site, becomes a third order stream near Ironpot Road on Lot 68 on RP800291, a fourth order stream at its junction with Middle Creek on Lot 62 on BO188, and a fifth order watercourse at its junction with Mannuem Creek on Lot 60 on BO188, before exiting the site along the north-western boundary of Lot 4 on RP890694. The Boyne River feeds into Boondooma Lake and the Burnett River before discharging at Bargara near Bundaberg.

Other large streams that flow into Boyne River, either within or north of the site, include Mannuem Creek on the eastern boundary, Middle Creek in the south-eastern portion, Jumma Creek in the central portion, Boughyard Creek in the western portion and Ironpot Creek in the north-western portion of the site. Natural wetlands do not occur within the site. Landholders have constructed numerous farm dams throughout the site.

1.4.3 Landforms, geology and soils

The site is located on the southern border of the Brigalow Belt (South) bioregion in the Banana-Auburn Ranges subregion. The southern edge of the site overlaps into the South East Queensland bioregion in the South Burnett subregion, in Lot 68 on RP800291 and in Lot 10 on SP168643. Landforms are primarily undulating plains and hillslopes.

The site predominantly occurs on the Chahpingah Meta-igneous Complex, which is a granite dominated geology. The Evergreen Formation (comprising sandstone, mudstone and siltstone) dominates the southern portion of the site around the upper reaches of the Boyne River along with a small intrusion in the north-western portion. Quaternary alluvium occurs around the Boyne River and other larger watercourses in the northern portion of the site.

144 Climate

The climate is defined as sub-tropical with warm, humid summers and cool and dry winters. Average maximum temperatures range from 19.6°C in July to 30.9°C in January (Bureau of Meteorology [BoM], Kingaroy Airport Station 040922, approximately 30 km east of the site). The average annual rainfall is 663.3 mm (BoM 2023).

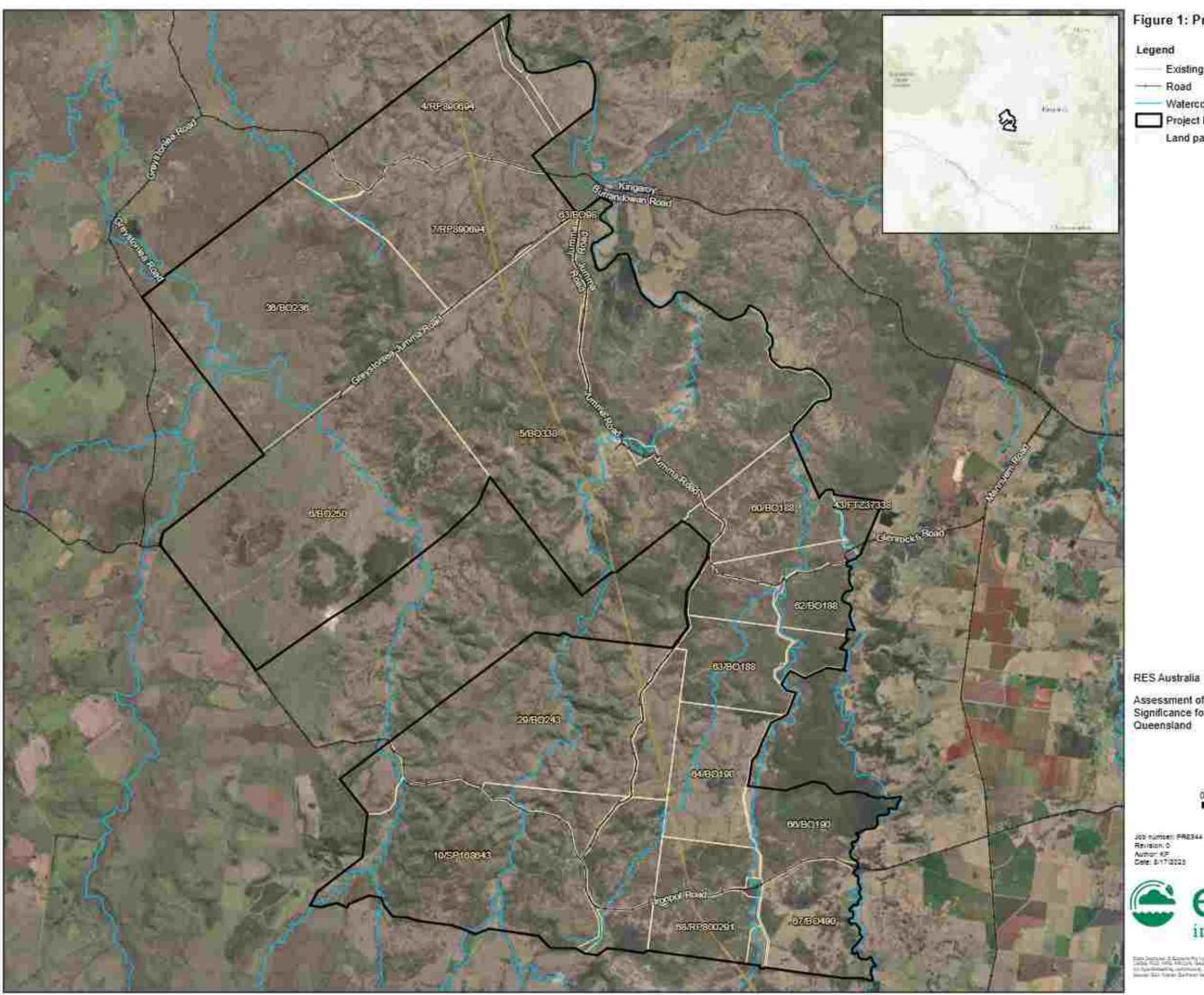


Figure 1: Project site location

Existing 275kV transmission line

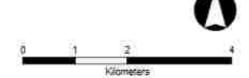
--- Road

Watercourse

Project boundary

Land parcel

Assessment of Matters of National Environmental Significance for Tarong West Wind Farm, Ironpot,



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1.5 Project description

1.5.1 Wind farm design

Key components

The development and construction of the site will involve significant ground disturbing work and will include the construction of the following, subject to detailed design:

- up to 97 wind turbine generators (WTGs)
- wind turbine foundations and hardstand areas
- three permanent and four temporary (during construction period only) meteorological masts
- internal electrical reticulation consisting of overhead lines (OHL) and underground (UG) cabling
- access tracks including widening sections of Ironpot Road
- planning corridor containing a maximum clearing footprint of 1,062.14 ha. The
 planning corridor allows scope to micro-site project infrastructure within the planning
 corridor, with the disturbance capped at the area of the clearing footprint
- on-site connection to existing 275 kilovolt (kV) transmission line
- electrical substations to facilitate connection of the project to the grid
- one battery energy storage system
- construction compounds and laydown areas
- site compounds
- operations and maintenance facilities
- batching plant
- borrow pits
- washdown areas.

WTG specifications have not been finalised at the time of writing this report. A candidate turbine has been selected for the purposes of the MNES assessment, based on the following assumptions:

- up to 90 m turbine blades
- up to 180 m rotor diameter
- up to 26,015 m² rotor swept area (RSA)
- up to 190 m hub height.

Ecological risk assessments have been carried out using the following turbine envelope assumptions:

maximum upper tip height of 280 m above ground level



- minimum lower tip height of 65 m above ground level
- WTG hardstands (approximately 270 m by 110 m, plus a 30 m buffer around the perimeter) to allow construction and crane placement.

Figure 2 shows the proposed planning corridor and clearing footprint to accommodate WTGs, access tracks and other associated infrastructure. The clearing footprint represents the maximum proposed clearing area (as provided on July 2023) and may be reduced by ongoing refinement in the design and micro-siting of infrastructure throughout the development phase of the project. In the planning corridor presented in this report, no WTGs or hardstands are proposed to be placed in ecologically significant areas (e.g. areas of remnant vegetation).

The project is currently planned to be constructed in a single stage, however the development may be constructed in multiple stages. Construction is proposed to start in the third quarter of 2024 and last approximately 30 months.

Construction

The construction methodology will generally include:

- marking out areas for infrastructure installation
- clearing the areas of vegetation
- scraping off the topsoil and stockpiling for later use in rehabilitation
- construction of access tracks
- widening sections of Ironpot Road to allow transport of WTGs
- creating a level pad for infrastructure construction
- installing the infrastructure
- rehabilitating disturbed surfaces that are not required for operations.

Detailed designs providing the dimensions of clearing footprints have not been finalised at this stage. However, the current clearing footprint contemplated in this report has been used as a maximum clearing scenario within the planning corridor to allow the impact assessment to proceed.

Operation

The project is expected to have an operational life of at least 30 years excluding construction and decommissioning. The operational parameters of the project have not been finalised at this stage. However, it has been assumed that all WTGs will be operating continuously when wind speeds are sufficient, apart from occasional shut-down periods for maintenance.

Decommissioning

Decommissioning or repowering of the site is expected to occur at the end of the project's useful life. The decommissioning methodology has not been finalised at this stage.



1.5.2 Design development

During project development between 2018 to 2023, the size and scope of Tarong West Wind Farm has changed in response to various constraints, with a focus on avoidance of ecological impacts where possible.

Changes made throughout the development include an overall reduction in number of turbines as follows:

- 151 WTGs in 2018
- down to 128 WTGs in 2022
- down to 97 WTGs in 2023 contemplated in this MNES Assessment.

Other changes made involve the exclusion of particular properties to avoid ecological impact, and changes in the scope and configuration of required supporting infrastructure.

Significant changes include removal of two properties containing significant areas of remnant vegetation, including Lot 42 on FTZ37338 (1,219.8 ha), which contains two patches of potential semi-evergreen vine thicket (SEVT) threatened ecological community (TEC) and Lot 65 on BO190 (418.3 ha). Additionally, two extra properties (Lot 2 on 9BO243, Lot 64 on BO190) were added throughout the project's development. Project design changes have influenced the methods and coverage of subsequent field surveys throughout the project's development.

This ecological assessment has considered and assessed the 97 WTG layout provided on (24 July 2023) and will require modification if the design evolves to impact areas outside of the planning corridor.

NOTE: See PER Section 1.2.4 for changes to design iterations



Table 2 Design iterations for Tarong West Wind Farm

Date	Description	WTGs proposed	Project site (ha)	Proposed clearing footprint (unpact area, ha)	Potential koala impact (ha)	Comments
May 2020	151 WTG layout	151	19,000.41	1,965.43	371.83	Initial layout in early development
May 2022	128 WTG layout	128	17.496.23	1,615.47	293.31	Infrastructure refined based on reduction of WTGs. Site boundary changed to exclude large areas of remnant vegetation from the project site and areas of high glider prevalence along Kingaroy Burrandowan Road (37 glider sightings occurred in vegetation adjacent to the project site area along Kingaroy Burrandowan Road and in properties now excluded from the project site, in habitat identical to that occurring in the site).
July 2023	97 WTG layout	97	17.496.23	1,062.14	186.03	Infrastructure refined based on reduction of WTGs and a reduced clearing footprint. Minimising impacts to areas of remnant vegetation and modelled fauna habitat, particularly koala habitat which reduced by approximately 50% since initial design.



1.5.3 Design limitations

Development designs will be refined as the project progresses, based on geotechnical surveys, final turbine selection and other technical requirements. The clearing footprint presented in this assessment represents the maximum footprint for disturbance, and any design changes are anticipated to occur within the planning corridor presented here.

Additionally, any changes to turbine design and selection are anticipated to comply with the defined turbine envelope (1.5.1 Wind farm design) on which bird and bat risk assessments are based. Such changes may include:

- micro-siting of WTGs and adjustment of construction hardstand dimensions
- adjustment of turbine blade length and hub height, which will affect RSA and minimum and maximum tip heights (remaining within the defined turbine envelope)
- creation of new tracks and realignment of existing tracks
- adjustment of track dimensions (including reduced width in sensitive areas and increased width on some corners to accommodate long vehicles)
- realignment of riparian crossings
- adjustment of the location and dimensions of other infrastructure.

This ecological assessment may therefore require modification if designs evolve outside of the planning corridor.

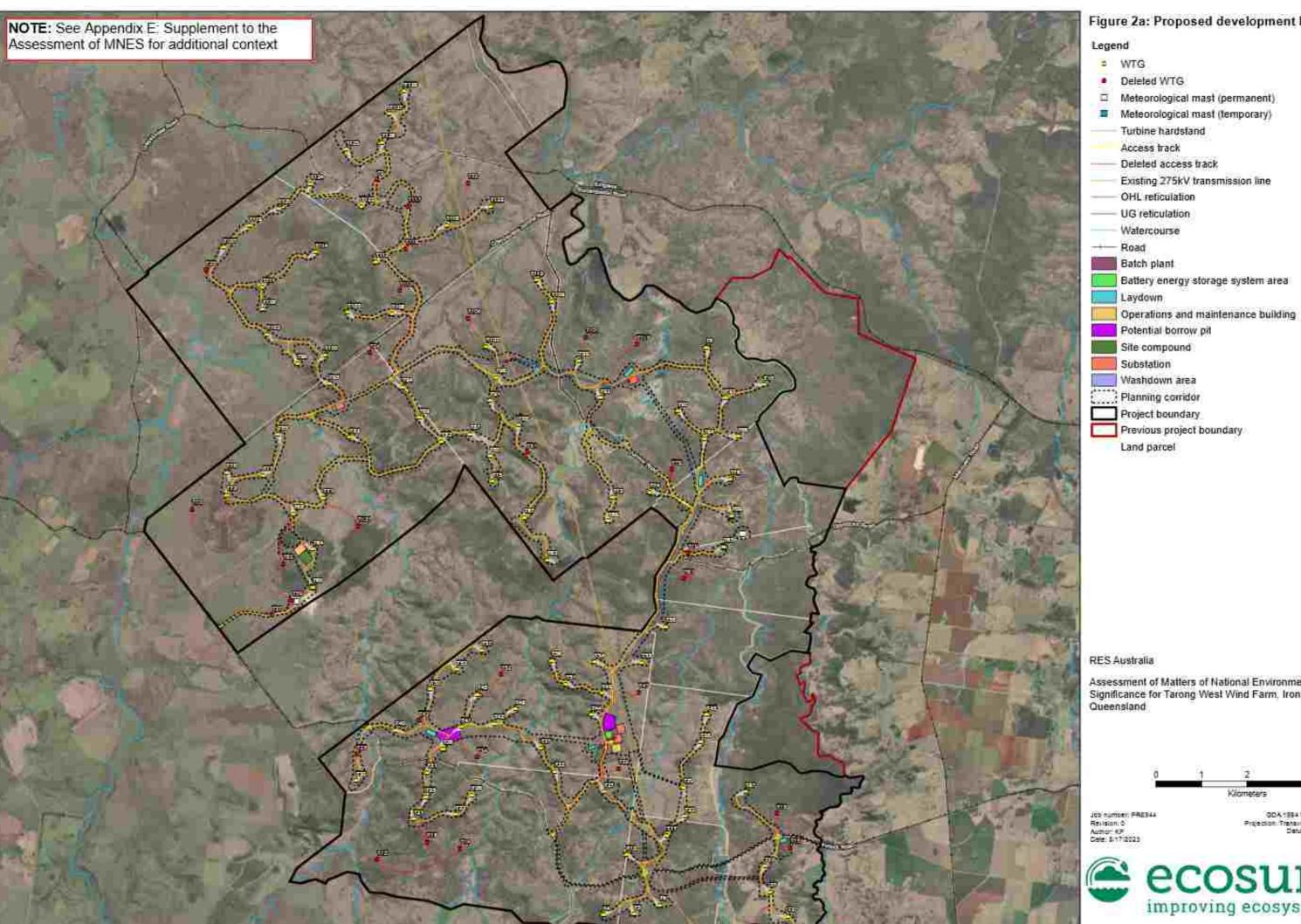
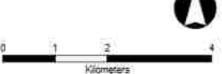


Figure 2a: Proposed development layout

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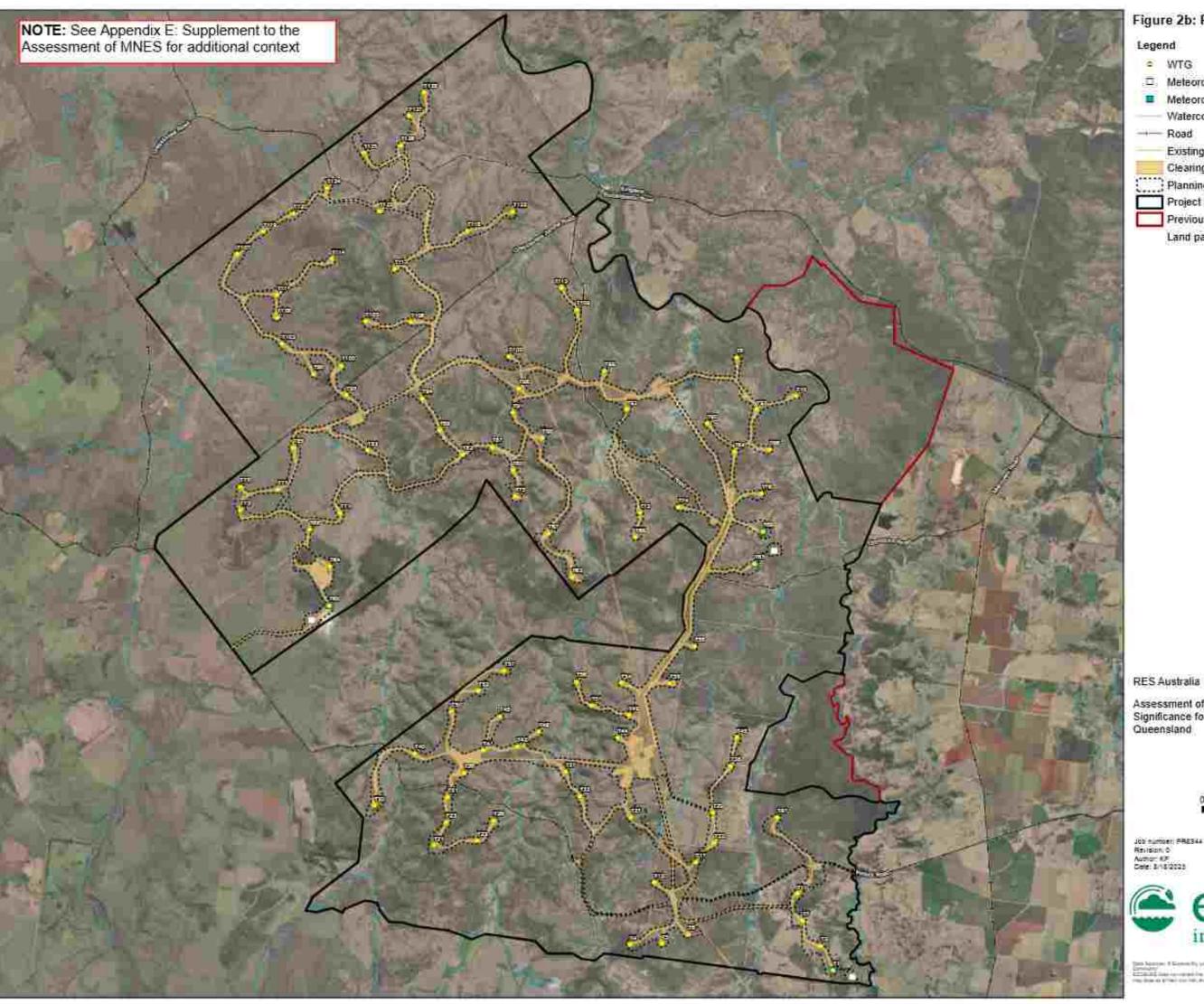


Figure 2b: Proposed clearing footprint

- ☐ Meteorological mast (permanent)
- Meteorological mast (temporary)
 - Watercourse
- ---- Road
 - Existing 275kV transmission line
 - Clearing footprint
- Planning corridor
- Project boundary
- Previous project boundary
 - Land parcel

Assessment of Matters of National Environmental Significance for Tarong West Wind Farm, Ironpot,



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2 Desktop assessment

2.1 Methods

The following sources of information were assessed as part of the literature review:

- EPBC Act protected matters search tool (PMST) for a 10 km buffer surrounding the project site (represented as 20 km buffer around the central point -26.5941, 151.52069) (DCCEEW 2023a)
- the DES Wildlife online database for a 10 km and 20 km buffer surrounding the project site (represented as 20 and 30 km buffer around the central point -26.5941, 151.52069) (DES 2023)
- the Atlas of Living Australia (ALA) database for locations of conservation significant fauna and flora species (ALA 2022)
- vegetation management mapping maintained by the Queensland Department of Resources (DoR) (2022a, 2022b), including remnant and pre-clear regional ecosystem (RE) map (version 12.02), regulated vegetation management map (version 6.04), vegetation management watercourse and drainage feature map (version 6.0), vegetation management wetland map (version 8.0) and essential habitat map (version 11.0)
- RE description database version 12.1 (Queensland Herbarium 2021)
- Biodiversity Planning Assessment maps identifying significant fauna corridors and areas of state, regional and local biodiversity significance in the Brigalow Belt bioregion (DES 2018a) and South-east Queensland (SEQ) bioregion (EHP 2016)
- protected flora survey trigger map to identify high risk areas for protected plants (DES 2022b)
- Wind Farms and Birds: Interim Standards for Risk Assessment Australian Wind Energy Association Report (Brett Lane & Associates 2005)
- available remote imagery
- Onshore Wind Farms interim guidance on bird and bat management (DAWE 2021a)
- other published and non-published literature.

2.2 Likelihood of occurrence assessment

Each significant species and ecological community identified in database searches was assessed for its likelihood of occurrence based on:

- records in the local area (DES 2023, ALA 2022, survey results)
- presence of suitable habitat (determined using desktop and field verified data)
- presence of essential habitat (DoR 2022b)



 species abundance, distribution and behaviour (sourced from published field guides, DCCEEW species profiles and threats database, DES species profiles, recovery plans, scientific journal articles and known records).

Likelihood of occurrence was classified into four categories:

- confirmed the species or signs of their presence were observed during the field survey
- likely the site contains habitat that is suitable for the species and Wildnet has recent records of the species (i.e. since 1980) within 10 km of the site
- possible the site contains habitat that is suitable for the species but Wildnet has no recent records of the species within 10 km of the site; or the site contains marginal / low quality habitat for the species and Wildnet has recent records of the species within 10 km of the site
- unlikely the site does not contain habitat for the species and Wildnet has no recent records of the species within 10 km of the site.

Likelihood assessments were based on records within a 10 km buffer as the Kingaroy region has been well surveyed and has a relatively high density of species records. Also, a larger 20 km buffer includes the Bunya Mountains, which contains high altitude rainforest habitat that is not present within the project site.

Marine species were excluded from the table.

Note that the final likelihood assessment (presented in Appendix 2) was refined by field surveys that included targeted searches for possible and likely species and ground-truthing of suitable habitat for these species.

2.3 Mapped MNES

The PMST results (Appendix 1) show the following MNES may occur within 10 km of the project site:

- listed threatened ecological communities (TECs)
- listed threatened species
- listed migratory species.

Wetlands of international importance

The PMST identified the following Ramsar wetlands:

- Banrock Station wetland complex (1,300 to 1,400 km away)
- Narran Lake nature reserve (500 to 600 km south of site)
- Riverland (1,200 to 1,300 km away)
- The Coorong, and lakes Alexandrina and Albert wetland (1,400 to 1,500 km away).



The site does not occur within a drainage basin that drains to any of these Ramsar wetlands.

Listed threatened ecological communities

The PMST identified eight TECs as either likely or known to occur within 10 km of the project site (Table 3). The potential occurrence of these TECs was assessed based on mapped areas of component REs (DoR 2022a).

Table 3 TECs and their mapped occurrence within the site based on desktop data

Description of TEC	EPBC Act	Equivalent REs	Mapped occurrence
Brigalow (<i>Acacis harpophylia</i> dominant and codominant)	Endangered	Community consistent with RE 11.3.1, 11.4.3, 11.4.7, 11.4.8, 11.4.9, 11.4.10, 11.5.16, 11.9.1, 11.9.5, 11.9.6, 11.11.14, 11.12.21, 12.8.23, 12.9-10.6, 12.12.26	Possible based on desktop assessment. Component REs are not mapped within the site but are mapped within 1 km of the site.
Coolibah- black box woodlands of the Darling Riverine Plains and the Brigalow Belt South Bioregions	Endangered	Community consistent with RE 11.3.3. 11.3.15, 11.3.16, 11.3.28, 11.3.37	Not applicable Component REs are not mapped within or adjacent to the site.
Lowland Rainforest of Subtropical Australia	Critically Endangered	Community consistent with RE 12.3.1, 12.5.13, 12.8.3, 12.8.4, 12.8.13, 12.11.1, 12.11.10, 12.12.1 and 12.12.18	Possible based on desktop assessment. Component REs are not mapped within the site. Component RE (12.8.13) is mapped on Lot 42 on FTZ37338, which is now excluded from the site.
Natural grassiands on basalt and fine-textured alluvial plains of northern New South Wales and southern Queensland	Critically Endangered	Community consistent with RE 11.3.21, 11.3.24	Not applicable Component Res are not mapped within or adjacent to the site.
Poplar Box Grassy Woodland on Alluvial Plains	Endangered	Community consistent with 11.3.2; 11.3.17, 11.4.7, 11.4.12 and 12.3.10	Not applicable Component Res are not mapped within or adjacent to the site
Semi-evergreen vine thickets (SEVT) of the Brigalow Belf (North and South) and Nandewar Bioregions	Endangered	Community consistent with RE 11.2.3, 11.3.11, 11.4.1, 11.5.15, 11.8.3, 11.8.6, 11.8.13, 11.9.4, 11.9.8, 11.11.18	Possible based on desktop assessment. Component RE (11.8.3) is mapped as a mosaic community with RE 12.8.16 on Lot 29 on BO243 in the southwestern edge of the site (refer Section 4.2.1 Figure 7).
		mana si com anterior questa reservadan	Not applicable
Weeping Myall Woodlands	Endangered	Community consistent with 11.3.2, 11.3.28	Component REs are not mapped within or adjacent to the site.
White Box-Vellow Box-			Not applicable
Blakely's Red Gum Grassy Woodland and Derived Native Grassland	Critically Endangered	Community consistent with RE 11.6 2a, 11.6.8, 11.9.9a	Component REs are not mapped within or adjacent to the site.



Listed threatened species

The PMST (Appendix 1) Identified 43 EPBC Act-listed threatened species that have the potential to occur within 10 km of the site, based on the presence of records and/or modelled habitat. These include nine mammals, 12 birds, six reptiles and plants (DCCEEW 2023a, Appendix 1).

The Wildnet database search (DES 2023, Appendix 1) Identified two EPBC-listed species within 10 km of the project site, including one threatened flora species (Austral toadflax, Thesium australe) and one threatened fauna species (koala, Phascolarctos cinereus). Wildnet has records of 12 flora and 13 fauna species within 20 km of the site, including five birds, two reptiles, and six mammal species.

Locations of these records are mapped in Figure 3. The likelihood of occurrence of these species within the project site is assessed in Appendix 2.

Listed migratory species

The PMST Identified 14 EPBC Act-listed migratory species as potentially occurring within 10 km of the site (Appendix 1). Only one species (rufous fantail, *Rhipidura rufifrons*) has Wildnet records within 10 km of the site, while another nine species (fork-tailed swift, sharp-tailed sandpiper, black-faced monarch, satin flycatcher, eastern osprey, white-throated needletail, marsh sandpiper, glossy ibis and spectacled monarch) have records within 20 km (DES 2023). Locations of these records are mapped in Figure 3. The likelihood of occurrence of these species are assessed in Appendix 2.

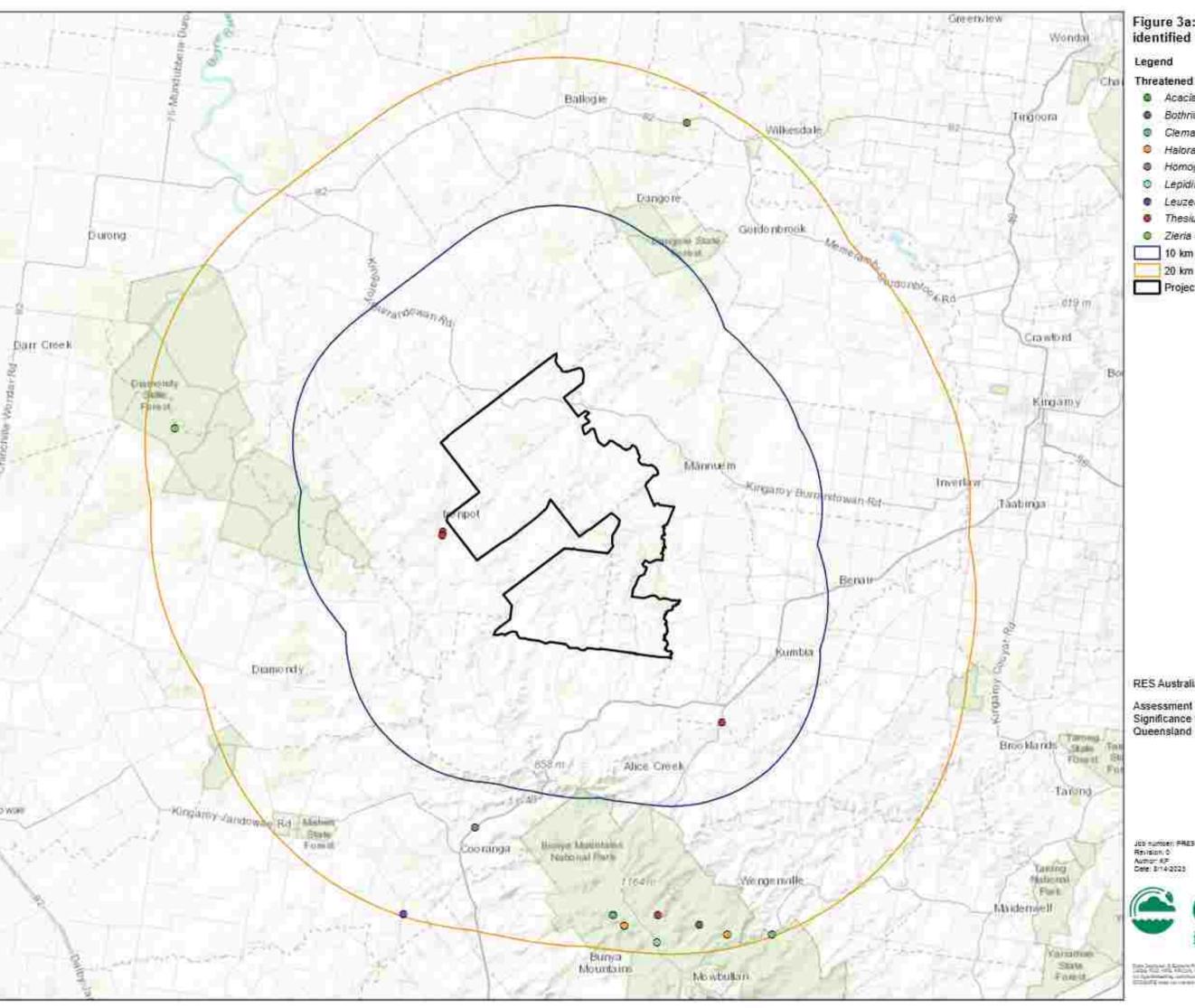


Figure 3a: Threatened flora species records identified from Wildnet database

Threatened flora species (1980 - 2022)

- Acacia grandifolia
- Bothriochlos burryensis
- Clematia fawcettii
- Haloragis exalata subsp. velutina
- Homopholis beisonii
- Lepidium peregrinum
- Leuzea australia
- Thesium australe
- Zieria obovata
 - 10 km buffer
 - 20 km buffer
- Project boundary

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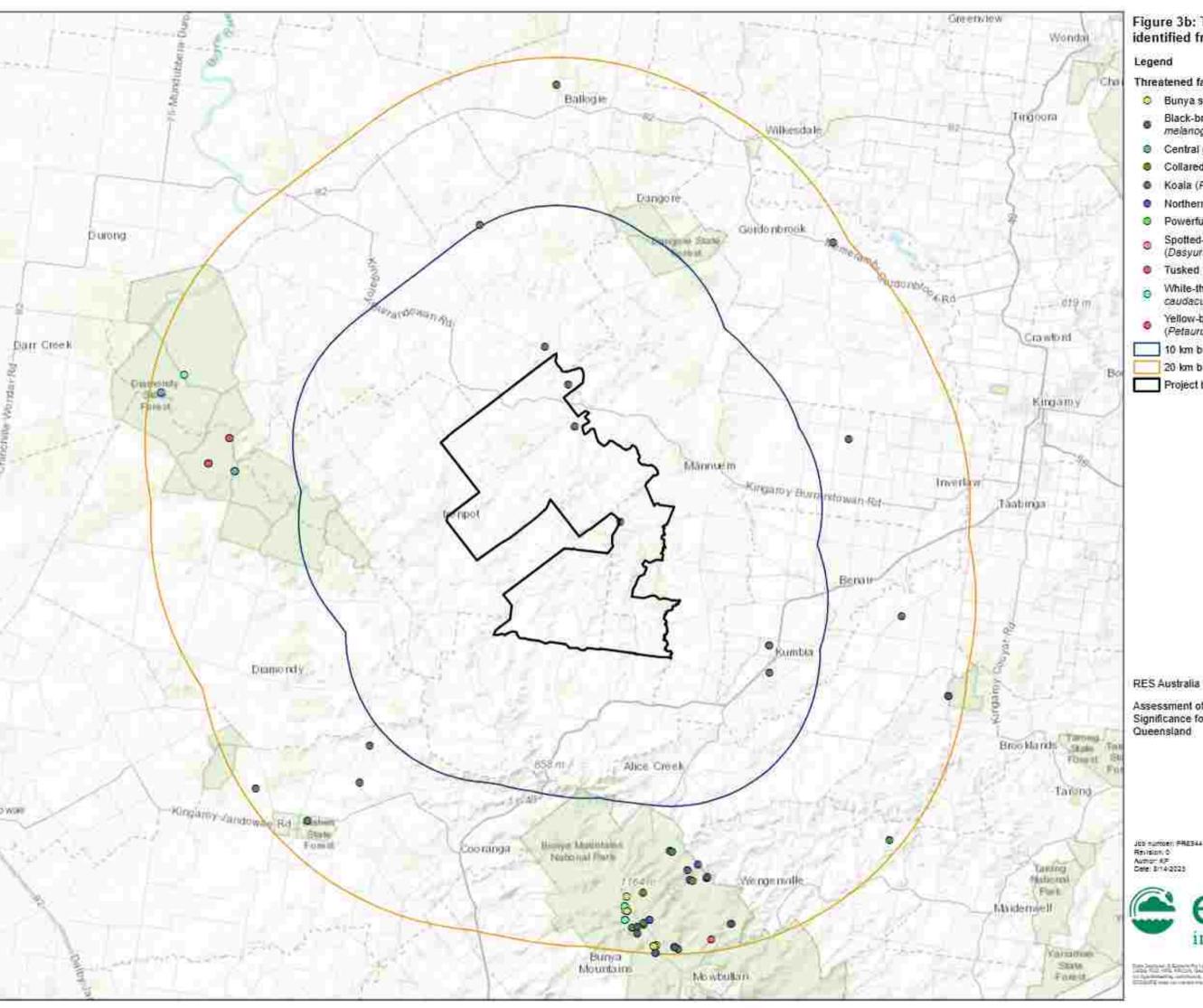


Figure 3b: Threatened fauna species records identified from Wildnet database

Threatened fauna species (1980 - 2022)

- Bunya sunskink (Lampropholis colossus)
- Black-breasted buffon-quail (Turnix melanogaster)
- Central greater glider (Petauroides armiliatus)
- Collared delma (Delma torquata)
- Koala (Phascolarctos cinereus)
- Northern quoli (Dasyurus hallucatus)
- Powerful pwl (Ninox strenus)
- Spotted-talled quall (southern subspecies) (Dasyurus maculatus maculatus)
- Tusked frog (Adeiotus brevis)
- White-throated needletail (Hirundapus caudacutus)
- Yellow-bellied glider (southern subspecies) (Petaurus australis australis)
- 10 km buffer
- 20 km buffer
- Project boundary

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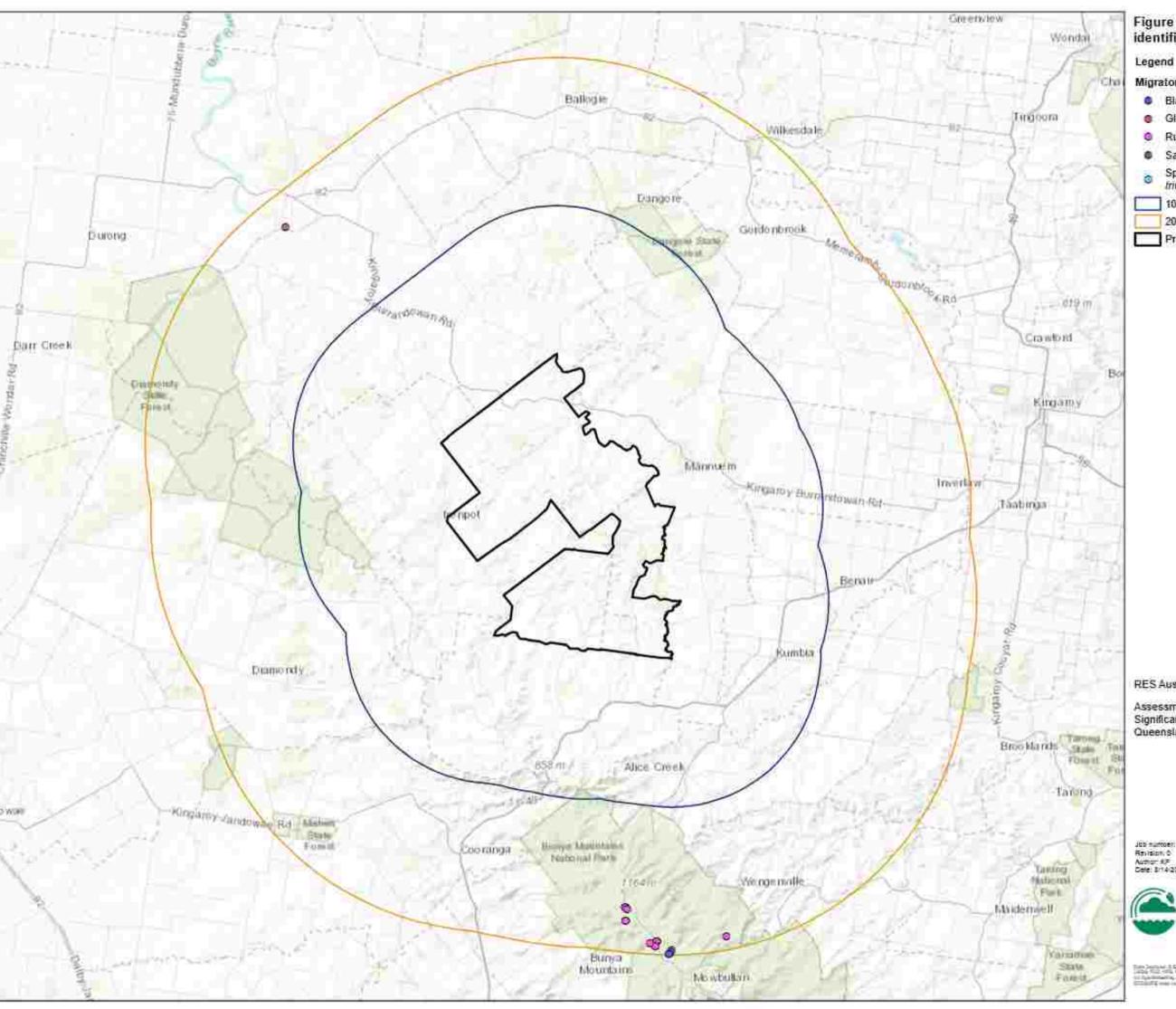


Figure 3c: Migratory species records identified from Wildnet database

Migratory fauna species (1980 - 2022)

- Black-faced monarch (Monarcha melanopsis)
- Glossy lois (Plegadis faicinellus)
- Rufous fantail (Rhipidura rufifrons)
- Satin flycatcher (Myriegra cyanoleuca)
- Speciacled monarch (Symposiachrus Invirgatus)
- 10 km buffer
- 20 km buffer
- Project boundary

RES Australia

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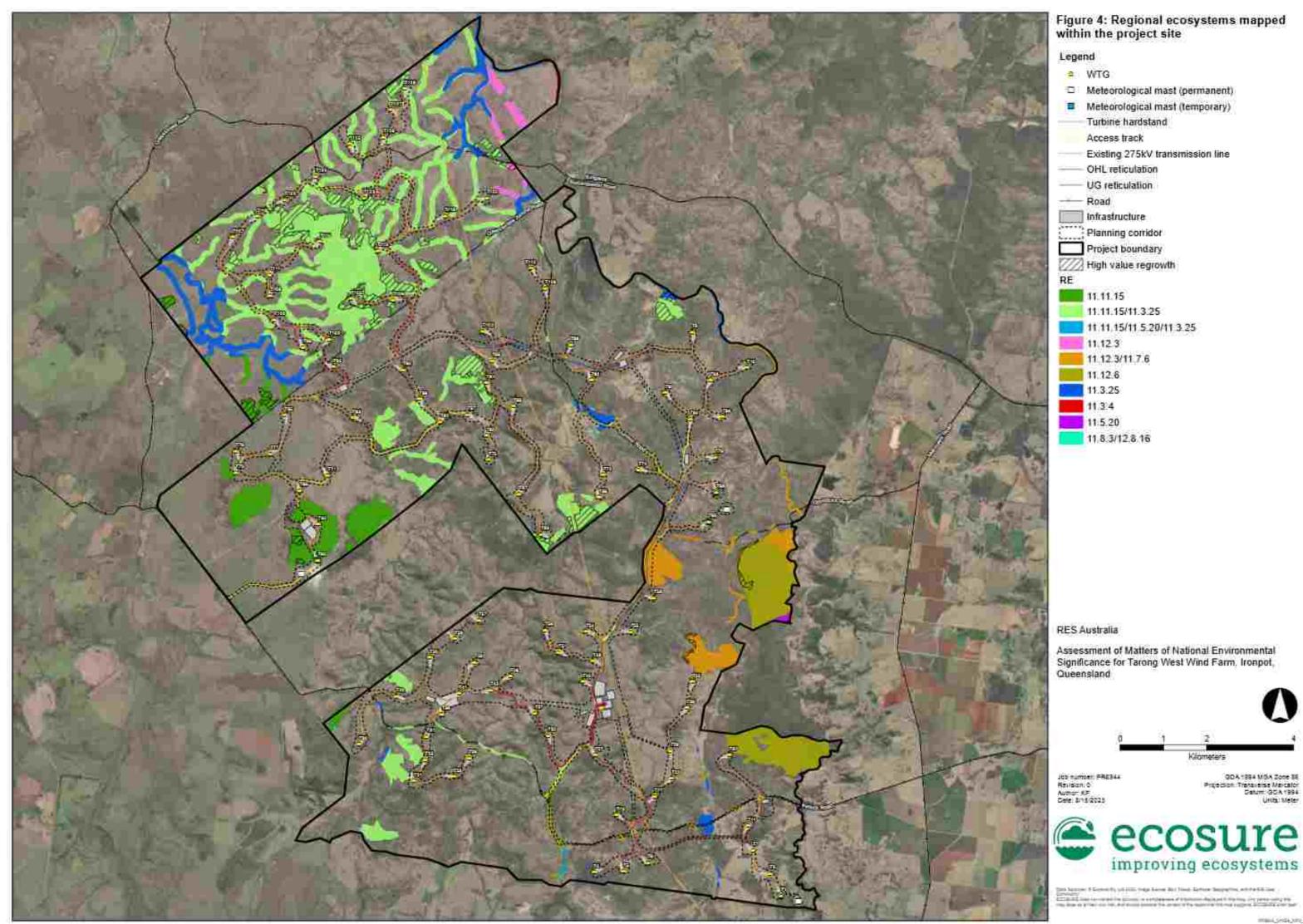
2.4 Mapped vegetation

The QLD regional ecosystem framework (QLD Herbarium 2021) is used in this report as the basis for vegetation mapping, and flora and fauna habitat modelling. REs mapped within the site are described in Table 4 and mapped in Figure 4. Mapped REs that form possible components of TECs are a small area of RE 11.8.3 (which corresponds to the semi evergreen vine thicket of the Brigalow Belt TEC). RE 11.8.3 is mapped as a mosaic community with RE 12.8.16 on Lot 29 on BO243 in the western edge of the site.

Table 4 REs mapped as occurring on the site

REcode	EPBC Act	Short description		
11.3.4		Eucalyptus tereticomis and/or Eucalyptus spp. woodland on alluvial plains.		
11.3.25	92	Queensland blue gum or river red gum E. camaldulensis woodland fringing drainage lines		
11.5.20	æ	Gum-topped box Eucalyptus moluccana and/or small-fruited grey gum E. microcarpa and/or E. woollstana +/- narrow-leaved ironbark E. crebra woodland on Cainozoic sand plains.		
11.7.6	NĒ.	Lemon-scented gum Corymbia citriodors or narrow-leaved ironbark woodland on Cainozoic lateritic duricrust		
11.8.3	TEC	Semi-evergreen vine thicket on Calinozoic igneous rocks		
11.11.15	92	Narrow-leaved ironbark woodland on deformed and metamorphosed sediments and interbedded volcanics		
11.12.3	i a	Narrow-leaved ironbark, Queensland blue gum, rusty gum Angophora leiocarpa woodland on igneous rocks especially granite		
11.12.6	:=	Lemon-scented gum open forest on igneous rocks (granite)		
12.8.16	iā.	Eucalyptus crebra +/- E melliodora, E tereticornis woodland on Cainozoic Igneous rocks		

^{*} EPBC Act Status: RE may be a TEC if it meets diagnostic criteria and condition thresholds for the TEC.





2.5 Likelihood of presence of EPBC Act listed species

Based on mapped REs, threatened flora species that were considered likely or possible within the site were:

- wandering peppercress (Lepidium peregrinum), listed as endangered under EPBC Act
- Austral comflower (Leuzea australis, previously Rhaponticum australe), listed as vulnerable under EPBC Act
- Austral toadflax (Thesium australe), listed as vulnerable under EPBC Act.

Based on mapped habitat, threatened fauna species that were considered likely to occur within the site were:

- koala (Phascolarctos cinereus), listed as endangered under EPBC Act
- greater glider southern and central (Petauroides volans), listed as endangered under EPBC Act
- white-throated needletail (Hirundapus caudacutus), listed as vulnerable under EPBC.
 Act
- black-breasted button-quail (Turnix melanogaster), listed as vulnerable under EPBC
 Act
- collared delma (Delma torquata), listed as vulnerable under EPBC Act
- glossy black-cockatoo (Calyptorhynchus lathami lathami), listed as vulnerable under the EPBC Act.

Threatened fauna species that were considered to possibly occur within the site were:

- spotted-tailed quoil (Dasyurus maculatus), listed as endangered under EPBC Act
- Corben's long-eared bat (Nyctophilus corbeni), listed as vulnerable under EPBC Act
- grey-headed flying fox (Pteropus poliocephalus), listed as vulnerable under EPBC
 Act.

Migratory fauna species that were considered likely or possible within the site were:

- rufous fantail (Rhipidura rufifrons)
- white-throated needletail, also listed as vulnerable under EPBC Act
- fork-tailed swift (Apus pacificus)
- oriental cuckoo (Cuculus optatus)
- black-faced monarch (Monarcha melanopsis)
- satin flycatcher (Mylagra cyanoleuca).



3 Field survey methods

Flora and fauna surveys were conducted over several survey periods and seasons from 2018 to 2023. Details of individual survey periods are presented in sections 3.1 Flora methods and 3.2 Fauna methods. Survey teams used GPS-enabled tablet devices running Fulcrum GIS software (accuracy to approximately 10 m) to navigate within the project site and locate survey sites. These devices were also used to record the majority of field data using customised data forms. Electronic data capture using standardised forms ensured that accurate location data were logged with each survey site, improved data accuracy and minimised the risk of transcription errors.

3.1 Flora methods

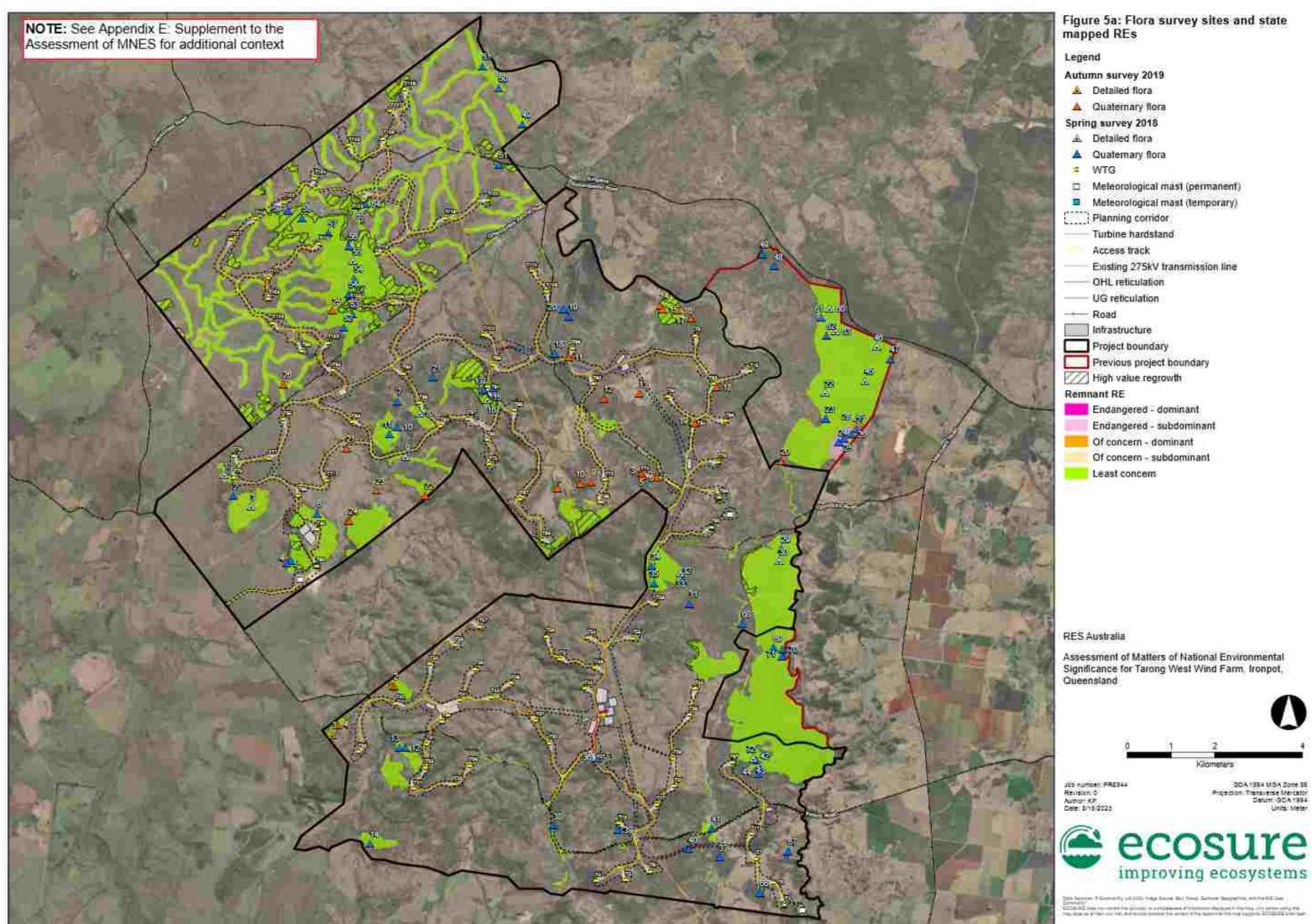
The assessment of flora values within the site comprised the following:

- identification and verification of vegetation communities within the site (19 detailed sites and 153 observational sites), including:
 - 119 sites in areas mapped as remnant and/or high value regrowth (HVR) REs
 - 53 sites in areas mapped as non-remnant
- identification and verification of TECs under the EPBC Act (19 detailed sites, including areas mapped as containing REs that can form components of TECs)
- rapid assessment of condition of vegetation communities
- targeted searches for threatened flora species (27 sites)
- assessment of habitat value for threatened flora species.

Flora survey sites are described in Appendix 3 and mapped in Figure 5.

One team of two ecologists conducted spring flora surveys over ten days from 23 October to 1 November 2018 and autumn surveys over four days from 2 to 5 April 2019. Incidental flora sightings were also recorded by fauna teams during the 2020, 2021 and 2022 fauna surveys (section 3.2).

Where important plant species could not be identified in the field (e.g. dominant and characteristic species), specimens were collected in a plant press for further analysis by Ecosure botanical staff or the Queensland Herbarium. Specimens of suspected threatened flora species were also sent to the Queensland Herbarium for confirmation and incorporation into the herbarium records.



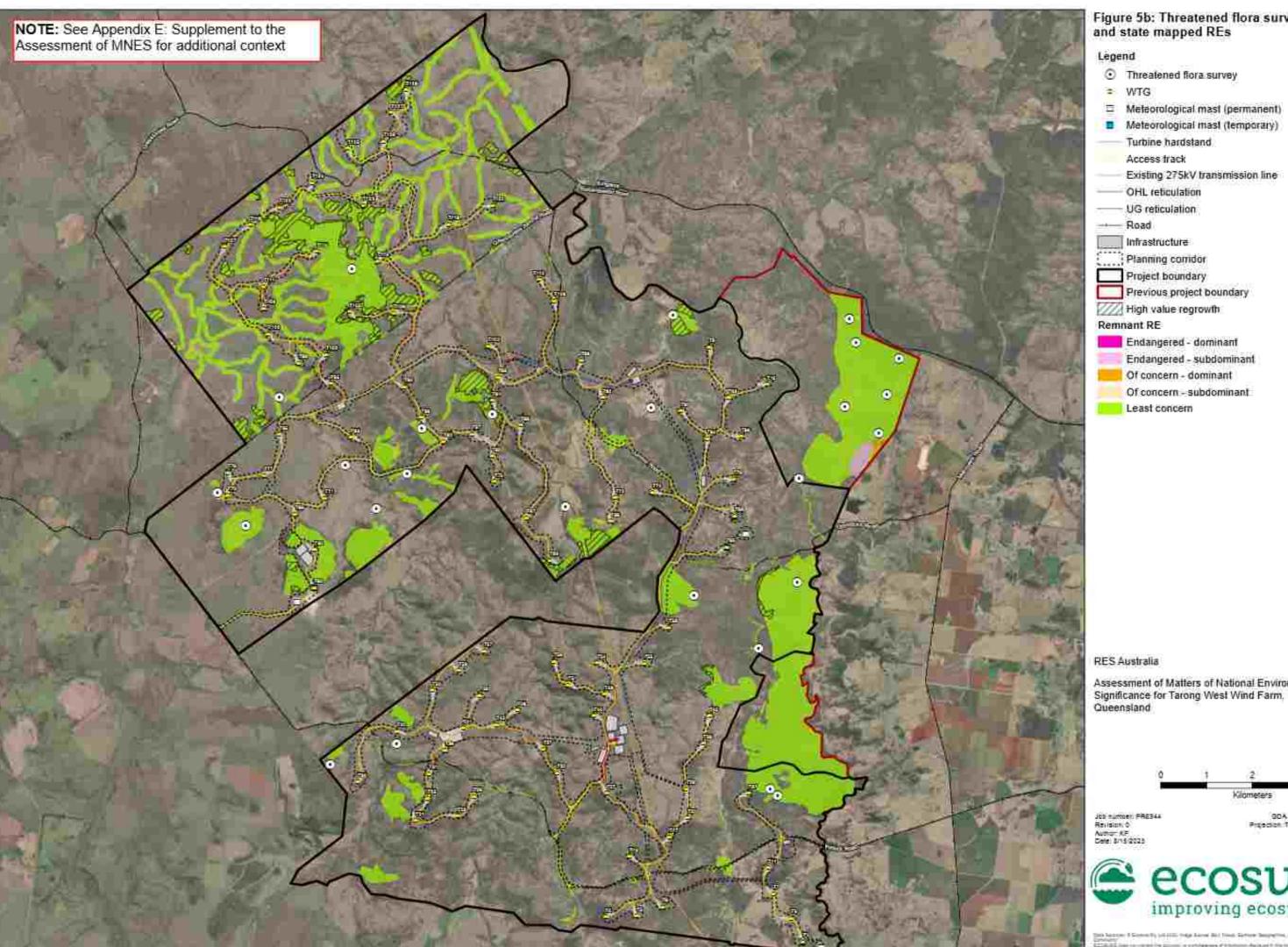
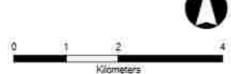


Figure 5b: Threatened flora survey sites and state mapped REs

Assessment of Matters of National Environmental Significance for Tarong West Wind Farm, Ironpot,



GDA 1984 MSA Zone SE Projection: Transverse Mercator Datum: GSA 1984





3.1.1 Threatened ecological communities

As detailed in section 2.3, the following TECs have the potential to occur within the project site due to the mapped presence of component REs within or adjacent to the project site:

- lowland rainforest of subtropical Australia possible as component RE 12.8.13 is mapped within 10 km of the project site
- semi-evergreen vine thickets (SEVT) of the Brigalow Belt (North and South) –
 possible as component RE 11.8.3 is mapped within the project site
- brigalow (Acacia harpophylla dominant and codominant) possible, as component REs are mapped within 10 km of the project site.

Targeted surveys for the presence of these TECs were conducted across the project site in areas of possible habitat to determine their likelihood of occurrence on the project site. The assessment of potential TECs followed the conservation advice statements prepared by the Threatened Species Scientific Committee (TSSC) for each TEC (DoE 2013b, DSEWPaC 2011a) and recovery plans (McDonaid 2010). The key diagnostic assessment criteria used to determine presence of each potential TEC on the project site is detailed below.

Key diagnostic criteria for the lowland rainforest TEC (DSEWPaC 2011a) are:

- Located in the SEQ bioregion.
 - a consistent with REs 12.3.1, 12.5.13, 12.8.3, 12.8.4, 12.8.13, 12.11.1, 12.11.10, 12.12.1 and 12.1.2.16
- Grows on soils derived from basalt or alluvium; or enriched rhyolitic soils, or basaltically enriched metasediments.
- Structure is typically a tall (20 m-30 m) closed forest, often with multiple canopy layers.
- Patches typically have high species richness (at least 30 woody species).
- Patches must also meet one of the three following condition threshold sets:

(a)	(b)	(c)
projective foliage cover of emergent	canopy / subcanopy (over 10 m tall)	over entire patch is ≥ 70% and
natural remnant evident by the persistence of mature residual trees from Appendix 8 of the listing advice and	some residual trees from Appendix B of the listing advice plus evidence of natural or active regeneration and	non-remnant patch that has recovered through natural or active regeneration and
0.1 ha or more in size and	1 ha or more in size and	2 ha or more in size and
entire patch contains ≥ 40 native woody species from Appendix A of the listing advice and	entire patch contains ≥ 30 native woody species from Appendix A of the listing advice and	entire patch contains ≥ 30 native woody species from Appendix A of the listing advice and
≥ 70% of vegetation is native	≥ 50% of vegetation is native	≥ 50% of vegetation is native

Key diagnostic criteria for the brigatow TEC (DoE 2013b) are:



- The patch is located in the Southeast Queensland, Brigalow Belt or Mulga Lands bioregions in Queensland, either in.
 - a. remnant REs 11.3.1, 11.4.3, 11.4.7, 11.4.8, 11.4.9, 11.4.10, 11.5.16, 11.9.1, 11.9.5, 11.9.6, 11.11.14, 11.12.21, 12.8.23, 12.9-10.6, 12.12.26 and 6.4.2 or
 - regrowth with species composition and structural elements broadly typical of one
 of the identified REs (although species density may be reduced). This can be
 assumed to be the case where it has been at least 15 years since it was last
 comprehensively cleared (not just thinned); unless direct evidence proves
 otherwise.
- Brigalow is either dominant in the tree layer, or co-dominant with other species (notably belah Casuarina cristata, other species of Acacia, or species of Eucalyptus).
- The patch must also meet the following condition thresholds:
 - a. the patch is 0.5 ha or more in size and
 - exotic perennial plants comprise less than 50% of the total vegetation cover of the patch, as assessed over a minimum sample area of 0.5 ha (100 m by 50 m), that is representative of the patch.

No key diagnostic criteria or condition thresholds are currently available for the SEVT TEC. Relevant community characteristics identified in the national recovery plan for SEVT (McDonald 2010) include:

- consistent with REs 11.2.3, 11.3.11, 11.4.1, 11.5.15, 11.8.3, 11.8.6, 11.8.13, 11.9.4, 11.9.8 and 11.11.18 within the Brigalow Belt Bioregion
- thickets with an uneven canopy 4 to 9 m tall and mixed evergreen, semi-evergreen and deciduous emergent tree species 9 to 18 m tall
- trees with microphyll sized leaves and vines prominent
- herbaceous ground layer usually sparse or absent
- occur in areas with a subtropical, seasonally dry climate on soils of high to medium fertility.

3.1.2 Regulated vegetation and REs

The assessment of regulated vegetation and REs followed Neldner et al. (2020) and the RE description database (Queensland Herbarium 2021). To determine the vegetation management status of identified REs, reference was made to the '50/70' rule as described in the Vegetation Management Act 1999 (VM Act) for remnant vegetation. Remnant vegetation means vegetation:

- that is an endangered RE, an of concern RE or a least concern RE and
- with the predominant canopy of the vegetation.
 - covering more than 50% of the undisturbed predominant canopy
 - averaging more than 70% of the vegetation's undisturbed height and



composed of species characteristic of the vegetation's undisturbed predominant canopy.

High value regrowth (HVR) under the VM Act is defined as vegetation in an area that has not been cleared for the previous 15 years and is an endangered RE, an of concern RE or a least concern RE

3.1.3 Vegetation surveys

Vegetation was surveyed across the site to provide a representative sample of the vegetation communities and to identify flora and fauna values present. Vegetation surveys during spring 2018 and autumn 2019 included 19 tertiary (detailed) sites and 153 quaternary (observational) sites (Figure 5, Appendix 3). Quaternary assessments recorded landform and dominant canopy species and were used primarily to ground-truth and record boundaries of REs as mapped by DNRME (2020a). Detailed (tertiary) assessments recorded additional floristic and structural information, including:

- structural characteristics of the vegetation (based on life forms, strata, approximate height and percentage cover)
- vegetation condition (integrity as either pristine, excellent, very good, good, average, degraded or completely degraded)
- presence of weed species
- presence and population characteristics of any threatened flora species
- dominant and common species in each structural component (stratum) of the vegetation
- landscape characteristics
- geology and soil characteristics, including erosion
- wetland characteristics (if present)
- notes on sensitivities to the possible impacts from the proposed activities
- identification of the RE based on site survey results.

3.1.4 Threatened plant survey

The desktop assessment identified three threatened flora species that were considered likely or possible within the site. A survey program which was designed to detect target species and to meet the requirements (if any) for NC Act and EPBC Act survey guidelines is described in Table 5. Due to the large size of the site, surveys for threatened flora species were prioritised and targeted to areas with potential habitat value. Areas of habitat value were identified from RE mapping data and verified in the field. Flora surveys were completed within 19 sites using the random meander method (Cropper 1993). This method requires that a botanist walks a random path within a suitable habitat area recording all species until the habitat has been thoroughly searched or no new flora species have been added to the list for 30 minutes.

Threatened plant surveys were also conducted at seven potential stream crossing sites. Both

NOTE: See Appendix E: Supplement to the Assessment of MNES, Section 2 for additional context



banks and the stream bed were searched for 100 to 200 m upstream and downstream of the proposed crossing sites. Appendix 3 and Figure 5 identify locations of threatened plant surveys

Table 5 Survey effort for threatened flora species potentially occurring within the project site

Name	Commonwealth survey guidelines / EPBC Act referral guidelines	Queensland survey guidelines	Effort and method carried out by Ecosure	Survey limitations
Lepidium peregrinum wandering peppercress	No survey or referral guidelines are available for this species.	N/A	Timed random meanders in suitable habitat (remnant and non- remnant riparian communities)	Most peppercress plants dead at firme of survey. However, occasional live plants allowed identification.
Leuzea australis (synanym Rhaponticum australe Austral comflower	No survey or referral guidelines are available for this species.	N/A	Timed random meanders in suitable habitat (woodlands on heavy clay soils).	None identified identifiable when flowering from autumn to spring
Theslum australe Austral toadflax	No survey or referral guidelines are available for this species.	N/A	Timed random meanders in suitable habitat (woodland in damp riparian areas).	None identified, identifiable year round.

3.1.5 Biosecurity matters

Introduced flora species were recorded during spring 2018 and autumn 2019 surveys, and incidentally throughout other surveys on site.



3.2 Fauna methods

The assessment of fauna values within the site comprised the following:

- Identification and verification of fauna habitats within the site based on RE mapping data and site assessment
- assessment of habitat value for threatened species including identifying critical elements for species usage such as koala feed tree species, hollow-bearing trees and micro-habitat features
- targeted searches and baited camera trapping for threatened fauna species
- ultrasonic detection using Anabat and Songmeter call recorders and harp trapping for microbats
- · call playback surveys for black breasted button quail, nocturnal birds and mammals
- bird utilisation surveys from 2018 to 2023 (Ecosure 2023)
- searches for glossy black-cockatoo and orts (chewed seed cones).

Fauna surveys included:

- 2018 spring survey completed by one team of two ecologists over 12 days from 29
 October to 9 November 2018
- 2019 autumn survey completed by two teams of two ecologists over 11 days from 25 March to 5 April 2019 (one team conducted general fauna surveys and the other team conducted fixed point count bird surveys for the bird utilisation survey)
- 2020 spring survey completed by two teams of two ecologists over six days from 23 November to 28 November 2020 (one team conducted general fauna surveys and the other team conducted fixed point count bird surveys for the bird utilisation survey)
- 2021 spring survey completed by one team of two ecologists over 13 days from 25 to 31 October and 1 November to 7 November (including general fauna surveys and fixed point count bird surveys)
- preconstruction bird and bat utilisation surveys (BBUS), consisting of fixed-point count bird surveys completed by one team of two ecologists:
 - 2022 summer (21 to 24 February and 17 to 18 March)
 - 2022 autumn (22 to 27 June)
 - 2022 winter (16 to 21 August)
 - 2022 spring (6 to 11 November)
 - 2023 summer (30 January to 4 February).

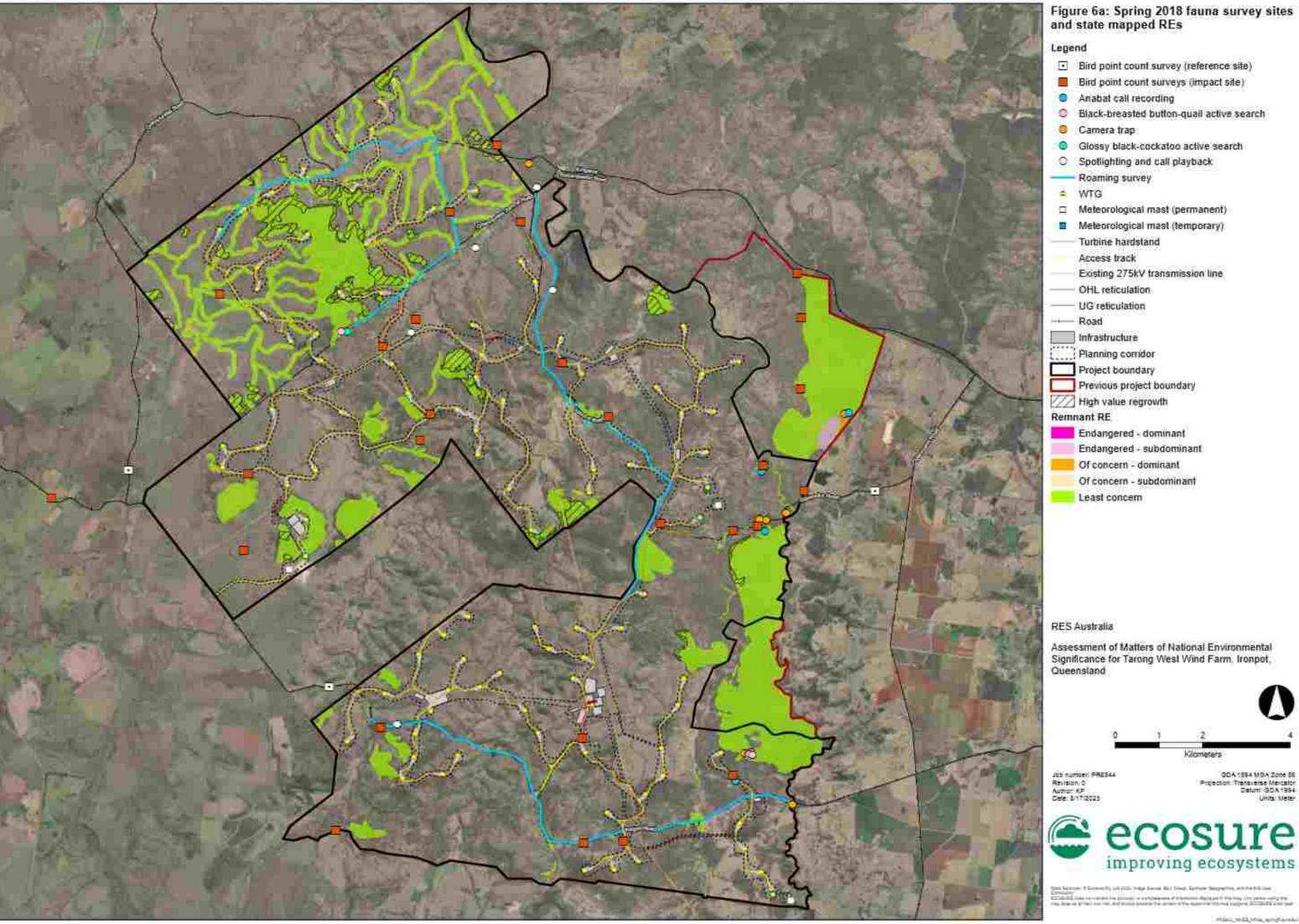
Survey methods, the number of surveys and the overall effort completed are shown in Table 6 and mapped in Figure 6.

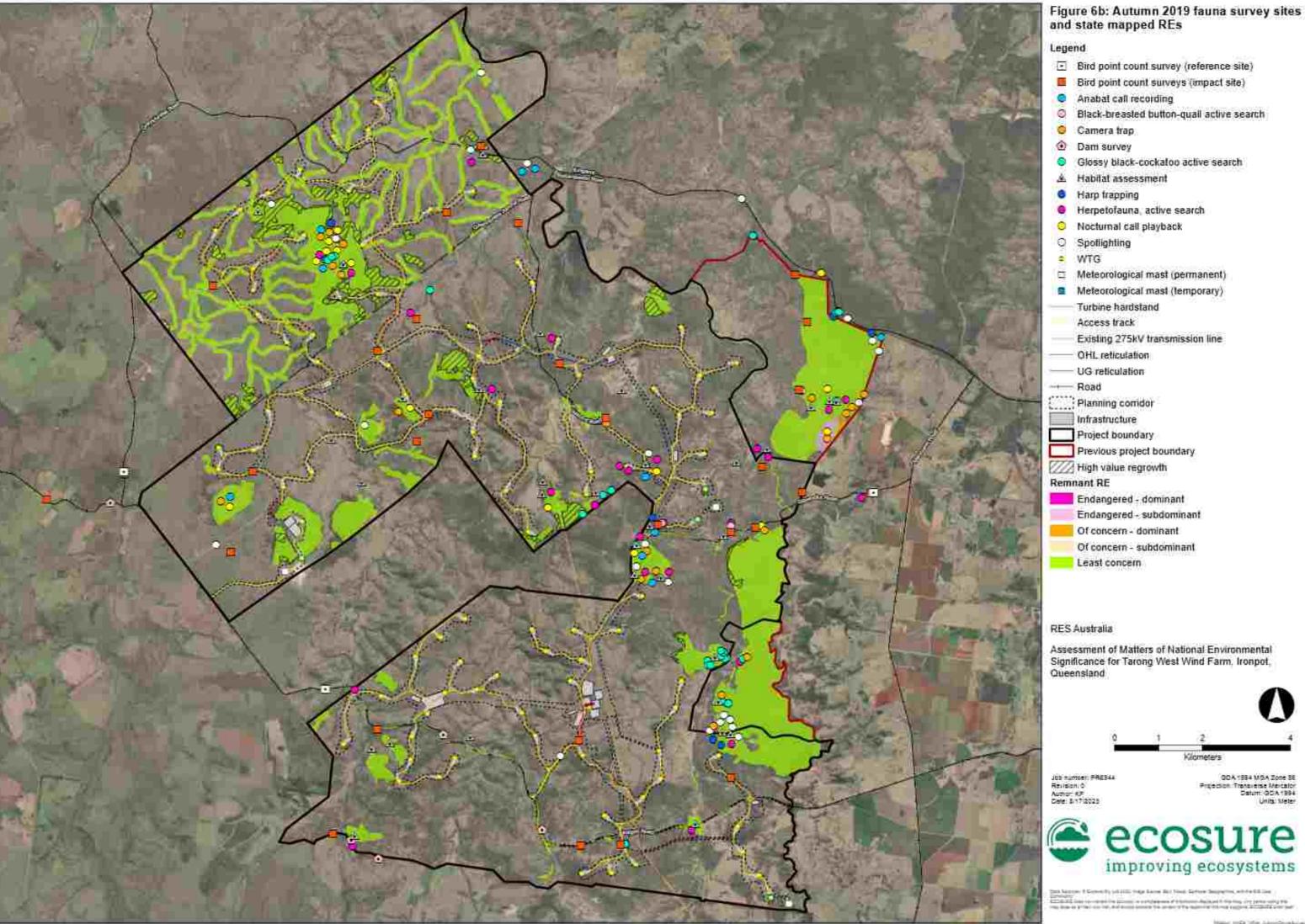
NOTE: See Appendix E. Supplement to the Assessment of MNES, Section 2 for additional context

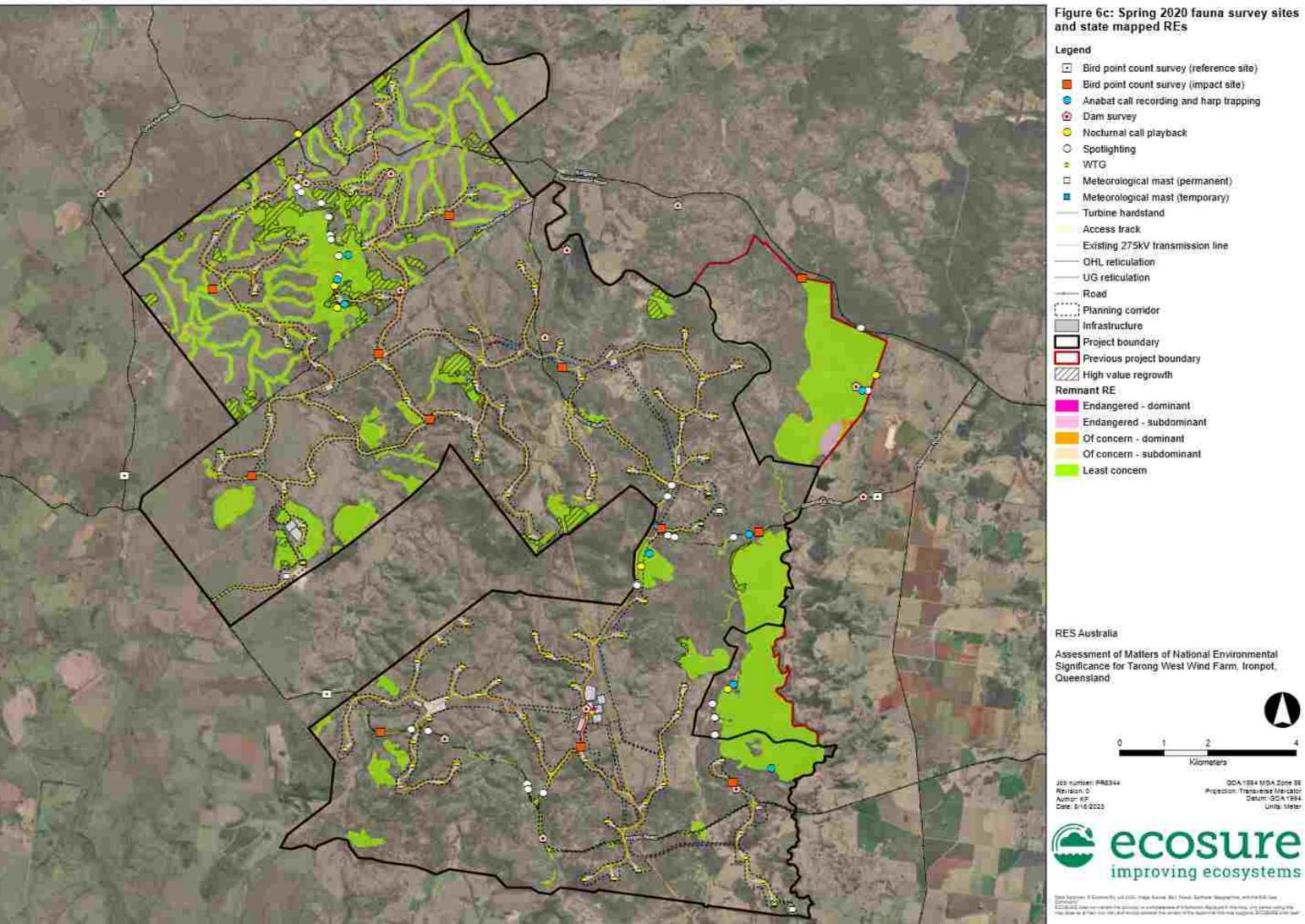


Table 6 Fauna survey methods and effort employed during field surveys

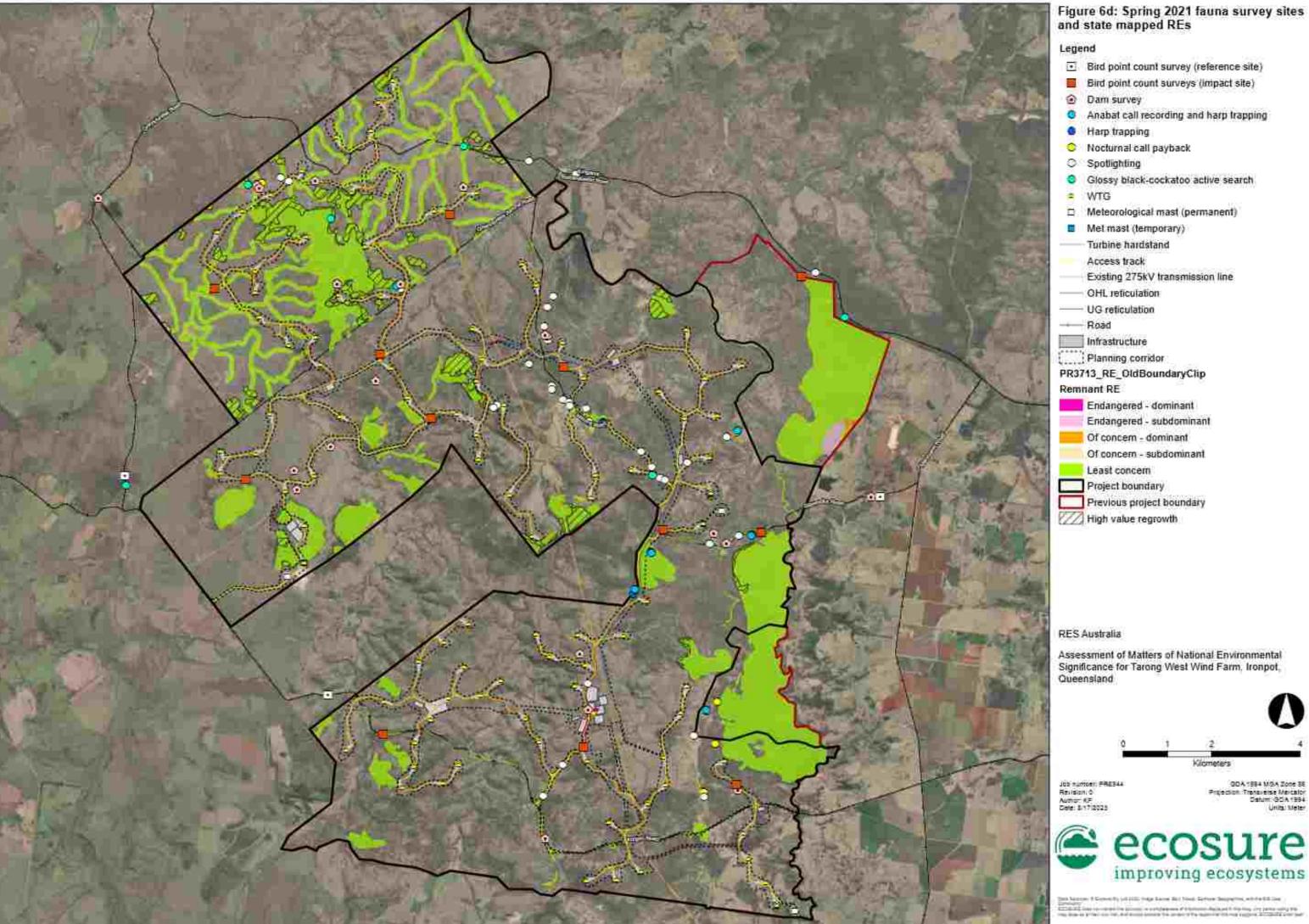
	Spi	ing 2018	Aut	umn 2019	Spi	ring 2020	Sp	ring 2021	Sun	nmer 2022	Aut	umn 2022	Wi	nter 2022	Spr	ing 2022	Sun	mer 2023	ĺ	Total
Survey method	No.	Survey effort	No. sites	Survey effort	No. sites	Survey effort	No.	Survey	No. nites	Survey	No. sites	Survey	No. sites	Survey	No. aites	Survey effort	No. sites	Survey	No.	Survey effort
Habitat assessment	30	8 hrs x 2 personnel	34	17 hrs x 2 personnel		£		(2)		3		¥		(37)		8		25	64	25 hrs x 2 personnel
Nocturnal spotlighting		28	23	34.5 hrs over 9 nights x 2 personnel	18	24 hrs over 6 nights x 2 personnel	41	24 hrs over 6 nights x 2 personnel	10	12 hrs over 6 nights x 2 personnel		ē		30		Đ))		Ħ	92	94.5 hrs over 27 nights x 2 personnel
Microbat call recording	6	48 detection nights	9	27 detection nights	6	12 detection nights	8	15 defection nights		÷		==		590				6	29	102 detection nights
Microbat harp trapping		~	ğ	18 trap nights x 4 traps	9	18 trap nights x 4 traps	8	15 trap nights x 4 traps		2		캎		933		=		E	26	51 trap nights x 4 traps
Remote camera trapping for quoli	10	80 trap nights	20	88 trap nights		2		20		2		20		20				11	30	168 trap nights
Black-breasted button-quail call playback	2	8	15	1.25 hrs		2		3		5		8		:90		8		8	15	1,25 hrs
Black-breasted button-quail active searches	3	1.75 hrs x 2 personnel	4	2 hrs x 2 personnel				:#:		÷		=		2 0		8		E	u	3.75 hrs x 2 personnel
Collared delma active searches	30	5 hrs x 2 personnel	39	8 hrs x 2 personnel		<u> </u>		.#F		Ę		ā		(Z)		2		5/	69	13 hrs x 2 personnel
Koala call playback		5.52	15	1.25 hrs				37.2		±				253		*		B	15	1.25 hrs
Koala surveys (including SAT)	20	10 hrs x 2 personnel	19	9.5 hrs x 2 personnel		¥		(#S		2		¥		äň		0		E .	39	19.5 hrs x 2 personnel
Fixed point count bird surveys	30:	30 hrs x 2 personnel	30	45 hrs x 2 personnel	15	22.5 hrs x 2 personnel	15:	22.5 hrs x 2 personnel	115	22.5 hrs x 2 personnel	15	22.5 hrs x 2 personnel	159	22.5 hrs x 2 personnel	:15	22.5 hrs x 2 personnel	15	22.5 hrs x 2 personnel	185	232 5 hrs x 2 personnel
Roaming surveys	3	6.75 hrs x 2 personnel	ŝ	÷.		æ		. €€		÷		£		300		8		8	3	6.75 hrs x 2 personnel
Dam waterbird searches	3	5#2	6	3 hrs x 2 personnel	13	3.25 hrs x 2 personnel	20	4.75 hrs x 2 personnel	11	2 hrs x 2 personnel		53		95		=		E	50	13 hrs x 2 personnel
glossy black- cockatoo active searches	ŧ	1.5 hrs x 2 personnel	34	11.5 hrs x 2 personnel	8	2 hrs x 2 personnel-	7	1.75 hrs x 2 personnel	2	0.5 hrs x 2 personnel		=		30				E	51	17.25 hrs x 2 personnel



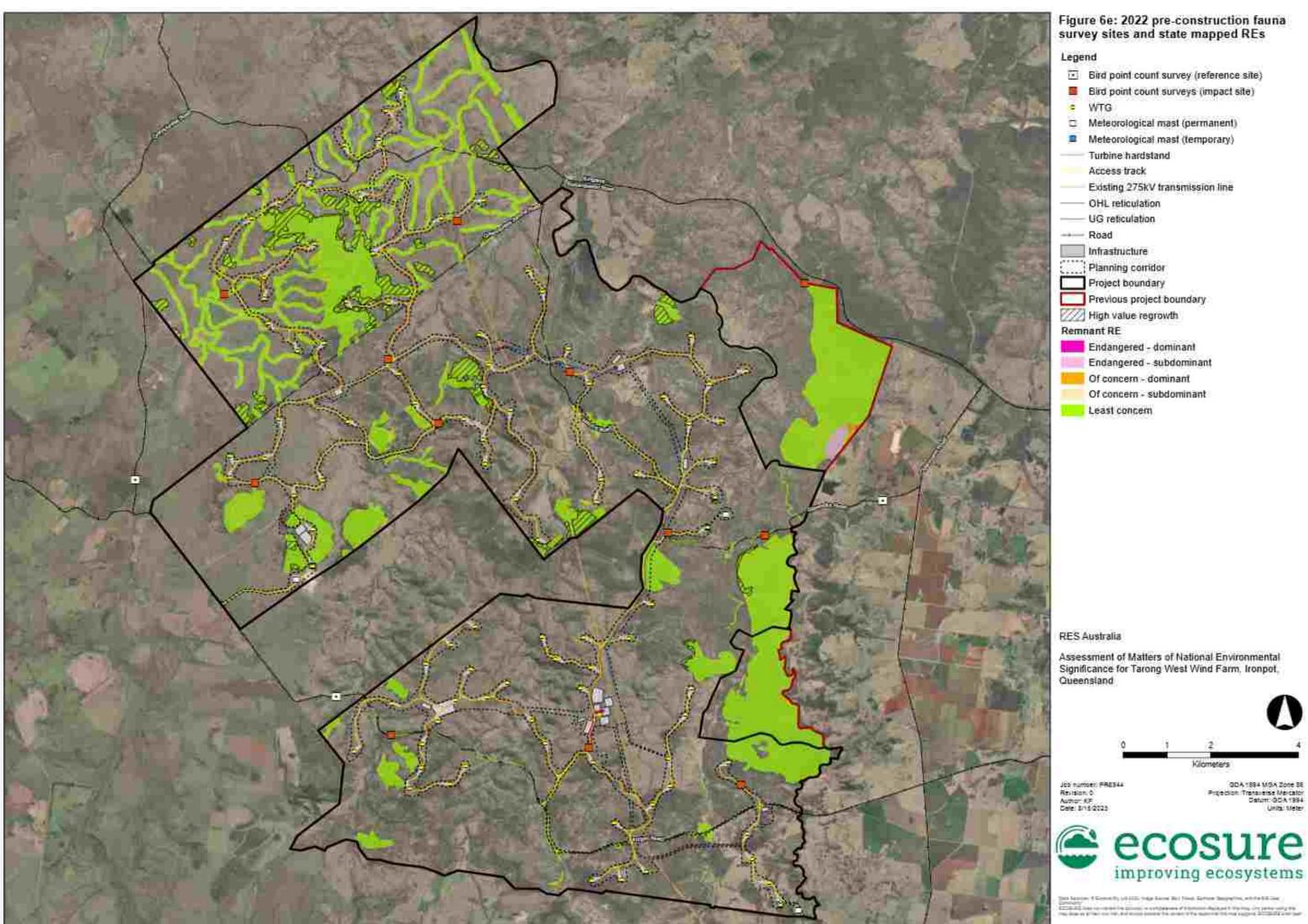




CHECKET SHAPE



CHECKER STREET



arCHROPACED waking



3.2.1 Fauna habitat assessment

The habitat assessment included searches for

- rocks and rocky outcrops, exfoliating rocks and rocks with crevices
- trees and logs with hollows, presence of senescent (old) or dead trees (stags) and trees or logs with peeling bark or loose bark (abundant)
- estimate of habitat condition, based on visual assessment.
- vegetation cover: canopy, shrub, ground cover and leaf litter
- habitat features / food resources e.g. termite mounds, mistletoe (abundance), flowering trees
- presence of standing water or ephemeral waterways including wetland, riverine and groundwater springs (presence / absence)
- presence of scats, tracks and other traces of fauna utilisation
- 10 minutes of active searching in leaf litter, rocks and logs for targeted fauna species (e.g. collared delma).

These assessments allowed a broad fauna habitat map to be prepared for the site and assisted in determining which species listed under state and federal legislation are likely to be inhabiting the site.

Fauna habitat was assessed at 30 sites across the project site during the spring 2018 survey and 34 sites during the autumn 2019 survey period. Opportunistic fauna sightings were also recorded.

3.2.2 Threatened fauna survey

Several threatened fauna species have been recorded within 10 km of the project site and/or were considered likely or possible to occur based on mapped habitat within the site (Appendix 1), including:

- koala, listed as endangered under EPBC Act
- greater glider southern and central, listed as endangered under EPBC Act
- white-throated needletail, listed as vulnerable under EPBC Act
- black-breasted button-quail, listed as vulnerable under EPBC Act
- collared delma, listed as vulnerable under EPBC Act
- spotted-tailed quoli, listed as vulnerable under NC Act and endangered under EPBC Act
- Corben's long-eared bat, listed at vulnerable under EPBC Act
- grey-headed flying-fox, listed as vulnerable under EPBC Act
- glossy back-cockatoo, listed as vulnerable under the EPBC Act.

A survey program which was designed to detect target species and to meet the minimum



requirements for NC Act and EPBC Act survey guidelines is described in Table 7. Where it was not possible to meet the survey guideline requirements for a particular targeted species, this is stated in further detail in Table 7. Total survey effort for the spring 2018, autumn 2019, spring 2020, and spring 2021 surveys included:

- searches for koala scats based on koala spot assessment technique (SAT)
- camera trapping for quolis
- spotlighting for nocturnal fauna, including koala, greater glider and grey-headed flying-fox
- call playback for black-breasted button-quall
- black-breasted button-quail active searches for platelets
- searches for glossy black-cockatoo and orts (chewed seed cones)
- bird utilisation survey, targeting raptors, wetland birds, migratory birds and threatened species at up to 30 point count locations
- bat survey using call detection devices (e.g. Anabat, Songmeter) for microbats
- harp trapping used to capture and detect microbats, targeting Corben's long-eared bat
- active herpetofauna searches for collared delma and other reptiles/amphibians.

Surveys in 2022 (summer, autumn, winter, and spring) and 2023 (summer) focused on bird and bat utilisation, and included:

- bird utilisation survey, targeting raptors, wetland birds, migratory birds and threatened species at 30 point count locations
- searches for megabat camps and megabat foraging
- opportunistic sightings of any fauna of interest.

Targeted searches for koala (SAT surveys) were conducted during the 2018 and 2019 survey periods, and incidental observations were recorded throughout all surveys periods (2018 – 2023). The SAT for surveying koalas was developed by Phillips and Callaghan (2011). It involves locating and marking a central tree where either a scat has been found, a koala has been observed or a tree that is known or considered to be important for a koala is identified. Once a central tree has been established, 29 trees nearest to the central tree are uniquely marked and searches for koala scats are performed within a 1 m radius of each of the 30 trees (29 trees and the central tree). All trees should be at least 10 cm diameter at breast height (DBH). SAT surveys can estimate koala presence and activity levels (i.e. proportion of trees with koala scats).

The rapid SAT technique restricts searches to preferred koala food trees with a DBH greater than 30 cm DBH. Searches are continued until scats are found or a total of seven trees are surveyed (Biolink 2019). This method is suitable for assessment of koala presence across larger areas but cannot determine activity levels (Youngentob et al. 2021).



3.2.3 Migratory fauna survey

Migratory fauna species that are or were considered likely or possible to occur based on mapped habitat within the site include:

- rufous fantail
- white-throated needletail, also listed as vulnerable under EPBC Act.
- fork-tailed swift
- oriental cuckoo
- black-faced monarch
- satin flycatcher.

A survey program which was designed to detect target species and to meet the minimum requirements for NC Act and EPBC Act survey guidelines is described in Table 7. Where it was not possible to meet the survey guideline requirements for a particular targeted species, this is stated in further detail in Table 7. Total survey effort for migratory species included:

- bird utilisation survey at up to 30 fixed point count survey locations
- roaming surveys
- opportunistic sightings during habitat assessments and while travelling within the site across all survey types over six years
- targeted dam and watering point surveys.

3.2.4 Level one avian risk investigation

Ecosure prepared a draft BBUS report for the project site incorporating a level one avian risk assessment concurrently with the ecological assessment. Methods and results of the BBUS are documented in detail in a separate BBUS report (Ecosure 2023).

3.2.5 Quarterly BBUS

Quarterly preconstruction bird and mega bat surveys were designed to detect target species and to meet the minimum requirements for NC Act and EPBC Act survey guidelines described in Table 7. Quarterly BBUS monitoring commenced in summer 2022. Total survey effort for bird and mega bat species during these preconstruction surveys included:

- bird utilisation survey at 15 fixed point count survey locations
- roaming spotlighting surveys
- opportunistic sightings while travelling within the site and at dams and watering points
- opportunistic fauna sightings.

The targeted bird utilisation fixed point count surveys were reduced from 30 locations during the initial surveys in 2018 and 2019 to 15 survey locations for seasonal surveys from spring NOTE: See Appendix E: Supplement to the Assessment of MNES, Section 2 for additional context



2020 onwards. Sites were surveyed morning, noon, and evening at each location for 30 minutes. The reduction in survey locations allowed the sites to be efficiently and effectively surveyed each season while adequately surveying the entirety of the project site.



Table 7 Survey effort for threatened and migratory fauna species potentially occurring within the project site

Name	Commonwealth survey guidelines / EPBC Act referral guidelines	Queensland survey guidelines	Effort and method carried out by Ecosure	Survey results and limitations
Threatened birds				
Hirundapus caudacutus white-throated needletail (also migratory)	Counts of birds to be conducted by an experienced observer from elevated viewpoints (if present) during summer (DoE 2015). Observations should be made of birds coming into roost in tall trees and along ridge tops, but only if roost sites are known (DoE 2015). For sites where there is a collision risk with wind turbines; more targeted surveys should include timed area counts and collision risk modelling (DoE 2015).	No species-specific guidelines.	Spring 2018: Survey for 30 hrs by 2 experienced personnel, using fixed point bird count techniques. Roaming surveys for 6.75 hrs by 2 personnel. Total 73.5 person hrs. Autumn 2019: Survey for 45 hrs by 2 experienced personnel using fixed point bird count techniques. Total 90 person hrs. Spring 2020: Survey for 22.5 hrs by 2 experienced personnel using fixed point bird count techniques. Total 45 person hrs. Spring 2021: Survey for 22.5 hrs by 2 experienced personnel using fixed point bird count techniques. Total 45 person hrs. Summer 2022: Survey for 22.5 hrs by 2 experienced personnel using fixed point bird count techniques. Total 45 person hrs. Autumn 2022: Survey for 22.5 hrs by 2 experienced personnel using fixed point bird count techniques. Total 45 person hrs. Winter 2022: Survey for 22.5 hrs by 2 experienced personnel using fixed point bird count techniques. Total 45 person hrs. Spring 2022: Survey for 22.5 hrs by 2 experienced personnel using fixed point bird count techniques. Total 45 person hrs. Spring 2022: Survey for 22.5 hrs by 2 experienced personnel using fixed point bird count techniques. Total 45 person hrs. Summer 2023: Survey for 22.5 hrs by 2 experienced personnel using fixed point bird count techniques. Total 45 person hrs. Summer 2023: Survey for 22.5 hrs by 2 experienced personnel using fixed point bird count techniques. Total 45 person hrs. Summer 2023: Survey for 22.5 hrs by 2 experienced personnel using fixed point bird count techniques. Total 45 person hrs. Summer 2023: Survey for 22.5 hrs by 2 experienced personnel using fixed point bird count techniques. Total 45 person hrs.	No survey limitations identified. Methods suitable to detect species flying over site. Fixed point count bird surveys performed to collect information about flight behaviours and collision risk. No roost sites were observed in the project site.
Turnix melanogaster	Land based transect search (15 hrs / 3 days) in areas of less than 50 ha for suitable habitat,	No species-specific guideline but searches for platelets (areas of scratching) and call playback are	Spring 2018: Survey for 1.75 hrs by 2 personnel, searching for birds and platetets in suitable habitat. Survey completed within known	Only 8.75 hrs of targeted surveys for black-breasted button quall were



Name	Commonwealth survey guidelines / EPBC Act referral guidelines	Queensland survey guidelines	Effort and method carried out by Ecosure	Survey results and limitations
black-breasted button-quall	flushing birds, plafelets and sounds of foraging. (DEWHA 2010a). No evidence of seasonal movement (Marchant & Higgins 1993). Breeding season occurs from September to February/March (Hughes & Hughes 1991, Smyth & Young 1996). There are no referral guidelines for this species.	effective survey methods	breeding season. Total 3.5 person hrs. Autumn 2019: 4 active habitat searches were conducted in SEVT patches for platelet sign by 2 personnel over 2 hrs. 15 call playback surveys were conducted by 2 personnel for 5 mins per site for total of 1.25 hrs. Total 5.25 person hrs. Total survey effort = 8.75 person hrs.	completed when 15 hrs / 3 days is recommended. However, due to the small area of potential habitat available within the project site for this species (0.63 ha, refer to section 6.3.3 and Figure 8), and the complete avoidance of this area in the planning corridor, it is considered that a reasonable survey effort for this species has been achieved.
Calyptorhynchus lathami lathami glossy black- cockatoo	This species is not in the Commonwealth survey guidelines for threatened birds There are no referral guidelines for this species.	Diurnal bird survey involving a land based transect search through areas characteristic of she-oak Allocasuarins and Casuarins trees, with presence of suitable water bodies for drinking and also large hollow bearing eucalypts, used by this species during their breeding season. Targeted search for foraging and nesting signs. The colour of the chewed she-oak cone can determine how recent/old the feeding activity was. Sound detection of feeding e.g. the clicking sound of the bird's mandible can be heard and cones/branches failing to the ground (Hourigan 2012). Proposed effort is 20-person hrsover 4 days. Calls are also made from begging young (Cameron 2006) The birds are most active in the first	Spring 2018: Active searches for habitat sign were conducted by two personnel over 1.5 hrs. Survey for 30 hrs by 2 experienced personnel, using fixed point bird count techniques. Roaming surveys for 6.75 hrs by 2 personnel. Total 76.5 person hrs. Autumn 2019: 34 patches of vegetation containing she-oak were searched for orts by two personnel over 11.5 hrs. Survey for 45 hrs. by 2 experienced personnel using fixed point bird count techniques. Total 113 person hrs. Spring 2020: 8 patches of vegetation containing she-oak were searched for orts by two personnel over 2 hrs. Survey for 22.5 hrs by 2 experienced personnel using fixed point bird count techniques. Total 49 person hrs. Spring 2021: 7 patches of vegetation containing she-oak were searched for orts by two personnel over 1.75 hrs. 2 adults birds observed incidentally. Survey for 22.5 hrs by 2 experienced personnel using fixed point bird count techniques. Total 48.5 person hrs. Summer 2022: 2 patches of vegetation containing she-oak were searched for orts by	Methods employed were sufficient to confirm the presence of glossy black-cockatoo at the site



Name	Commonwealth survey guidelines / EPBC Act referral guidelines	Queensland survey guidelines	Effort and method carried out by Ecosure	Survey results and limitations
		and last two hours of daylight and although their calls are infrequent, they are most likely to be heard at these times. Peak breeding season occurs from March to August in SEQ (Glossy Black Conservancy 2010).	two personnel over 0.5 hrs. Survey for 22.5 hrs by 2 experienced personnel using fixed point bird count techniques. Total 46 person hrs. Autumn 2022: Survey for 22.5 hrs by 2 experienced personnel using fixed point bird count techniques. Total 45 person hrs. Winter 2022: Survey for 22.5 hrs by 2 experienced personnel using fixed point bird count techniques. Total 45 person hrs. Spring 2022: Survey for 22.5 hrs by 2 experienced personnel using fixed point bird count techniques. Total 45 person hrs. Summer 2023: Survey for 22.5 hrs by 2 experienced personnel using fixed point bird count techniques. Total 45 person hrs. Total survey effort = 513 hrs.	
Threatened mammais				
Dasyurus maculatus maculatus (SE mainland population) spot-tailed quoll, spotted-tail quoll, tiger quoll	Sampling units of 100 ha recommended due to wide range of species. Daytime search for suitable habitat, signs of activity, community consultation, latrine sites. Use of survey equipment such as hair sample device, camera traps Cage trapping not required if prior methods used (DSEWPaC 2011b). Mating occurs late May to early August through to September, males may be detected in areas where they usually do not occur. There are no referral guidelines for this species.	No species-specific guidelines	Spring 2018: Baited remote camera trapping at 10 sites within suitable habitals for a total of 80 trapping nights. Habital assessment surveys at 30 sites for 8 hrs by 2 personnel. Total 80 trap nights and 16 person hrs. Autumn 2019: Baited remote camera sites at 20 survey locations for a total of 88 trapping nights. Habital assessment surveys at 34 sites for 17 hrs by 2 personnel. Total 88 trap nights and 34 person hrs. Total survey effort = 168 camera trap nights and 50 person hrs.	The increased metabolic demands and use of latrine sites during the breeding season (May to August) makes quoils more active and easier to detect during the breeding season. The spring and autumn surveys were completed outside the optimal survey period so may have resulted in a failure to detect the species. However, habitat surveys confirmed that limited suitable habitat is present so species is unlikely to



Name	Commonwealth survey guidelines / EPBC Act referral guidelines	Queensland survey guidelines	Effort and method carried out by Ecosure	Survey results and limitations
				occur within the site
Phascolarcios cinereus koala	This species is not in the Commonwealth mammal survey guideline (DSEWPaC 2011b) Habitat assessment - Koala habitat assessment tool (DoE 2014a). Strip transects (DoE 2014a). Nocturnal spotlighting (DoE 2014a). SAT developed by Phillips and Callaghan (2011). Grid search over a study site. The size of the grid can vary depending on predicted koala density and habitat. Searching for scats (within a 1 m radius) of the base of 30 trees (with DBH greater than 10 cm) at each grid site (DoE 2014a).	Survey requirements are: SAT developed by Phillips and Callaghan (2011). Methodology for completing a rapid SAT is described in Section 4.2.2.	Spring 2018: Koala rapid SATs were prioritised in RE 11.3.25 patches and secondary effort directed towards other habitats on low fertility soils. Survey effort of 10 hrs by 2 personnel. Habitat assessment surveys at 30 sites for 8 hrs by 2 personnel. Total 36 person hrs. Autumn 2019: Additional Koala rapid SATs were conducted in suitable habitat. 19 surveys were completed by 2 personnel over 9.5 hrs. 23 nocturnal spotlight surveys were completed by 2 personnel over 9 nights and 34.5 hrs. Habitat assessment surveys at 34 sites for 17 hrs by 2 personnel. Total 122 person hrs. Spring 2020: 24 hrs nocturnal spotlight surveys over 6 nights by 2 personnel. Total 48 person hrs. Spring 2021: 24 hrs nocturnal spotlight surveys over 6 nights by 2 personnel. Total 48 person hrs. Summer 2022: 12 hrs over 6 nights by 2 personnel. Total 24 person hrs. Summer 2022: 12 hrs over 6 nights by 2 personnel. Total 24 person hrs. Incidental observations during all field survey periods over six years. Total survey effort = 278 hrs.	Methods employed were sufficient to detect koalas (across seasons), demonstrating that koalas occupy and use the site
Nyctophilus corbeni Corben's long-eared bat	Survey techniques include harp traps and mist nets. Surveys most successful during warmer nights from October to April. For large scale projects traps and nets should be distributed across landscape to provide a good representation of habitat types. Equipment should be situated in open fly-ways and within cluttered.	No species-specific guidelines	Spring 2018: Bat recording devices at 6 focations for 48 detection nights: Autumn 2019: Harp trapping at 9 locations for 18 total trapping nights using 4 traps each night. Bat recording devices at 9 locations for a total of 27 detection nights. Spring 2020: Harp trapping at 9 locations for 18 total trapping nights using 4 traps each night. Bat recording devices at 6 locations for a total of 12 detection nights. Spring 2021: Harp trapping at 8 locations for 15	No harp trapping occurred in spring 2018. Heavy rain over 2 nights in autumn 2019 reduced the number of successful harp trapping nights from the recommended 20 nights to 18 nights. A further 18 trapping nights in spring 2020 and 15 in spring 2021



Name	Commonwealth survey guidelines / EPBC Act referral guidelines	Queensland survey guidelines	Effort and method carried out by Ecosure	Survey results and limitations
	vegetation. Project areas of <50 ha it is recommended that a minimum of 5 surveying nights. A total effort of 20 trap nights when harp trapping and 20 mist-net nights is recommended. However, trapping effort may need to be altered depending on survey locations (DEWHA 2010b). Call recording devices can identify the genus but cannot reliably distinguish between Nycrophilus species. DEWHA (2010b) does not provide recommended survey effort for call recording. There are no referral guidelines for this species.		total trapping nights using 4 traps each night. Bat recording devices at 8 localions for a total of 15 defection nights. Total survey effort = 102 nights of call recording and 204 harp trapping nights.	increased total effort to 51 harp trapping nights using 4 harp traps giving a total of 204 single harp trap nights across 26 locations. Effort sufficient to detect least concern Nyctophilus species (N. geoffroyi) during harp trapping.
Pteropus poliocephalus grey-headed flying- fox	Daytime field surveys for camps (DEWHA 2010b). Surveys of vegetation communities and food plants (DEWHA 2010b). Night time surveys walking transects (100 m apart), may include night-time audio recordings (DEWHA 2010b). There are no referral guidelines for this species.	No species-specific guidelines. General survey requirements for mammals that would be relevant are (Eyre et al. 2012). Searches for flying fox camps (Eyre et al. 2012). Habitat assessment (plant food trees) (Eyre et al. 2012). Spotlighting – 2 by 30 person mins spotlight search within 100 x 100 m, survey site (Eyre et al. 2012).	Spring 2018: 30 habital assessment sites were visited over 8 hrs by 2 personnel, where searches for flying fox camps occurred. Total 16 person hrs. Autumn 2019: 34 habital assessment sites were visited over 17 hrs by 2 personnel, where searches for flying fox camps occurred. 23 nocturnal spotlight surveys over 9 nights and 34.5 hrs by 2 personnel. Total 103 person hrs. Spring 2020: 24 hrs nocturnal spotlight surveys over 6 nights by 2 personnel. Total 48 person hrs. Spring 2021: 24 hrs nocturnal spotlight surveys over 6 nights by 2 personnel. Total 48 person hrs. Summer 2022: 12 hrs over 6 nights by 2 personnel. Total 24 person hrs. Incidental observations during all field survey	Methods employed were sufficient to detect grey-headed flying-fox foraging within the site during the spring 2021 surveys.



Name	Commonwealth survey guidelines / EPBC Act referral guidelines	Queensland survey guidelines	Effort and method carried out by Ecosure	Survey results and limitations
			periods over six years. Total survey effort = 239 hrs.	
Petauroides volans greater glider	This species is not in the Commonwealth survey guideline (DSEWPaC 2011b). For the purposes of this assessment the survey guidelines for similar sized arboreal manimals (i.e. mahogany glider and fluffy glider) were considered. Daytime searches for suitable habitat, den sites and food trees (DSEWPaC 2011b). Nocturnal spotlighting in suitable vegetation types (DSEWPaC 2011b). There are no referral guidelines for this species.	Bright moonlight negatively influences detectability (Eyre et al. 2018). Does not readily vocalise, detections based on sightings Easy to detect via spotlight as they stare at intruders for long periods of time and have bright eye-shine (Department of Sustainability and Environment 2011). Standardized spotlight surveys recommended. On foot, 1 km transects, to maximize coverage of study site, along or off a track. Conducted well after dark, may not emerge from hollows as early as other species. Under optimal conditions (high habital quality, warm temperatures and no rain, fog or bright moonlight) a minimum of 2 repeat visits is recommended for a 40 min / 2 ha transect (Wintle et al. 2005). Lower quality habitat and/or under colder temperatures, five or more repeat visits of the 40 min / 2 ha transect are needed to provide an equivalent probability of	Spring 2018: No standardized nocturnal spotlight transect surveys were conducted due to time limitations. Autumn 2019: 23 nocturnal spotlight transect surveys conducted by 2 personnel for a total of 34.5 hrs over 9 nights. Total 69 person hrs. Spring 2020: 18 nocturnal spotlight transect surveys conducted by 2 personnel for a total of 24 hrs over 6 nights. Total 48 person hrs. Spring 2021: 41 nocturnal spotlight transect surveys conducted by 2 personnel for a total of 24 hrs over 6 nights. Total 48 person hrs. Summer 2022: 10 nocturnal spotlight transects 12 hrs over 6 nights x 2 personnel. Total 24 person hrs. Total survey effort = 189 hrs.	Methods employed were sufficient to confirm the presence of greater gliders at the site.



Name	Commonwealth survey guidelines / EPBC Act referral guidelines	Queensland survey guidelines	Effort and method carried out by Ecosure	Survey results and limitations
		detection (Wintle et al. 2005).		
Threatened reptiles				
Delma torquata collared delma	Survey guidelines for Australia's threatened reptiles (DSEWPaC 2011c) suggest pitfall trapping (6 x 4-10 L buckets over 15 m fence with funnel traps). However, draft referral guidelines for threatened brigatow belt reptiles (DSEWPaC 2011d) do not recommend pitfall trapping for this species. Both guidelines recommend active searching in appropriate habitats (one off searches) including raking through leaf litter (DSEWPaC 2011c, 2011d).	No species-specific guidelines General survey requirements for reptiles that would be relevant are (Eyre et al. 2018). Pitfall trapping: 4 buckets at 7.5 m intervals: T design. 45 m fence / 4 nights. Funnel trapping: 6 funnels at 3 m intervals on distal ends of T-design 45 m fence for 4 nights Diurnal active searches - 2 by 30 person min search within 2 different 50 x 50 m quadrats: Nocturnal active searches - 2 by 30 person-min searches within the 100 x 100 m survey site. Scat and sign search - 2 by 30 person min search within 2 different 50 x 50 m quadrats:	Spring 2018: 10 minutes of active searches at 30 habital assessment sites (5 hrs by 2 personnel). Total 10 person hrs. Autumn 2019: 5 active herpetofauna searches over 2.5 hrs by 2 personnel: 10 minutes of active searches at 34 habitat assessment sites over 5.5 hrs by 2 personnel. Total 16 person hrs. Total survey effort = 25 hrs.	Species is unlikely to occur on site. Some rocky hilfsides are present, but not within preferred sedimentary landzones (9 and 10). No pitfall trapping was therefore considered necessary.
Migratory fauna		•	*	
Apus pacificus fork-tailed swift	Counts of birds to be conducted by an experienced observer from elevated viewpoints (if present) during summer (DoE 2015). Forktailed swifts have distinctive vocalisations which may be recognised by an experienced	No species-specific guideline	Spring 2018: Survey for 30 hrs by 2 experienced personnel, using fixed point bird count techniques. Roaming surveys for 6.75 hrs by 2 personnel. Total 73.5 person hrs. Autumn 2019: Survey for 45 hrs by 2 experienced personnel using fixed point bird count techniques. Total 90 person hrs.	None identified.



Name	Commonwealth survey guidelines / EPBC Act referral guidelines	Queensland survey guidelines	Effort and method carried out by Ecosure	Survey results and limitations
	observer (DoE 2015). For siles where there is a collision risk with wind turbines, more		Spring 2020: Survey for 22.5 hrs by 2 experienced personnel using fixed point bird count techniques. Total 45 person hrs.	
	targeted surveys should include times area counts and collision risk modelling (DoE 2015).		Spring 2021: Survey for 22.5 hrs by 2 experienced personnel using fixed point bird count techniques. Total 45 person hrs.	
			Summer 2022: Survey for 22:5 hrs by 2 experienced personnel using fixed point bird count techniques: Total 45 person hrs.	
			Autumn 2022: Survey for 22.5 hrs by 2 experienced personnel using fixed point bird count techniques. Total 45 person hrs.	
			Winter 2022 Survey for 22.5 hrs by 2 experienced personnel using fixed point bird count techniques. Total 45 person hrs. Spring 2022: Survey for 22.5 hrs by 2 experienced personnel using fixed point bird count techniques. Total 45 person hrs.	
			Summer 2023: Survey for 22.5 hrs by 2 experienced personnel using fixed point bird count techniques. Total 45 person hrs.	
			Total survey effort = 478,5 person hrs.	
Cuculus optatus oriental cuckoo	The guidelines for the oriental cuckoo and five migrant flycatchers recommend area surveys, preferably 20 minutes per 2	No species-specific guideline	Spring 2018: Survey for 30 firs by 2 experienced personnel, using fixed point bird count techniques. Roaming surveys for 6.75 firs by 2 personnel. Total 73.5 person firs.	None identified
Monarcha melanopsis black-faced	hectares (DoE 2015). Observers should be sufficiently		Autumn 2019: Survey for 45 hrs by 2 experienced personnel using fixed point bird count techniques. Total 90 person hrs.	
monarch	skilled to recognise calls as well as counting birds detected by sight. Surveys to be undertaken in spring.		Spring 2020: Survey for 22.5 hrs by 2 experienced personnel using fixed point bird	
Mylagra cyanoleuca	or summer (DoE 2015).		count techniques. Total 45 person hrs.	
satin flycatcher	During migration periods (spring and autumn), surveys should consider habital suitable and		Spring 2021: Survey for 22.5 hrs by 2 experienced personnel using fixed point bird count techniques. Total 45 person hrs.	
Rhipidura rufifrons	important for migration passage		Summer 2022: Survey for 22.5 hrs by 2	

NOTE: See Appendix E: Supplement to the Assessment of MNES, Section 2 for additional context



Name	Commonwealth survey guidelines / EPBC Act referral guidelines	Queensland survey guidelines	Effort and method carried out by Ecosure	Survey results and limitations
rufous fantall	(DoE 2015)		experienced personnel using fixed point hird count techniques. Total 45 person hrs.	
			Autumn 2022: Survey for 22.5 hrs by 2 experienced personnel using fixed point bird count techniques. Total 45 person hrs. Winter 2022: Survey for 22.5 hrs by 2 experienced personnel using fixed point bird count techniques. Total 45 person hrs.	
			Spring 2022: Survey for 22.5 hrs by 2 experienced personnel using fixed point bird count techniques. Total 45 person hrs.	
			Summer 2023: Survey for 22.5 hrs by 2 experienced personnel using fixed point bird count techniques. Total 45 person hrs.	
			Total survey effort = 478.5 person hrs.	



3.3 Potential habitat modelling

Potential habitat for MNES species was modelled using

- species detections during field surveys (including sightings and other signs)
- vegetation communities and habital verified during field surveys
- published records in the local area (DES 2023, ALA 2022)
- existing knowledge of species' habitat requirements sourced from published field guides, DCCEEW species profiles and threats database, DES species profiles, recovery plans, scientific journal articles and other ecological assessments in the region.

The Queensland DoR's RE mapping has been used as the basis for vegetation community mapping (and therefore flora and fauna habitat mapping). Areas of modelled potential habitat are used in determining the extent and significance of impacts from the project for each MNES, discussed further in section 6 and section 8 of this report.

3.4 Survey limitations

The field surveys assessed the project site based on the boundaries and proposed infrastructure locations provided to Ecosure prior to each survey. Through the refinement of project design, some properties which were surveyed have now been excluded from the project site. This data is nevertheless presented here to document all survey effort and demonstrate avoidance of environmental impacts in the design phase.

Data gained from database searches and used in the desktop components of this assessment have caveats regarding the robustness or completeness of the information. Queensland Herbarium Herbrecs records are specimens actually collected from given locations. Wildnet records include specimen records and sightings. The absence of specimen and sighting records for a particular species from an area does not imply that the species does not occur in that area. Older specimen records may be affected by landscape changes since the collection date (e.g. clearing, weed invasion, changed fire regime). Older records also generally have lower spatial accuracy.

Data from the DCCEEW PMST are based on a combination of actual records, primarily from state government databases, supplemented with modelled distributions of species according to their ecological characteristics. Species and communities identified by this search may occur in the search area but require further investigation to confirm their presence.

Targeted surveys can confirm the presence of a particular fauna species from a given area but cannot confirm the absence of a species. Species detectability may be affected by factors outside the control of survey design, such as climate, cyclical variations in species abundance and disturbances such as grazing and fire.

This assessment included targeted field searches for conservation significant species using currently accepted methods, comprehensive knowledge of their ecological requirements, and surveys in two critical seasonal periods (pre-wet spring season and post-wet autumn season). NOTE: See Appendix E: Supplement to the Assessment of MNES, Section 2 for additional context



Surveying during both pre-wet and post-wet environmental conditions is important as fauna have different activity patterns and flora have different growth patterns and levels of detectability during these periods. However, it cannot entirely rule out the presence of a species in areas containing suitable habitat for the species, based on existing knowledge of the species' ecological requirements. The likelihood of occurrence can be further refined by conducting more targeted surveys within suitable habitat areas. However, targeted surveys were considered appropriate to meet the guideline survey requirements for all species with respect to the available habitat on site (refer Table 5 and Table 7).

Data collected in the fixed point count surveys are intended to be used to estimate risk of collision by taking into account species flight behaviours and air space usage within the project site. Sightings of birds recorded over the course of each survey give a general indication of bird utilisation and abundance and frequency of occurrence of each species. The total number of sightings does not necessarily equal an equivalent number of individual birds, as repeated sightings of the same individuals may occur particularly if nests are present or food is abundant. Repeated sightings are valuable for understanding bird utilisation in the project site, but must be kept in mind when considering estimates of the number of individual birds which may experience impacts from the project.

The RE mapping (version 12.02) used to identify habitat present across the project site, is most recently mapped for this region using a 1.100,000 mapping scale from 2019 imagery. Actual vegetation may differ from mapped REs due to the large mapping scale, the development of approved property maps of assessable vegetation on properties within the project site, and vegetation clearing activities since 2019. For example, small sections of remnant vegetation along creeks and road reserves may not be mapped and small-scale variation within larger areas of remnant vegetation may not be recognised.

Field surveys aimed to survey all mapped endangered and of concern REs, all mapped REs that may form a component of TECs, numerous occurrences of each least concern RE and a representative sample of mapped non-remnant areas within the project site. However, it was not possible to ground-truth all mapped remnant, HVR and non-remnant vegetation due to access constraints. Flora survey sites were selected based on the WTG positions and project planning corridor available at the time of survey. In these areas, surveys conducted nearby in similar vegetation, previous survey data, satellite imagery and desktop mapping were used to classify vegetation. A combination of survey results and desktop information was also used to develop habitat models for threatened species.

Descriptions of vegetation condition are limited to interpretations of standard site survey data and are not based on formal assessments using the BioCondition method.



4 Field survey results

4.1 Survey timing and conditions

Results of flora and fauna surveys are influenced by season and weather conditions. For example, grasses and forbs may die or become dormant during the dry season and some flora species can only be identified when flowering and fruiting. Variations in weather conditions and moon phase can affect the behaviour of fauna. We have included the temperature, rainfall, maximum wind speed and moon phase in the following tables, as these elements can affect the likelihood of the survey team detecting the presence of a species. For example, birds may be less likely to fly during high winds (Robbins 1981), and the moon phase can affect the nocturnal behaviour of some species and make them harder to detect (Eyre et al. 2018). As such, small prey species may be less likely to forage during the full moon phase as it may increase their chances of detection by a predator.

4.1.1 General ecology surveys

Ecology surveys have been conducted across the project site during periods where the Southern Downs region was both drought declared (Spring 2018 – Summer 2022) and notdrought declared (Autumn 2022 – Summer 2023) (Qld Government 2023).

4.1.1.1 Spring 2018

The spring 2018 survey was completed over three weeks from 22 October to 9 November 2018. The flora survey was completed over two weeks from 22 October to 2 November 2018 and the fauna survey was completed over two weeks from 29 October to 9 November 2018. Weather data during the spring survey from the Kingaroy Airport station (BoM 2023) is shown in Table 8. Minimum temperatures during the survey period were between 10.1 – 18.7 °C and maximum temperatures were between 20.7 – 36.5 °C. A total of 107 mm of rain fell in the two weeks prior to the field survey.

Table 8 Weather conditions during the spring 2018 survey period

Survey type	Date	Min temp (°C)	Max temp (°C)	Rainfall (mm)	Max wind gust (km/h)	Moon phase
Flora start	22 Oct	11.6	27.8	4.6	26	
	23 Oct	13.4	29.2	0	19	
	24 Oct	17.9	30.8	0	22	
	25 Oct	14.4	29.9	0	41	Full moon
	26 Oct	14.0	33 0	0	44	
	27 Oct	15.5	31.1	0	31	
	28 Oct	16.7	32.7	0	35	
Fauna start	29 Oct	17.4	20.7	0	30	



Survey type	Date	Min temp (*C)	Max temp (°C)	Rainfall (mm)	Max wind gust (km/h)	Moon phase
	30 Oct	15.3	24.9	0.2	28	
	31 Oct	313	27:3	0	24	
	1 Nov	11.6	28 9	0	31	Last quarter
Flora end	2 Nov	10.8	28.1	0	33	
	3 Nov	10.1	30.0	0	37	
	4 Nov	14.4	34.7	0	33	
	5 Nov	16.2	36.5	0	35	
	6 Nov	18.7	35.5	0	37	
	7 Nov	18.5	32.6	0	41	
	8 Nov	13.9	22.2	0.6	54	New moon
Fauna end	9 Nov	10.1	25.6	0	44	

4.1.1.2 Autumn 2019

The autumn 2019 survey was completed over two weeks from 25 March to 5 April 2019. The flora survey was completed over five days from 2 to 5 April 2019 and the fauna survey was completed over two weeks from 25 March to 5 April 2019, with no surveys undertaken on the 31 March 2019. Weather data during the autumn survey from the Kingaroy Airport station (BoM 2023) is shown in Table 9. Minimum temperatures during the survey period were between 7.9 – 20.2 °C and maximum temperatures were between 23.2 – 31.6 °C. A total of 3 mm of rain fell in the two weeks prior to the field survey commencing.

The project site received more rainfall than Kingaroy on several nights. Approximately 20 mm was recorded at the nearby Passchendaele Farm on 27 March followed by an additional 20 mm on 31 March 2019. As a consequence, the fauna team lost one night of spotlighting on 31 March 2019 and had reduced spotlighting effort on 27 March. Wet tracks also limited vehicle access to some sections of the site for several days following rain.

Table 9 Weather conditions during the autumn 2019 survey period

Survey type	Date	Min temp (°C)	Max temp (°€)	Raintall (mm)	Max wind gust (km/h)	Moon phase
Fauna start	25 Mar	18.9	31,6	0	28	
	26 Mar	19.2	29.9	0	31	
	27 Mar	20.2	E	0.2	43	
	28 Mar	a	23.6	.	-	Last quarter
	29 Mar	18.4	25.5	0	31	
	30 Mar	20.2	23.2	5.8	41	

MNES Assessment for Tarong West Wind Farm



Survey type	Date	Min temp (°C)	Max temp (°C)	Ramfall (mm)	Max wind gust (km/h)	Moon phase
No survey undertaken	31 Mar	9.7	23 6	7,8	43	
Flora start	1 Apr	7.9	24,5	0.2	35	
	2 Apr	9.9	25.9	0	39	
	3 Apr	16.0	24.9	0	41	
	4 Apr	15:0	25:3:	0	35	
Flora and Fauna end	5 Apr	12.1	25 0	G 4	33	New moon

4.1.1.3 Spring 2020

The spring 2020 survey was completed over six days from 23 to 28 November 2020. Weather data from the Kingaroy Airport station (BoM 2023) for this survey period is shown in Table 10. Minimum temperatures during the survey period were between 13.9 – 16.3 °C and maximum temperatures were between 28.0 – 35.7 °C. Rainfall occurred on the 25 November 2020 (29 mm). No rain fell in the two weeks prior to the field survey. Moon visibility varied from 57.3% to 94.6%.

Table 10 Weather conditions during the spring 2020 survey period

Survey type	Date	Min temp (°C)	Max temp (°€)	Rainfall (mm)	Max wind gust (km/h)	Moon phase
Fauna start	23 Nov	13.9	33.4	G	24.2	Last quarter on Nov 22
	24 Nov	16.2	35.7	0	24.3	
	25 Nov	16.0	28.0	29.0	20.9	
	26 Nov	15.8	32.4	0	23.3	
	27 Nov	16.3	31.4	0	24.8	
Fauna end	28 Nov	14.0	32.5	0	23.3	

4.1.1.4 Spring 2021

The spring 2021 survey was completed over two weeks from 25 October to 7 November 2021. Weather data during the spring survey from the Kingaroy Airport station (BoM 2023) is shown in Table 11. Minimum temperatures during the survey period were between 8.3 – 18.0 °C and maximum temperature were between 24.1 – 32.1 °C. A total of 14.7 mm of rain fell in the 2 weeks prior to the field survey.



Table 11 Weather conditions during the spring 2021 survey period

Survey type	Date	Min temp (°C)	Max temp (°C)	Rainfull (mm)	Max wind gust (km/h)	Moon phase
Fauna start	25 Oct	15.4	27/3	0	46	
	26 Oct	15.0	28.0	14.2	48	
	27 Oct	14.7	29:3:	16.8	26	
	28 Oct	18.0	30.6	G	43	
	29 Oct	17.2	24.7	11.0	41	Last quarter
	30 Oct	17.9	32.1	0.6	46	
	31 Oct	15.2	26:8	1.4	44	
	1 Nov	12.3	24.1	G	3	
	2 Nov	12.3	24:5	0	31	
	3 Nov	11.0	25.3	G	39	
	4 Nov	8.3	26:3:	0	31	
	5 Nov	13.7	25.2	G	33	New moon
	6 Nov	11.3	26.6	0	33	
Fauna end	7 Nov	16.9	26.3	G.	33	

4.1.2 BBUS

4.1.2.1 Summer 2022

The summer 2022 survey was completed over two time periods as there was exceptional rainfall in southeast Queensland in late February 2022 and the survey team was unable to access the site safely. The summer 2022 survey was completed from 21 to 26 February 2022 and again 15 to 17 March 2022 to complete the sites unable to be accessed during weather events. Weather data for these periods from the Kingaroy Airport station (BoM 2023) is shown in Table 12. Minimum temperatures during the survey period were between 15.2 – 20.0 °C and maximum temperature were between 23.7 – 30.6 °C. A total of 3.8 mm of rain fell in the 2 weeks prior to the first field survey, and 36.0 mm of rain was recorded in the two weeks prior to the second survey.

Table 12 Weather conditions during the summer 2022 survey period

Survey type	Date	Min temp (°C)	Max temp (°C)	Rainfall (mm)	Max wind gust (km/h)	Moon phase
Fauna start	21 Feb	16.5	30.2	0.2	39	
	22 Feb	17.4	30.6	0.2	46	
	23 Feb	19.2	28.7	G	43	



Survey type	Date	Min temp (°C)	Max temp (°C)	Rainfall (mm)	Max wind gust (km/h)	Moon phase
	24 Feb	20.0	27.4	1.4	37	Last quarter
	25 Feb	18.0	23.7	54.0	41	
Fauna end	26 Feb	18.3	24.7	28.8	41	
	-	=	R	-3	-	S
Fauna start	15 Mar	17.3	27.7	G.	22	
	16 Mar	15.2	26:0	0	17	
Fauna end	17 Mar	16.3	26.9	G.	35	Full moon on 18 Mar

4.1.2.2 Autumn 2022

The autumn 2022 survey was completed over one week from 22 to 27 June 2022. Weather data during the autumn survey from the Kingaroy Airport station (BoM 2023) is shown in Table 13. Minimum temperatures during the survey period were between -1.7 – 3.3 °C and maximum temperatures were between 19.5 – 21.7 °C. No rainfall was recorded in the two weeks prior to the survey.

Table 13 Weather conditions during the autumn 2022 survey period

Survey type	Date	Min temp (°C)	Max temp (°C)	Rainfall (mm)	Max wind gust (km/h)	Moon phase
Fauna start	22 Jun	2.0	21.4	0	31	Last quarter on 21 Jun
	23 Jun	18	21.5	o	20	
	24 Jun	1.3	21.7	G	26	
	25 Jun	-1.7	21.4	o	17	
	26 Jun	0.8	20.1	G	18	
Fauna end	27 Jun	33	19.5	0	43	

4.1.2.3 Winter 2022

The winter 2022 survey was completed over one week from 16 to 21 August 2022. Weather data during the winter survey from the Kingaroy Airport station (BoM 2023) is shown in Table 14. Minimum temperatures during the survey period were between 0.2 and 5.0°C and maximum temperatures were between 18.8 and 25.3 °C. A total of 16.4 mm of rain fell in the two weeks prior to the field survey.



Table 14 Weather conditions during the winter 2022 survey period

Survey type	Date	Min temp (°C)	Max temp (°C)	Rainfull (mm)	Max wind gust (km/h)	Moon phase
Fauna start	16 Aug	0.2	19.9	0	46	
	17 Aug	5.0	18.8	G.	35	
	18 Aug	0.7	22.0	0	24	
	19 Aug	1.9	25.3	G.	35	Last quarter
	20 Aug	3:0	22.8	0	30	
Fauna end	21 Aug	1.5	20.3	G	30	

4.1.2.4 Spring 2022

The spring 2022 survey was completed over one week from 6 to 11 November 2022. Weather data during the spring survey from the Kingaroy Airport station (BoM 2023) is shown in Table 15. Minimum temperatures during the survey period were between 8.2 and 11.6°C and maximum temperatures were between 23.0 and 26.0 °C. A total of 40.4 mm of rain fell in the two weeks prior to the field survey.

Table 15 Weather conditions during the spring 2022 survey period

Survey type	Date	Min temp (°C)	Max temp (°€)	Rainfall (mm)	Max wind gust (km/h)	Moon phase
Fauna start	6 Nov	10.0	24.6	G	37	First quarter 1 Nov
	7 Nov	10.9	23.0	0	39	
	8 Nov	9.2	24.5	0	35	Full moon
-	9 Nov	9.6	23.8	0	33	
	10 Nov	11.6	24.5	0	44	
Fauna end	11 Nov	8.2	26.0	0	22	

4.1.2.5 Summer 2023

The summer 2023 survey was completed over one week from 30 January to 4 February 2023. Weather data during the summer survey from the Kingaroy Airport station (BoM 2023) is shown in Table 16. Rain on the last day of survey (4 February 2023) limited access to three sites. For 12 survey sites, data was collected for morning, midday, and afternoon surveys. For the three weather-impacted sites, afternoon surveys were conducted at all three sites and morning surveys conducted at two sites. Minimum temperatures during the survey period were between 20.4 and 22.1 °C and maximum temperatures were between 27.2 and 33.5 °C. A total of 21.2 mm of rain fell in the two weeks prior to the field survey.



Table 16 Weather conditions during the summer 2023 survey period

Survey type	Date	Min temp (°C)	Max temp (°C)	Rainfull (mm)	Max wind gust (km/h)	Moon phase
Fauna start	30 Jan	21.4	32.8	0	31	First quarter on 29 Jan
	31 Jan	20.4	32.8	7.2	39	
	1 Feb	21.3	33.1	6.8		
	2 Feb	22.1	31.2	= 1	50	
	3 Feb	20:3	33.5	22.6	43	
Fauna end	4 Feb	22.0	27.2	0.6	30	

4.2 Vegetation communities

Vegetation surveys included 19 tertiary (detailed) sites and 153 quaternary (observational) sites. Figure 5 shows locations of flora survey sites. Appendix 3 summarises survey data, including location, survey type and mapped and ground-truthed REs. Surveys were completed in 113 sites mapped as remnant/HVR and 53 sites mapped as non-remnant.

4.2.1 Remnant/HVR vegetation

Queensland Herbarium RE mapping recognises nine REs within the site (Table 17, Figure 4). Field surveys confirmed seven of these REs within the project site (Figure 7). One other RE (11.3.4) may possibly occur within the project site on alluvial terraces associated with major watercourses, however this is not likely to occur within the planning corridor (Figure 4). This RE was not ground-truthed as field surveys focussed on areas along watercourses where crossings were likely within the planning corridor and restricted access to all areas along watercourses limited additional survey effort outside of the planning corridor. Field surveys detected one other RE (11.11.4) that was not mapped within the site by the Queensland Herbarium (Table 17).

Field inspections generally agreed with RE mapping, with some minor discrepancies attributed mostly to mapping scale. Field surveys assessed vegetation in more detail, allowing detection of vegetation structure, composition and distribution at a finer scale than the 1:100,000 RE mapping.

Table 17 REs identified within the site

RE code	VM Act status*	Short description	Present within the site
Mapped F	REs detected	I within the project site	
11.3.25	least concern	Queensland blue gum or river red gum E camaldulensis woodland fringing drainage lines.	Confirmed along larger streams within the site, especially Boyne River.

NOTE: See Appendix E: Supplement to the Assessment of MNES, Section 2.1.2, Section 2.2, Section 2.3, Section 2.4 and Section 2.5 for detailed changes and additional context



RE code	VM Act status*	Short description	Present within the site	
11.5.20	least concern	Gum-topped box Eucalyptus moluccana and/or small-fruited grey gum E microcarpa and/or E woolisiana +/- narrow-leaved ironbark E crebra woodland on Cainozoic sand plains	Only one small area confirmed in area now excluded from project site. Possible in small unmapped areas within southeast corner of site.	
11.7.6	least concern	Lemon-scented gum Corymbia citriodora or narrow-leaved ironbark woodland on Calnozoic lateritic duricrust.	Confirmed in one survey site in area now excluded from project site. Likely to occur in small outcrops of laterite within rocky hilly eucalypt woodland.	
11,8,3	of concern	Semi-evergreen vine thicket on Cainozoic igneous rocks	Confirmed in one small patch near south- western boundary of site.	
11.11.15	least concern	Narrow-leaved ironbark woodland on deformed and metamorphosed sediments and interbedded volcanics.	Confirmed in numerous locations throughout site.	
11.12.3	least concern	Narrow-leaved ironbark, Queensland blue gum, rusty gum Angophora leiocarpa woodland on igneous rocks especially granife	Confirmed in numerous locations throughout site.	
11.12.6	least concern	Lemon-scenled gum open forest on igneous rocks (granite).	Confirmed in numerous locations throughout site.	
REs not p	reviously ma	ipped within the project site		
11.11.4	least concern	Eucalyptus crebra woodland on old sedimentary rocks with varying degrees of metamorphism and folding on coastal ranges.	RE 11.11.4 confirmed in numerous locations throughout site. RE sub-type 11.11.4c (Eucalyptus moluccana dominated woodland) recorded in the site RE sub-type 11.11.4a (Eucalyptus fereticornis dominated woodland) not detected during surveys.	
Mapped R	Es not detec	ted within the project site		
11.3.4	of concern	Eucalyptus tereticomis and/or Eucalyptus spp. woodland on alluvial plains.	Not detected within site. Possible in alluvial terraces beside major streams.	
12.8.16	of concern	Eucalyptus crebra +/- E melliodora, E tereticornis woodland on Calnozoic igneous rocks	Not detected within site	

^{*} VM Act status = vegetation management status under the Vegetation Management Regulation 2012.

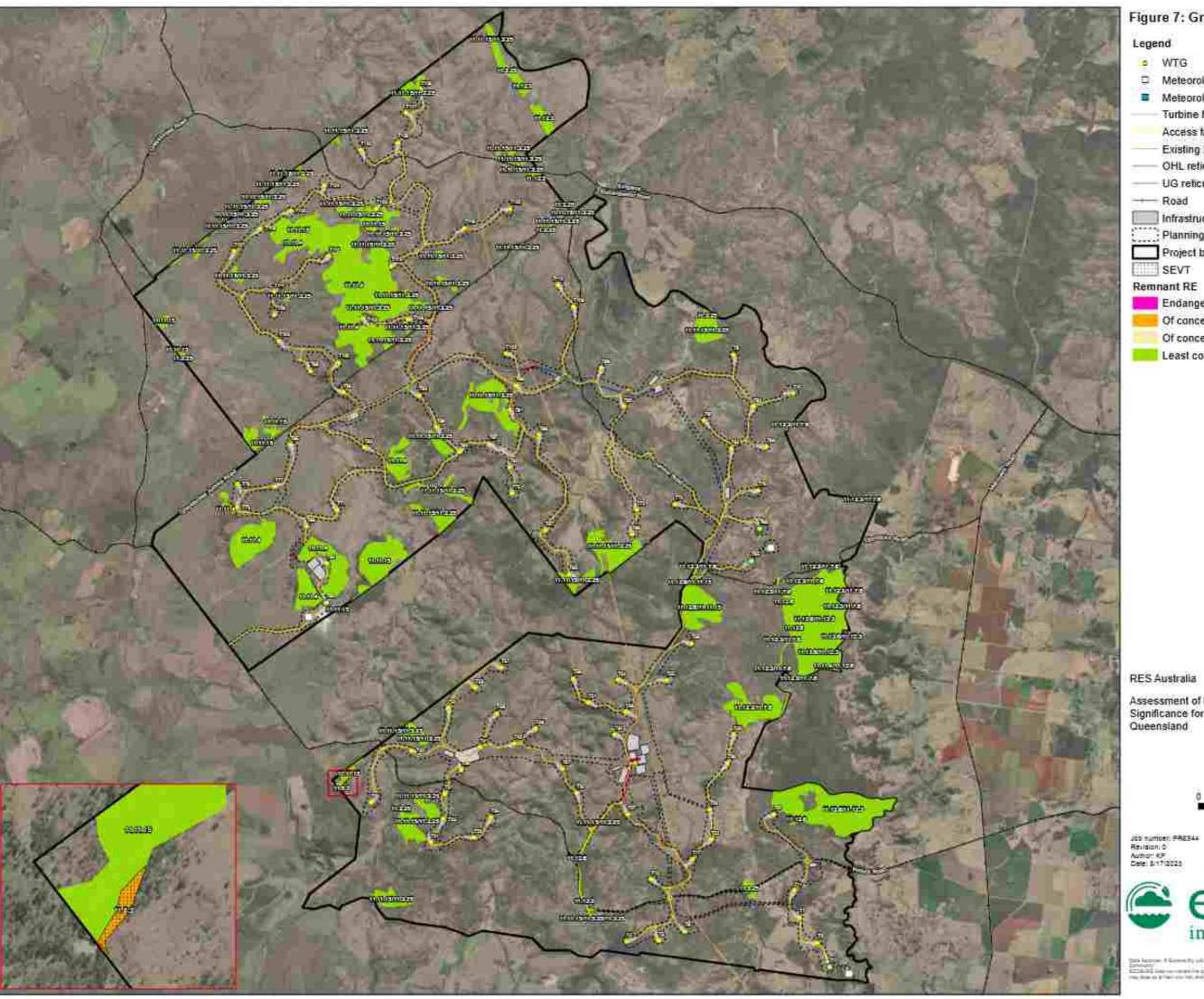


Figure 7: Ground-truthed REs and TECs

☐ Meteorological mast (permanent)

Meteorological mast (temporary)

Turbine hardstand

Access track

Existing 275kV transmission line

OHL reticulation

UG reticulation

Infrastructure

Planning corridor

Project boundary

SEVT

Remnant RE

Endangered - dominant

Of concern - dominant

Of concern - subdominant

Least concern

Assessment of Matters of National Environmental Significance for Tarong West Wind Farm, Ironpot,



GDA 1984 MSA Zone SS Projection: Transverse Melicator Datum: GSA 1984





The project site is predominantly on non-remnant land (15,843.79 ha or 90.56% of the site), most of which is grazing land. Field-verified remnant vegetation occurs within 1,331.08 ha (7.61%) of the site and HVR within 321.35 ha (1.84%). Table 18 summarises areas of ground-truthed vegetation in remnant, HVR and non-remnant condition.

Table 18 Areas of ground truthed REs in remnant and HVR condition.

RE	1700 0 10 -0 1	Area of vegetation (ha)-		
RE	VM Act status	HVR	Remnant	Non-remnant
11.3.25	least concern	5.85	17.39	0
11.8.3	of concern	0	0.63	•
11:11.4	least concern	12:80	450.06	-0-
11.11.4/11.12.6	least concern	0	5.14	•
11-11-15	least concern	85.63	76.86	0-
11.11.15/11.3.25	least concern	199.87	256.18	•
11.11.15/11.5.20/11.3.25	least concern	0	0.59	0
11.123	least concern	2.49	31.05	0
11.12.3/11.7.6	least concern	6.32	97.22	0
11.12.6	least concern	8.39	3.58	0
11.12.6/11.11.15	least concorn	0	58:52	0
11.12.6/11.12.3	least concern	0	333.86	0
Non-remnant		0	0	15,843.79
Total		321.35	1331.08	16,843.79
Total percentage of site (site 17,496.23 ha)		1.84%	7.61%	90.56%

^{*} VM Act status = vegetation management status under the Vegetation Management Regulation 2012

Table 19 to Table 26 provide descriptions of the structure, composition and condition of REs recorded during the survey. Figure 7 maps ground-truthed vegetation communities based on field vegetation survey data, which included 119 sites mapped as remnant/HVR and 53 sites mapped as non-remnant. However, it does not include finer scale mapping of small patches of vegetation within areas mapped as non-remnant. For example, it does not map the narrow band of riparian vegetation (RE 11.3.25) along the Boyne River, although surveys identified a narrow band of vegetation that met the definition of remnant (based on structure and floristics) along sections of this stream (Table 19).



Table 19 Description of RE 11.3.25 recorded within site

Attribute	Description		
Survey sites	S9, S13, S41, S51, S68 (Figure 5)		
Soil, landzone	Alluvial sand/silt/clay, landzone 3		
Slope	Mosfly gentle slope, although stream banks can be steep and up to 10 m high (e.g. Boyne River)		
Landform	Stream		
Canopy layer	Average height 16-20 m Cuver: 30-60% Eucalyptus tereticomis, Angophora floribunda, Corymbia tessellaris, Eucalyptus melanophloia, Eucalyptus crebra		
Sub-canopy layer	Average height 6-8 m Cover 10-25% Acacle leiocallyx, Acacle maidenti, Callistemon viminalis		
Shrub layer	Average height: 1-2 m Cover 1-10 % Cassinia laevis, Opuntia tomentosa*		
Ground layer	Average height: 0:3-0.8 m		
Disturbance	Minor to moderate stream bank erosion. All sites show evidence of fire, with some sites recently burnt. Timber cutting common. Most sites are grazed. Weeds are scattered to frequent, with some areas heavily invaded by exotic grasses (e.g. Megathyrsus maximus*, Eragrostis curvula*)		
(Idda for Centurations 5)			

Photograph



^{* =} Exotic species



Table 20 Description of RE 11.5.20 recorded within site

Attribute	Description		
Survey sites	Composite RE near S38 in current project site, and previously recorded at S47 not in current project site (Figure 5)		
Soil, landzone	Sandy clay, landzone 5		
Siope	Very gentle		
Landform	Plain - gentle hillslope		
Canopy layer	Average height 14 m Cover: 30% Eucalyptus moluccana, Eucalyptus crebra		
Sub-canopy layer	Average height: 7 m Cover: 10% Acacla lelocalyx, Allocasuarina littoralis		
Shrub layer	Average height: 1 m Cover, 5 % Solanum nemophilium, Opuntia tomentosa*		
Ground layer	Average height: 0.2-0.8 m Cover:20% Aristida caput-medusae; Aristida queenslandica, Cymbopogon refractus, Cymbopogon obtectus, Scleria sphacelata		
Disturbance	Old fire scars. Timber cutting common. Lightly grazed. Weeds are scattered.		
Photograph	A LANGUAGO IV.		



^{* =} Exotic species



Table 21 Description of RE 11.7.6 recorded within site

Attribute	Description					
Survey sites	Composite RE near S29, S30, S68 in the project site and previously recorded at S60 not in current project site (Figure 5)					
Soil, landzone	Skeletal sandy clay with scattered stones, landzone 7					
Slope	Very gentle, adjacent to sleep laterite outcrop					
Landform	Lateritic hillstope					
Canopy layer	Average height, 16 m Cover; 15% Eucalyptus crebra, Angophora leiocarpa					
Sub-canopy layer	Average height: 5 m Cover: 25% Alphitonia excelsa, Acacia bancroftiorum, Psydrax odorata					
Shrub layer	Average height: 1,5 m Cover: 5% Opuntis tomentosa*, Hovea parvicalyx					
Ground layer	Average height: 0.3 m Cover: 15% Entolesia stricta, Lomandra confertifolia, Aristide caput-medusae, Aristide queenslandica, Cymbopogon refractus					
Disturbance	Old fire scars. Minor sheet erosion. Weeds are scattered.					
Photograph						



^{* =} Exotic species



Table 22 Description of RE 11.8.3 recorded within site

Attribute	Description				
Survey sites	Composite RE near A3 in the project site and previously recorded at \$28 not in current project site (Figure 5)				
Soil, landzone	Clay with scattered basalt rocks, landzone 8				
Slope	Gentle				
Landform	Hilfstope				
Emergent layer	Average height, 15 m Cover; 5% Eucalyptus melanophioia				
Canopy layer	Average height: 6 m Cover: 25% Drypetes deplanchel, Notelaes longifolia, Psydrax odorata, Alectryon connatus, Alectryon diversifolius, Denhamia disperma, Jasminum didymum, Pandorea pandorana				
Shrub layer	Average height: 1.5 m Cover: 60% Lantana camara*, Oleania canescens, Alyxia ruscifolia, Breynia oblongifolia, Solanum stelligerum				
Ground layer	Average height 0.3 m Cover 5% Aristida queenslandica. Austrostipa ramosissima, Entolasia stricta				
Disturbance	Scattered fimber cutting. Weeds are frequent, especially Lantana camara*.				
Photograph	MALE SELVENCE ASSESSMENT OF THE SECOND SECON				



^{* =} Exotic species



Table 23 Description of RE 11.11.4 recorded within site

Attribute	Description
Survey sites	\$1, \$3, \$4, \$6, \$11, \$46, \$52, \$53, \$54, \$54.1, \$55, \$57, \$58, \$70 (Figure 5)
Soil, landzone	Sandy clay, landzone 11
Slope	Gentle to moderate
Landform	Hillstope
Canopy layer	Average height: 15-18 m Cover: 30-60% Dominated by either Eucalyptus crebra or Corymbia citriodora
Sub-canopy layer	Average height: 4-8 m Cover: 5-25% Acacia leiocalyx, Acacia irrorata, Alphitonia excelsa
Shrub layer	Average height, 1-1.5 m Cover, 1-5% Jacksonia scoparia, Opuntia tomentosa*, Cappans cariescens
Ground layer	Average height 0.1-0.3 m Cover: 10-30% Entolesia stricta, Aristida caput-medusae, Aristida queensiandica, Cymbopogon refractus
Disturbance	Minor sheet erosion in some sites. Some old fire scars. Timber cutting scattered to common Lightly grazed. Scattered weeds:
Pholograph	



^{* =} Exotic species



Table 24 Description of RE 11.11.15 recorded within site

Attribute	Description
Survey sites	S8, S12, S14, S16, S32, S33, S65 (Figure 5)
Soil, landzone	Sandy clay, landzone 11
Slope	Gentle to moderate
Landform	Hillstope
Canopy layer	Average height: 14-16 m Cover: 10-30% Eucalyptus crebrs: Angophora leiocarpa, Eucalyptus exserta
Sub-canopy layer	Average height: 5-7 m Cover: 10-20% Acacia leiocalyx, Acacia irrorata, Alphitonia excelsa
Shrub layer	Average height, 1-2 m Cover, 1-10 % Cassinia laevis, Jacksonia scoparia, Breynia oblongifolia, Opuntia tomentosa*
Ground layer	Average height 0.3 m Cover 20-70% Cymbopogon refractus, Glandularia aristigera*, Aristida queenslandica, Eragrostis curvula*, Chellanthes sieberi, Mellnis repens*
Disturbance	Minor sheet erosion in some sites. Some old fire scars. Timber cutting scattered to common. Lightly grazed. Scattered weeds:
Photograph	



^{* =} Exotic species



Table 25 Description of RE 11.12.3 recorded within site

Attribute	Description
Survey sites	\$22, \$23, \$29, \$30, \$38, \$45, \$49.1, \$50, \$62 (Figure 5)
Soil, landzone	Sandy clay, landzone 12
Slope	Gentle to moderate
Landform	Hillstope
Canopy layer	Average height: 14-16 m Cover: 30-40% Eucalyptus crebra: Eucalyptus tereticornis
Sub-canopy layer	Average height: 5-7 m Cover: 5-30% Acacia leiocalyx, Acacia bancroftiorum
Shrub layer	Average height, 1-2 m Cover, 1-2 % Jacksonia scoparia, Lantana camara*, Acacia spectabilis. Opuntia tomentosa*
Ground layer	Average height: 0.2-0.3 m
Disturbance	Minor sheet erosion in some sites. Some old fire scars. Timber cutting scattered to common. Lightly grazed, Scattered weeds.
Photograph	TANK MARKET AND



^{* =} Exotic species



Table 26 Description of RE 11.12.6 recorded within site

Attribute	Description
Survey sites	\$34, \$35, \$42, \$43, \$63, \$69, \$71, \$72 (Figure 5)
Soil landzone	Sandy clay, landzone 12
Slope	Gentle to moderate
Landform	Hillstope
Canopy layer	Average height: 15-18 m Cover: 30-60% Eucalyptus crebra, Corymbia citriodora, Eucalyptus major Some lower areas dominated by Eucalyptus moluccana
Sub-canopy layer	Average height: 5-7 m Cover: 10-40% Acacia leiocalyx, Acacia disparrima, Psydrax odorata, Alphitonia excelsa Some areas with developing vine thicket understorey (e.g. Drypetes deplanche), Elaeodendron australe, Pittosporum spinescens)
Shrub layer	Average height: 1-2 m Cover: 1-5 % Carissa ovata, Breynia oblongifolia, Lantana camara*, Opuntia tomentosa*
Ground layer	Average height: 0.2-0.3 m Cover. 3-30% Entolasia whiteana. Chrysocephalum apiculatum, Aristida caput-medusae, Aristida queenslandica, Cymbopogon refractus, Glandulana aristigera*, Eragrostis curvula*, Cheilanthes sieben, Malinis repens*
Disturbance	Minor sheet erosion in some sites. Some old fire scars. Timber cutting scattered to common Lightly grazed. Scattered weeds:
Photograph	

^{* =} Exotic species

NOTE: See Appendix E: Supplement to the Assessment of MNES, Section 2.3.2, Section 2.4.2, Section 2.5.2 and Section 3.1 for detailed design changes and additional context



4.2.2 Non-remnant vegetation

Non-remnant vegetation covers most of the site (15,843.79 ha or 90.56% of the site). The ground layer is sparse to dense and is dominated by grasses, including native species (e.g. Cymbopogon refractus, Aristida queensiandica, Bothriochioa decipiens, Entolasia stricta, Imperata cylindrica) and exotic species (e.g. Cynodon dactylon*, Eragrostis curvula*, Melinis repens*, Megathyrsus maximus*). A variety of native and exotic forbs are common in non-remnant areas. Tree cover is variable, ranging from.

- completely absent in recently cleared areas
- isolated individuals of young or mature trees
- sparse to dense regrowth of Eucalyptus and/or Acacla species, with some areas reaching canopy height and density levels that approach HVR or remnant status.

Of the 53 survey sites assessed within mapped non-remnant areas:

- 28 sites were verified as non-remnant
- 15 sites were boundaries between non-remnant and remnant vegetation and 2 sites could be classified as RE 11.12.6 (used to adjust mapped boundaries of RE 11.12.6)
- 1 site beside Boyne River could potentially be classified as RE 11.3.25
- 4 sites could potentially be classified as regrowth of RE 11.3.25/11.3.4
- 1 site could potentially be classified as regrowth of RE 11.11.4
- 1 site could potentially be classified as regrowth of RE 11.11.15
- 1 site could potentially be classified as regrowth of RE 11.12.3.

4.3 Flora species

Appendix 4 lists all flora species detected during all flora surveys, including incidental observations. Surveys recorded 292 flora species, of which 188 were native and 104 were introduced.

A total of 26 random meander surveys targeting threatened species were conducted in riparian vegetation (RE 11.3.25), vine forest (RE 11.8.3), ironbark forest/woodland (RE 11.11.15, 11.12.3), spotted gum forest (RE 11.11.4, 11.12.6), woodland on laterite (RE 11.7.6) and gumtopped box forest (RE 11.5.20).

Results of threatened flora surveys are summarised in Table 27. Identification of introduced Lepidium species was confirmed by the Queensland Herbarium on 9 May 2019.



Table 27 Threatened species recorded during surveys

Habitat type	Threatened species recorded
Riparian (RE 11.3.25)	No EPBC listed species detected. All specimens of Lepidium collected during the survey were identified by the Queensland Herbarium as the introduced L bananense and L africanum.
Eucalypt woodlands (RE 11.5.20, 11.7.6, 11.11.4, 11.11.15, 11.12.3, 11.12.6)	No EPBC listed species detected
Vine thicket (RE 11.8.3)	No EPBC listed species detected

4.4 Fauna habitat

Five broad habitat types were recorded across the project site (Table 28, Figure 8).

Table 28 Fauna habitats recorded within site

Habitat type	Component REs	Habitet description	Area (ha)
Eucalypt woodland/forest	11.5.20, 11.7.6, 11.11.4, 11.11.15, 11.12.3, 11.12.6	Sparse to mid-dense canopy of trees. Shrub layer absent to mid-dense. Ground layer sparse to mid-dense and dominated by grasses and forbs. Numerous small hollows and occasional large hollows.	
Riparian forest	11.3.25 and non- remnant wooded	Sparse to mid-dense canopy of trees. Shrub layer absent to mid-dense. Ground layer sparse to dense with diverse range of grasses, forbs, sedges and rushes. Numerous small hollows and occasional large hollows.	(5.6%) 23.25 ground-truthed
Vine thicket	11.8.3, patches of RE 11.12.6 with developing vine thicket mid storey	Scattered emergent trees over sparse to dense canopy containing a diverse variety of vine thicket tree species. Shrub layer absent to mid-dense. Ground layer very sparse to sparse (may be denser in patches with reduced tree cover), numerous vines. Numerous small hollows and occasional large hollows in emergent eucalypts.	
Pasture / exotic grassland	Non-remnant	Isolated trees and shrubs. Ground layer sparse to dense and dominated by grasses and forbs. Rare hollows in large remnant paddock trees. Also includes areas of non-remnant woodland with sparse tree cover.	(90.56%)
Farm dam	Non-remnant	Banks have scattered trees and shrubs Ground layer varies from bare dirt to dense layer of grasses, forbs and sedges Shallow water may support sparse to dense aquatic plants including forbs, sedges and rushes. Deeper water generally open with scattered lilies or foating aquatic plants. Occasional hollows in large remnant paddock trees.	Control of the Contro

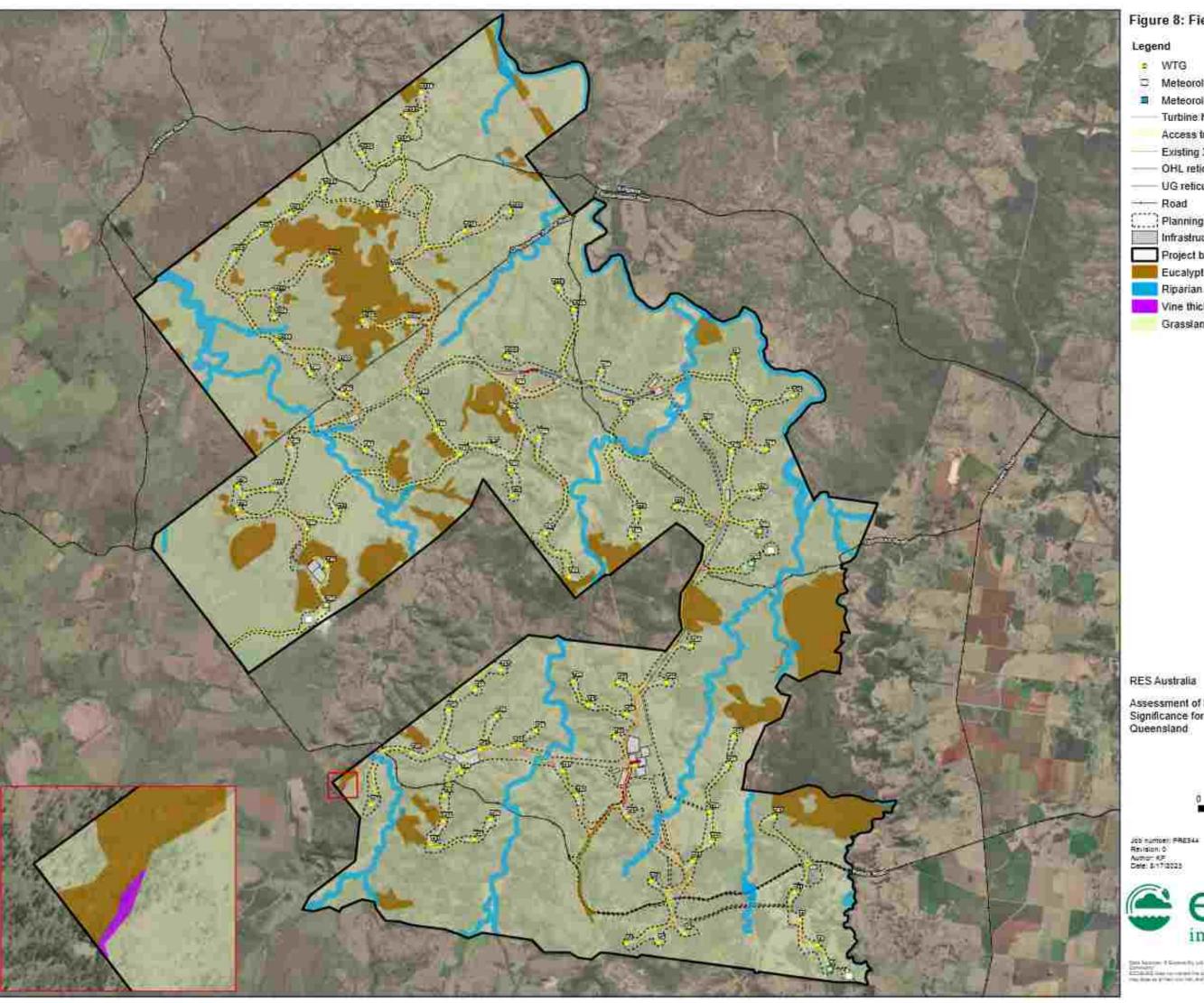


Figure 8: Field-verified fauna habitat

Meteorological mast (permanent)

Meteorological mast (temporary)

Turbine hardstand

Access track

Existing 275kV transmission line

OHL reticulation

UG reticulation

[]] Planning corridor

Infrastructure

Project boundary

Eucalypt woodland / forest

Riparian woodland / grassland

Vine thicket

Grassland

Assessment of Matters of National Environmental Significance for Tarong West Wind Farm, Ironpot,



GDA 1984 MSA Zone SS Projection: Transverse Melicator Datum: GSA 1984





Remnant eucalypt woodland/forest

Remnant eucalypt woodland/forest is the main remnant fauna habitat within the site. It is generally dominated by *Eucalyptus crebra* or *Corymbia citriodora*. Mature individuals of these species typically contain numerous small hollows suitable for nesting or denning by small arboreal fauna and occasional large hollows suitable for larger arboreal mammals (e.g. greater gliders) and large birds (e.g. glossy black-cockatoo). These species also provide important seasonal nectar resources. Areas with dense shrubs or ground layer plants provide cover for reptiles and ground dwelling mammals and birds. Leaf litter, logs and rocks provide shelter and foraging habitat for small fauna such as reptiles and small mammals. Some small areas have rock outcrops (e.g. granite, metamorphic, conglomerate and laterite outcrops) that provide shelter and habitat for fauna such as reptiles and small mammals.

Most eucalypt woodland/forest communities were in average to good condition, with some areas degraded by:

- partial clearing and timber-cutting leading to habitat fragmentation and the loss of large hollow-bearing trees
- weed invasion, especially Eragrostis curvula* and Glandularia aristigera*
- some areas of intense fires resulting in tree death and increased weed invasion and erosion
- heavy grazing, usually close to farm dams and other sources of water.

Riparian forest/grassland

This habital occurs on riparian soils along major watercourses. It has been substantially cleared and modified by clearing, fire and weed invasion, so much of the riparian zone within the site supports a narrow band of trees along the bank and grassland with isolated trees further away from the watercourse. Some particularly degraded sections contain grasslands with no trees. Small sections of riparian zone support larger bands of riparian forest, which are generally mapped as remnant/HVR 11.3.25. Riparian forest/grassland is mapped as a 100 m corridor along steam order 3-4 watercourses and a 200 m corridor along stream order 5 watercourses.

Where present, the sparse to mid-dense canopy of trees usually contains scattered large hollows and numerous small hollows, providing nesting and denning habitat for arboreal fauna, including greater gliders. Trees also provide important seasonal nectar resources. Shrubs and ground layer plants can provide cover for reptiles and ground dwelling mammals and birds. Dense leaf litter and flood debris may provide important habitat and cover. Scattered pools provide drinking and bathing water for numerous species, as well as habitat for species requiring water during some phase of their life cycle. Riparian areas can be valuable refuges during droughts and provide important corridors for wildlife travelling between remnant habitat blocks. Many riparian areas in the site have been degraded by:

 historic clearing activities and timber-cutting, resulting in loss of hollow-bearing trees and increased fragmentation and erosion



- dense infestations of weeds such as Megathyrsus maximus*, Heliotropium amplexicaule*, Eragrostis curvula* and Lantana camara*
- intense fires that have killed trees, reduced canopy cover and increased streambank erosion and weed invasion
- minor to moderate streambank erosion.

Vine thicket

Vine thicket was recorded in one small patch on the south-western edge of the site. However, some areas of eucalypt forest (e.g. patch of RE 11.12.6 with canopy dominated by *Eucalyptus moluccana*) have a developing mid storey of vine thicket species and therefore share some characteristics with this habitat type. Vine thicket has a sparse to dense canopy of trees and shrubs that provide shelter as well as important seasonal fruit and nectar resources. The shrub layer is often mid-dense to dense, providing cover for reptiles and ground dwelling mammals and birds. Leaf litter, logs and rocks provide shelter and foraging habitat for small fauna such as reptiles and small mammals. This community is in poor condition, due to:

- dense infestations of weeds, especially Lantana camara*
- encroachment of fire, which can kill fire-sensitive species
- extensive pig damage in some areas.

Non-remnant woodland

Most of the site has been previously cleared (only 9.4% of the site retains remnant vegetation) and supports non-remnant woodland and grassland. Non-remnant woodland includes varying regrowth stages of the original eucalypt woodland communities within the site. Tree cover is variable in density and age and is generally dominated by *Eucalyptus crebra* or *Corymbia citriodora*. As this habitat can provide suitable food trees for koala, it has been modelled as non-remnant areas supporting woody vegetation with foliage projective cover of 25% or over (see Section 5.3 for a full description of modelling methods).

Some areas contain remnant mature individuals that contain numerous small hollows suitable for nesting or denning by small arboreal fauna and occasional large hollows suitable for larger arboreal mammals (e.g. greater gliders) and large birds (e.g. glossy black-cockatoo). Mature trees also provide important seasonal nectar resources. Areas with dense shrubs or ground layer plants provide cover for reptiles and ground dwelling mammals and birds. Leaf litter, logs and rocks provide shelter and foraging habitat for small fauna such as reptiles and small mammals. Some small areas have rock outcrops (e.g. granite, metamorphic, conglomerate and laterite outcrops) that provide shelter and habitat for fauna such as reptiles and small mammals. Most non-remnant woodland communities were in poor to average condition, caused by:

- clearing leading to habital fragmentation and the loss of large hollow-bearing trees and mature trees
- weed Invasion, especially Eragrostis curvula* and Glandularia aristigera*



- some areas of intense fires resulting in tree death and increased weed invasion and erosion
- heavy grazing, especially close to farm dams and other sources of water.

Cleared grassland

Cleared grassland is the main habitat type within the site. Isolated trees provide limited food, roosting and nesting/denning resources. The sparse to dense grassy ground layer provides shelter and food resources for suitable species. Logs and leaf litter are restricted to areas with higher tree densities. Grasslands are in poor condition, due to:

- clearing of shrub and tree layers
- weed invasion, especially Eragrostis curvula* and Glandularia aristigera*
- grazing, especially close to farm dams and other sources of water.

Farm dams

Farm dams are scattered throughout the site and provide some important habitat resources, including:

- drinking and bathing water
- habitat for species requiring water during some phase of their life cycle (e.g. frogs)
- dense fringing vegetation on some dams provide shelter and food resources for small animals such as wetland birds.

4.5 Fauna species

Figure 6 shows locations of fauna sites surveyed from spring 2018 to summer 2023. Surveys during 2018, 2019, 2020 and 2021 included bird surveys and other fauna surveys, which informed ecological assessments and the level one avian risk assessment detailed in the BBUS (Ecosure 2023). Surveys conducted in 2022 and 2023 comprise the preconstruction phase of monitoring and focus on bird and mega bat detection.

Appendix 5 lists all fauna species recorded during surveys. The combined surveys recorded 262 fauna species, including 16 amphibians, 186 birds, 44 mammals and 16 reptiles (Appendix 5).

Threatened and migratory fauna species detected during surveys within and adjacent to the project site are listed in Table 29 and mapped in Figure 9.

NOTE: See Appendix E: Supplement to the Assessment of MNES, Section 2.2, Table 4 and Section 3.2 for additional context



Table 29 Threatened and migratory fauna results for fauna surveys within and adjacent to the project site

Species	EPBC status	Spring 2018	Autumo 2019	Spring 2020	Spring 2021	Summer 2022	Autumn 2022	Winter 2022	Spring 2022	Summer 2023	Total
koala	E	4 apportunistic sightings, 2 scat detections, 2 scratched trees	5 sightings (2 opportunistic, 3 nocturnal spotlighting), 12 scat detections; 5 scratched trees	2 sightings (1 opportunistic, 1 nocturnal spotlighting)	3 sightings via nocturnal spotlighting	No targeted surveys undertaken	No targeted surveys undertaken	No targeted surveys undertaken	1 opportunistic sighting, no targeted surveys undertaken	No targeted surveys undertaken	15 sightings 21 other detections
greater glider	Ē	0 detections	52 sightings via nocturnal spotlighting	4 sightings via nocturnal spotlighting	11 sightings via nocturnal spotlighting	3 sightings - No targeted surveys undertaken	No targeted surveys undertaken	No targeted surveys undertaken	No targeted surveys undertaken	No targeted surveys undertaken	70 sightings
grey-headed flying-fox	V	0 detections	0 detections	0 detections	12 observed or heard	0 detections	0 detections	0 detections	0 detections	0 detections	12 sightings
white-throated needletail	V. Mi	2 sightings during fixed point count surveys	0 detections	0 detections	1 sighting during a dam survey	12 individuals sighted during fixed point count surveys	0 detections	0 detections	26 Individuals sighted during fixed point count surveys	191 individuals sighted during fixed point count surveys	232 sightings
glossy black- cockatoo	v	0 detections	Orts detected at 18 locations	Orts detected in 2 locations	2 sightings during dam surveys. Orts defected at 1 location	No targeted surveys undertaken	No targeted surveys undertaken	0 detections	2 sightings during fixed point count surveys	0 detections, no fargeted surveys undertaken	4 sightings, 21 other detections
rufous fantail	Mi	1 sighting during SEVT survey	2 sightings via fixed point count survey	0 detections	0 detections	0 detections	0 detections	0 detections	0 detections	0 detections	3 sightings
satin flycatcher	Mi	0 detections	0 detections	t opportunistic	1 sighting during fixed	0 detections	1 sighting during fixed	0 detections	0 detections	0 detections	3 sightings

NOTE: See Appendix E: Supplement to the Assessment of MNES, Section 2.2, Table 4 and Section 3.2 additional context



Species	EPBC status	Spring 2018	Autumo 2019	Spring 2020	Spring 2021	Summer 2022	Autumn 2022	Winter 2022	Spring 2022	Summer 2023	Total
				sighting	point count survey		point count				
fork-tailed swift	Mi	0 detections	0 detections	0 detections	0 delections	0 detections	0 detections	0 detections	0 detections	2 detections during fixed point count surveys	2 sightings

^{*} Conservation status: NC Act: V – Vulnerable, SEC – Special Least Concern; EPBC Act status: V – Vulnerable, Mi – Migratory Species.

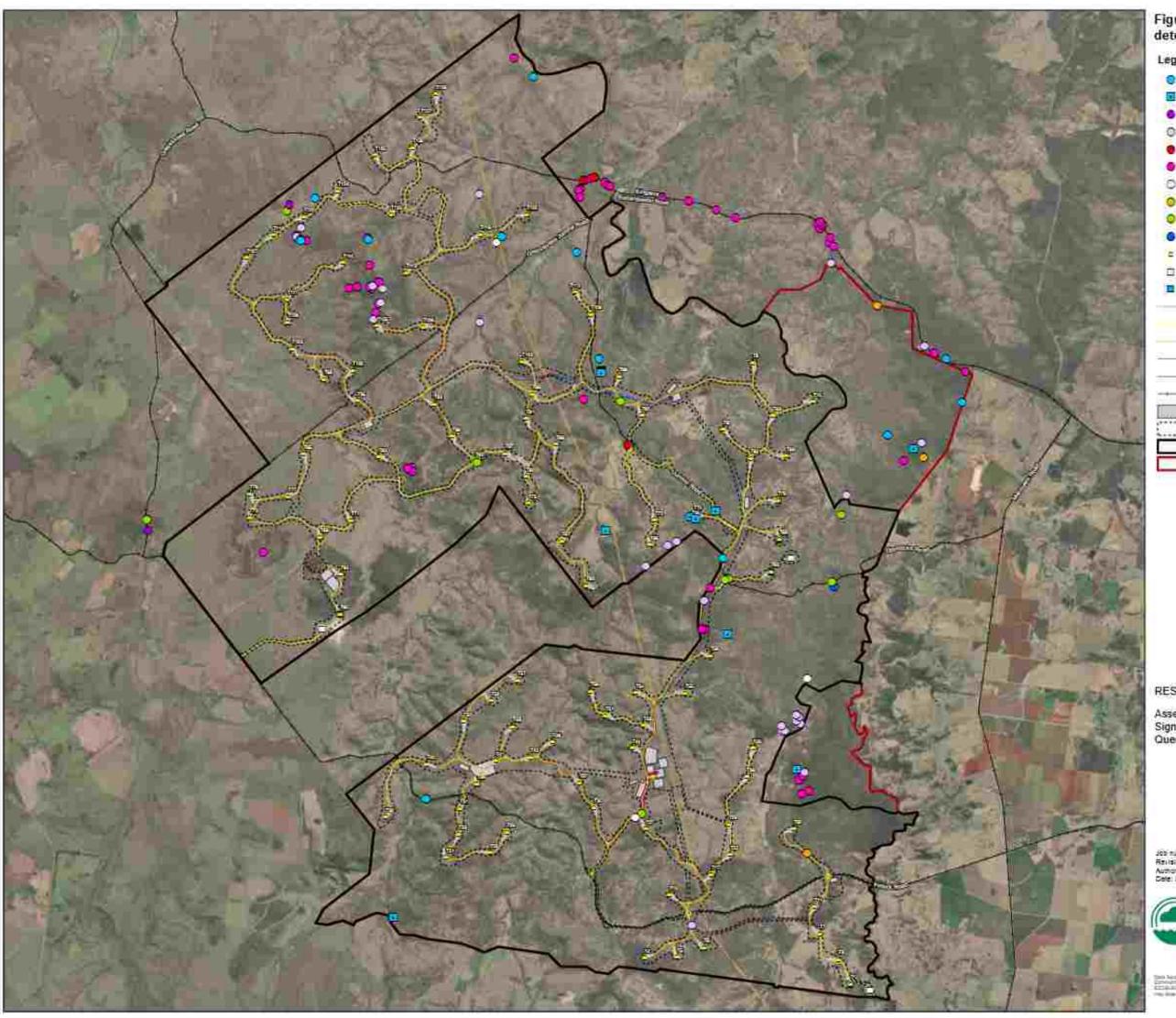


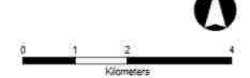
Figure 9: Threatened and migratory fauna detected during surveys 2018 - 2023

Legend

- Koala (sighting)
- Koala (scals / scratches)
- Glossy black-cockatoo (sighting)
- Glossy black-cockatoo (orts)
- Grey-headed flying-fox (sighting)
- Greater glider (sighting)
- Satin flycatcher (sighting)
- Rufous fantall (sighting)
- White-throated needletail (sighting)
- Fork-tailed swift (sighting)
- = WTG
- ☐ Meteorological mast (permanent)
- Meteorological mast (temporary)
 - Turbine hardstand
- Access track
- Existing 275kV transmission line
- OHL reticulation
- UG reliculation
- Road
- Infrastructure
- Planning corridor
- Project boundary
- Previous project boundary

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Assessment of Matters of National Environmental Significance for Tarong West Wind Farm, Ironpot, Queensland



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4.6 Introduced species

Surveys were conducted to catalogue introduced flora and fauna species within the project site. This provides an understanding of the current condition of existing communities and habitat across the project site, as well as identifying introduced species which may impact on threatened species. Surveys recorded 104 introduced flora species (Appendix 4) and 12 introduced fauna species (Appendix 5). Table 30 lists pest species (species that are of concern to local landholders and/or have the potential to cause significant environmental impacts) and their status under state and federal legislation. Ten species are listed as restricted matters under the Queensland Biosecurity Act 2014 and three species are listed as WoNS. The South Burnett Biosecurity Surveillance Program for Restricted and Prohibited Matter under the Queensland Biosecurity Act 2014 (SBRC 2016) does not list any additional species as local priority pest species.

Table 30 Pest flora and fauna species recorded during surveys

Species	Common name	Wons	Biosecurity Act status (restricted invasive species)
Bidens pilosa	cobbler's pegs	No	<u> </u>
Dolichandra unguis-cati	cat's claw creeper	Yes	Restricted
Eragrostis curvula	African lovegrass	No	£
Heliotropium amplexicaule	Blue heliotrope	No	2
Lantaria camara	Tantana	Yes	Restricted
Lantana montevidensis	creeping lantana	No	Restricted
Ligustrum lucidum	broad-leaf privet	No	Restricted
Megathyrsus maximus	guinea grass	No	æ
Opuntia tomentosa	velvety tree pear	Yes	Restricted
Schinus molle	narrow leaf pepper tree	No	2
Sporobolus africanus	African rat's tail grass	No	<u>.</u>
Vachellia famesiana	Mimosa	No	
Xanthium occidentale	Noogoora burr	No	×
Xanthium spinosum	Bathurst burr	No	£
Canus lupus / C, 1 dingo	wild dog / dingo	=	Restricted
Sus scrofa	wild pig	Je	Restricted
Vulpes vulpes	European red fox		Restricted
Felis catus	feral cat	e:	Restricted
Oryctolagus cuniculus	European rabbit		Restricted
Rhinella marina	cane toad	Ē	¥
Lepus europaeus	European hare		2.



Other exotic species include pasture grasses that have been introduced to improve the forage value of the land, including Rhodes grass (Chloris gayana*), couch (Cynodon dactylon*, C. nlemfuensis*) and red Natal grass (Melinis repens*).



Matters of National Environmental 5 Significance in project site

This section (Section 5) details the MNES and suitable habitat for these matters within the project site. Impacts to these MNES are detailed in Section 6, and impact assessments after applying mitigation measures (Section 7) are detailed in Section 8.

Threatened ecological communities 5.1

The project site has been extensively cleared with only 9.4% of the site retaining remnant vegetation. Surveys detected one patch of vegetation that was potentially consistent with SEVT TEC under the EPBC Act. This patch was assessed against key diagnostic criteria or community characteristics that are currently available for the relevant TEC.

Surveys did not detect any vegetation consistent with the Lowland Rainforest of Subtropical Australia or Brigalow (Acacia harpophylla dominant and co-dominant).

511 Semi-evergreen vine thickets of the Brigalow Belt (North and South) and Nandewar Bioregions

RE 11.8.3 (Semi-evergreen vine thicket on Cainozoic igneous rocks) is a component RE of the semi-evergreen vine thickets of the Brigalow Belt (North and South) and Nandewar Bloregions TEC.

Surveys identified one potential occurrence of this community (Figure 7). The patch is approximately 0.6 ha in area and is growing beside a creek on Lot 29 on BO243 near the south-western boundary of the project site, outside of the planning corridor (Figure 7). This community is not consistent with the SEVT TEC as it has a canopy dominated by eucalypts and a sparse mid-storey of vine thicket species (Table 31). Therefore, this community is not a TEC.

Table 31 Assessment of vine thicket patch against TEC community characteristics

Community characteristic	Survey result	Consistent with characteristic
In Brigalow Belt bioregion	Community lies in Brigalow Belt bioregion	Yes
Component RE	RE 11.8.3	Yes
Species structure typical of RE (canopy 4-9 m tall, emergents 9-18 m tall)	Canopy dominated by eucalypts 15 m tall and 10% cover. T2 layer 8 m tall and 5% cover.	Eucalypt canopy is too dense and T2 layer too sparse
Species composition typical of RE	15 woody species with some canopy, shrub and vine species characteristic of vine thickets	Yes



5.2 Listed threatened flora species

The desktop assessment identified three EPBC Act-listed flora species that are possible to occur within the project site (Section 2.5). Table 32 summarises results of field surveys for these species.

Table 32 Results of surveys for EPBC Act listed flora species

Species	EPBC Act	Survey results		
Wandering peppercress (Lepidium peregrinum)	E	Not detected. Random meanders conducted within various riparian communities (RE 11.3.25). Several populations of a <i>Lepidium</i> species were detected, but these were the introduced <i>L. bonariense</i> and <i>L. africanum</i> . Nearest known records over 20 km from site in Bunya Mountains (within very different montane habitat).		
		Possible in riparian communities, especially along Boyne River.		
		Further surveys recommended if development is proposed in additional riparian areas outside of the existing planning corridor.		
Austral comflower (Leuzee australia synonym Rhaponticum australe)	v	Not detected. Random meanders conducted within various eucalypt woodland communities (RE 11.3.25, 11.5.20, 11.7.6, 11.11.4, 11.11.15, 11.12.3, 11.12.6). No known records within 10 km.		
		Possible in areas of heavy clay soils derived from basalt, which occur only in the western corner of the project-site. Unlikely in other areas.		
		Further surveys recommended if development proposed in areas of heavy black soils outside of the existing planning corridor. However, no development is currently proposed in these areas of the site (Figure 10).		
Austral toadflax (Thesium australe)	v	Not detected, Random meanders conducted within various eucalypt woodland communities (RE 11.3.25, 11.5.20, 11.7.6, 11.11.4, 11.11.15, 11.12.3, 11.12.6). Queensland Herbarium records from HVR RE 11.3.25 beside Jarail Road, approximately 1 km west of western boundary.		
		Possible in eucalypt communities in damp areas. Within the project site, this habital is restricted to riparian areas, especially along Boyne River (i.e. RE 11.3.25).		
		Further surveys recommended if development proposed in additional riparian areas outside of the existing planning corridor.		

^{*} EPBC Act status: CE - critically endangered; E - endangered; V - vulnerable

Wandering peppercress and Austral toadflax were not detected during surveys, but may potentially occur in remnant and non-remnant riparian areas within the project site. Potential habitat within the project site was modelled as riparian areas associated with mapped watercourses, including remnant and non-remnant vegetation, as follows:

- 100 m riparian corridor along stream order 3 and 4 watercourses
- 200 m riparian corridor along stream order 5 and 6 watercourses.

Potential habitat for wandering peppercress and Austral toadflax is shown in Figure 10. The project site contains approximately 980 ha of riparian areas that contain potential habitat for these species.

Austral comflower was not detected during the survey, but may potentially occur in woodland and grassland communities on heavy clay soils derived from basalt. These habitats occur only



in the south-western corner of the project site, associated with landzone 8. The project site contains approximately 0.6 ha of potential habitat for Austral cornflower (Figure 10).

5.2.1 Wandering peppercress

Wandering peppercress is a perennial herb that occurs from the Bunya Mountains in southeast Queensland to near Tenterfield in northern NSW (DoE 2014b). The estimated extent of occurrence is approximately 50,000 km². The total area of occupancy was estimated to be less than 100 ha in 2014 (DoE 2014b), but is likely to be larger, as ALA (2022) contains numerous records collected since this date. The total population size is unknown.

Most populations are known from riparian open forest and woodland (DoE 2014b). The closest known records are approximately 20 km south of the project site in the Bunya Mountains (ALA 2022). These records include a cleared creek terrace, the edge of montane rainforest at Dandabah and garden beds containing soil transported from the Dandabah rainforest site. Surveys did not detect this species within the project site, but remnant and non-remnant riparian areas could provide potential habitat.

5.2.2 Austral toadflax

Austral toadflax is a small inconspicuous herb that is semi-parasitic on the roots of several grass species, including kangaroo grass (*Themeda triandra*) (DoE 2013c). It has a sporadic distribution from Carnarvon National Park, central Queensland, to Victoria (DoE 2013c). Total population size is unknown, but could be between 100,000 to 1,000,000 individuals (DoE 2013c).

In Queensland, it grows in damp grassland and woodland (DES 2022a). Potential habitat within the project site is restricted to remnant and non-remnant vegetation within riparian areas. Surveys did not detect this species within the project site, but two records are located in HVR of RE 11.3.25 (fringing riparian woodland) adjacent to Jarail Road, about 1 km west of the project site. It is possible that the species may be present in the project site.

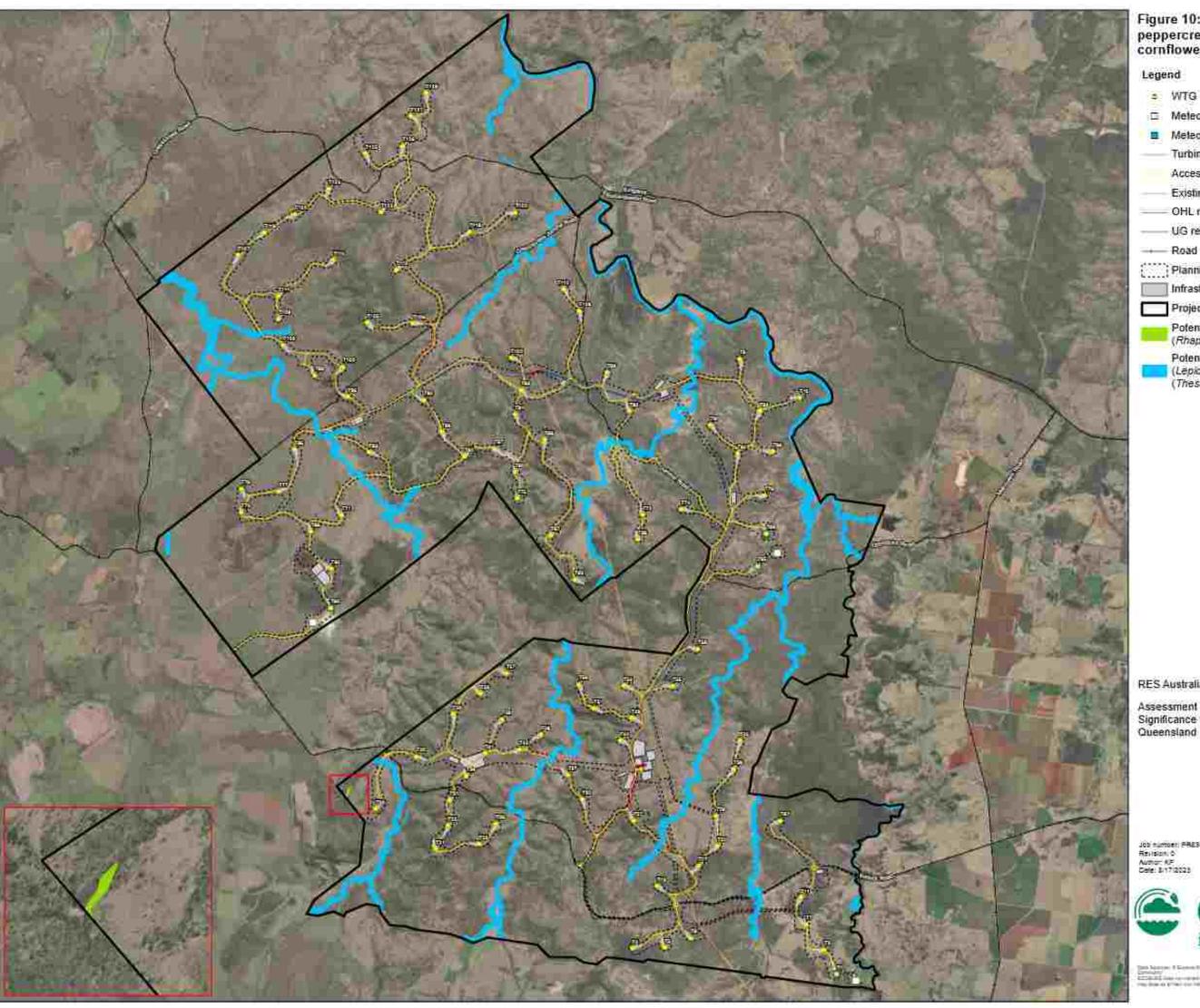
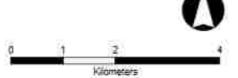


Figure 10: Potential habitat for wandering peppercress, Austral toadflax and Austral cornflower

- = WTG
- ☐ Meteorological mast (permanent)
- Meteorological mast (temporary)
- Turbine hardstand
- Access track
- Existing 275kV transmission line
- OHL reticulation
- UG reticulation
- ---- Road
- Planning corridor
 - Infrastructure
- Project boundary
- Potential habitat for Austral cornflower (Rhaponticum australe)
- Potential habitat for wandering peppercress (Lepidium peregrinum) and Austral toadflax (Thesium australe)

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Assessment of Matters of National Environmental Significance for Tarong West Wind Farm, Ironpot,



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5.3 Listed threatened fauna species

Table 33 summarises the results of surveys for threatened species potentially occurring within the site, further detail for these species are provided in the section below.

Field surveys at the project site have been conducted over six consecutive years including four spring, two autumn, two summer, and one winter survey. Both targeted and opportunistic surveys have been conducted for the threatened species of interest, providing a comprehensive understanding of the fauna assemblages present at the project site.

Table 33 Results of surveys for EPBC Act listed fauna species

Name	EPBC Act	Confirmed 15 individuals sighted (12 within and 3 adjacent to the project site). 14 scal detections, 7 scratched trees recorded during fauna surveys within the project site. Primarily associated with RE 11.3.25, but food species are also a component of remnant. HVR and non-remnant vegetation (including REs 11.5.20, 11.7.6, 11.11.4, 11.11.15, 11.12.3 and 11.12.6). No further surveys recommended.		
koala Phascolarcies cinereus	(C)			
greater gilder Petauroides volans	E	Confirmed Suitable habitat exists within productive communities on alluvial soils dominated by Queensland blue gum (RE 11.3.25) and tall eucatypt forests. A total of 70 greater gliders were detected during spotlighting surveys within habitats containing REs 11.11.4, 11.11.15, 11.12.3 and 11.12.6, primarily on hill crests. Habitat assessments recorded large hollow-bearing trees in all of these REs, which may provide denning resources.		
		No further surveys recommended.		
Corben's long- eared bat Nyctophilus corbeni	v	Not detected Species or species habital may occur within project site (DCCEEW 2023a) but no records within 20 km. Harp trapping took place in remnant REs across the project site, including: 11 11.15/11.3.25, 11.12.6/11.11.4 and 11.12.6. Calls of a Nyctophilus species were recorded, but probably from N, geoffroyi or N gouldi (both common species recorded within 10 km of the project site). Three N, geoffroyl individuals were captured at two locations during spring 2021 surveys Habitat surveys recorded very limited suitable habitat (forest with intact canopy and distinct dense mid stratum).		
		Unlikely to occur within project site. No further acoustic surveys recommended. BBUS describes additional pre-construction monitoring for this and other bat species, including harp-trapping.		
Spotted-tall quoli Dasyurus maculatus		Not detected		
	E	Species or species habital may occur within the project site (DCCEEW 2023a) but nearest recent records are over 20 km south of the site in Bunya Mountains (which contain very different montane habital). Camera trapping and spotlighting took place in remnant REs across the project site. Habital surveys recorded very limited suitable habital.		
		Unlikely to occur within project site. No further surveys recommended.		



EPBC Act	Survey results		
	Confirmed foraging		
v	Observed foraging within the site during the spring 2021 surveys when food species were in flower, although no habitats are considered to be critical food sources for this species. Nearest known grey-headed flying-fox camp is near Cooyar (38 km south-east of site) and is a nationally important camp containing 10,000 - 16,000 bats in 2018 Grey-headed flying-foxes are known to roost with other species of flying-fox including little red flying-foxes (<i>Pteropus scapularis</i>) and black flying-foxes (<i>Pteropus alecto</i>) (Timmiss et al. 2020). Little red flying-foxes were detected during the survey and a camp is reported to occur to the south of the site (landholder pers. comm.). However, the specific location and species composition of the camp is not known.		
	Likely to forage in site when ironbarks and lemon-scented gums are flowering		
v	Confirmed Observed during spring and summer surveys from 2018 to 2023 (n = 232 sightings in total). Forage above most habitats and roost in dense foliage or tree hollows		
v	Not detected Suitable habitat exists within one small patch of RE 11.8.3 in the south-western corner of the site and records present within 20 km of the site. Not detected during targeted surveys.		
	Possible in small patches of vine thicket on western edge of site. Unlikely elsewhere in site. No further surveys recommended as no development is proposed in or adjacent to vine thicket habitats.		
v	Not detected PMST considers species or species habital likely to occur within project is (DCCEEW 2023a) but closest Wildnet records about 20 km south of site in Bur Mountains (which contain very different montane habital). Active and opportunities arches took place in eucalypt woodlands and open forests. Very few si contained their preferred micro-habital, exposed rocky outcrops and act searches in these sites did not detect collared delma. Habital surveys did record preferred rocky habital in land zones 3, 9 and 10 (DSEWPaC 2011d). Sin areas of scree slopes in land zone 8 and 11 may provide marginal habital. Unlikely to occur within project site. No further surveys recommended.		
	Confirmed		
×	Suitable foraging habitat exists in small patches amongst forest and woodland communities across the site. A total of four glossy black-cockatoo individuals were observed, two adjacent to a dam and two in a forested area. Signs of chewings (orts) have been observed in patches of woodland containing Allocasuarina torulosa. A littoralis, A luehmannii and Casuarina cunninghamiana Habitat assessments recorded large hollow-bearing trees in remnant REs, which may provide denning resources. Pre-clear hesting surveys during clearing recommended.		
	v		

5.3.1 Koala

The field surveys recorded 12 koala sightings within the project site and 3 sightings in areas adjacent to the project site. An additional 21 signs of koala (koala scats and scratches) were observed within and adjacent to the project site. Koala sightings and signs were predominantly in remnant vegetation containing Queensland blue gum (*Eucalyptus tereticornis*) in RE 11.3.25 and narrow-leaved ironbark (*Eucalyptus crebra*) in REs 11.5.20, 11.7.6, 11.11.4, 11.11.15, 11.12.3 and 11.12.6. Figure 12 shows locations of koala records within the site.

Most REs within the project site contain food trees that koalas are known to use, and the koala population is likely to be widespread throughout the site. Table 34 lists tree species recorded during site surveys that are known to be used by koalas in the Brigalow Belt bioregion NOTE: See Appendix E: Supplement to the Assessment of MNES Section 2.4.2 and Section 3.2.1 for detailed design changes and additional context



(Youngentob et al. 2021), SBRC region (Mitchell 2015), and south-east Queensland (QPWS 2002); and/or species identified as koala food trees in Queensland essential habitat mapping (DoR 2022b).

A recent review of koala habitat (Youngentob et al. 2021) Identified locally important koala trees (species that are regularly browsed by koalas) and ancillary habitat trees (species that provide shelter or other resources) within bioregions. Surveys recorded six species that are locally important koala trees in the Brigalow Belt bioregion and four species that are ancillary habitat trees (Table 34).

Mitchell (2015) lists the primary koala food tree species in the SBRC area as Queensland blue gum, which occurs as a dominant species in areas of RE 11.3.25 within the project site. Surveys also recorded seven species identified as secondary koala food species in SBRC (Mitchell 2015) or SEQ (QPWS 2002). Two secondary food species, spotted gum (Corymbia citriodora) and narrow-leaved ironbark (Eucalyptus crebra), are dominant or common canopy species in REs 11.5.20, 11.7.6, 11.11.4, 11.11.15, 11.12.3 and 11.12.6. Approximately 23.2 ha of vegetation dominated by RE 11.3.25 (HVR and remnant) occurs within the site and a further 1.628.6 ha of remnant and HVR vegetation contains secondary koala food species.

Table 34 Known koala food/habital species recorded during surveys

Species					
	SBRC	SEQ	Outside SEQ	Brigalow Belt	Source*
Acacia salicina				Ancillary habitat	Y
Corymbia citriodora		Secondary	Yes	Ancillary habitat	Q, D, Y
Corymbia tessellaris			Yes	Ancillary habitat	D, Y
Eucalyptus acmenoides				Ancillary habitat	Ã
Eucelyptus crebre		Secondary	Yes	Locally important	Q, D, Y
Eucalyptus exserta	Secondary	Secondary	Yes	Locally important	M, Q. D, Y
Eucalyptus major	Secondary	Secondary		Locally important	M, Q, Y
Eucalyptus melanophioia			Yes	Locally important	D, Y
Eucalyptus moluccana		Secondary		Locally important	Q, Y
Eucalyptus tereticomis	Primary	Primary	Yes	Locally important	M, Q, D, Y

^{*} Source: D = DoR 2022b; M = Mitchell 2015; Q = QPWS 2002; Y = Youngentob et al. 2021.

The surveys recorded koalas in remnant, HVR and non-remnant vegetation within the site. Potential habitat for koala within the site was therefore modelled through GIS analysis incorporating surveyed koala locations within the project site, information on koala habitat preferences in the SBRC region, ground-truthed remnant and HVR vegetation, and available mapping of pre-clearing REs (DoR 2022a, 2022b), woody vegetation foliage projective cover (DES 2016) and recent clearing (DES 2016, 2018b). NOTE: See Appendix E: Supplement to the Assessment of MNES, Table 4, Table 13, Section 3, Section 3.2 and Section 3.2.1 for additional context



Ground-truthed remnant and HVR REs (described in Section 4.2) that contain known koala food trees (described in Table 34) include REs 11.3.25, 11.5.20, 11.7.6, 11.11.4, 11.11.15, 11.12.3 and 11.12.6. The project site contains approximately 1,651.8 ha of remnant/HVR vegetation that provide potential koala habitat.

Non-remnant areas of vegetation that contain sufficient food and habitat resources can also provide high quality koala habitat (Cristescu et al. 2019, Youngentob et al. 2021). Koala records in non-remnant areas of the project site were in patches of partially cleared or regenerating eucalypts, such as *Eucalyptus crebra*, *Eucalyptus citriodora* and *Eucalyptus tereticornis*. These patches generally had a mid-dense canopy cover and some connectivity to similar patches throughout the landscape. Potential koala habitat within the non-remnant areas of the project site was modelled through GIS analysis to determine the total available suitable habitat likely to support koala.

5.3.1.1 Koala non-remnant habitat model

GIS modelling of potential koala habitat in non-remnant areas utilised Statewide Landcover and Trees Study (SLATS) land cover mapping for Queensland. This data set measures projective foliage cover of woody vegetation by analysing dry season Landsat satellite imagery with a pixel size of 30 m by 30 m (DES 2016, 2018b). Cover levels vary from 100 (0% foliage projective cover) to 200 (100% foliage projective cover). Comparison of varying cover levels determined that a threshold cover level of 125 (25% foliage projective cover) gave the best inclusion of woody vegetation. Figure 11 shows modelling using thresholds of 125 and 120 overlaid on recent satellite imagery within a representative section of the project site. The 125 threshold model more accurately reflects the distribution of woody to non-woody vegetation cover and provides a more reflective model of available koala habitat and dispersal corridors within the project site. Whereas, the 120 threshold model incorporates substantial areas of non-woody vegetation, which does not contain suitable habitat for the koala, thereby over representing the areas of available koala habitat or corridors within the project site. Additionally, the 125 model most accurately represents the habitat available where records of koalas have been located on the site (Figure 12) and which were ground-truthed to be consistent with the mapped vegetation (Figure 7).

The foliage projective cover method was validated by comparing the SLATS land cover mapping to lidar data collected from the site in 2019. The two datasets are concordant, with significant trees identified by lidar falling within areas of koala habitat modelled using the 125 threshold cover level of the SLATS dataset.

Modelling of potential koala habitat in non-remnant areas used the following mapping rules:

- pre-clear vegetation mapping (DoR 2022a) containing REs that are listed as essential habitat factors for koala (DoR 2022b), including eucalypt woodland/forest REs 11.3.4, 11.3.25, 11.5.20, 11.7.6, 11.9.5, 11.10.1, 11.11.4a, 11.11.15, 11.12.3 and 11.12.6
- woody vegetation foliage projective cover greater than a value of 125, based on Landsat imagery from 2014 (DES 2016)
- no evidence of clearing from 1998 to 2018, based on analyses of change in woody vegetation cover by the Statewide Land and Tree Survey (DES 2018b)

NOTE: See Appendix E: Supplement to the Assessment of MNES Section 2.4.2 and Section 3.2.1 for detailed design changes and additional context



 habitat patches greater than 0.3 ha in size (i.e. removing isolated habitat patches less than 0.3 ha) as these isolated patches do not contribute significantly to habitat connectivity within the project site.

Figure 12 shows locations of koala records within the site in relation to the modelled extent of potential koala habitat in remnant/HVR and non-remnant areas. The project site contains approximately 5,833.99 ha of potential koala habitat containing koala food species (approximately 33.3% of the entire project site), including 1,651.8 ha of remnant/HVR vegetation and 4,182.19 ha within non-remnant areas. The clearing footprint (1,062.14 ha) contains approximately 186.03 ha of modelled koala habitat containing koala food species (approximately 3.19% of the project site and 17.5% of the clearing footprint). Importantly, the modelled habitat incorporates all known koala records within the project site and includes numerous internal corridors that connect most larger patches of koala habitat across the site, which koalas would use for dispersal. Internal corridors are generally associated with more rugged terrain and larger watercourses (although the model does not capture some heavily cleared watercourses).

Figure 13 shows remnant habitat blocks that may provide important koala habitat surrounding the project site and potential movement corridors to promote regional connectivity of koala populations. Much of the project site and surrounding region is significantly fragmented by previous clearing. Areas to the east and south are extensively cleared for cropping and provide very limited connectivity. However, broken areas of vegetation provide some connectivity northwards to Dangore State Forest (approximately 5 km north of the site) and westwards to Diamondy State Forest (approximately 5 km west of the site). The Boyne River may also act as a riparian corridor, although the riparian zone is mostly heavily cleared with only a narrow band of woody vegetation along the banks.

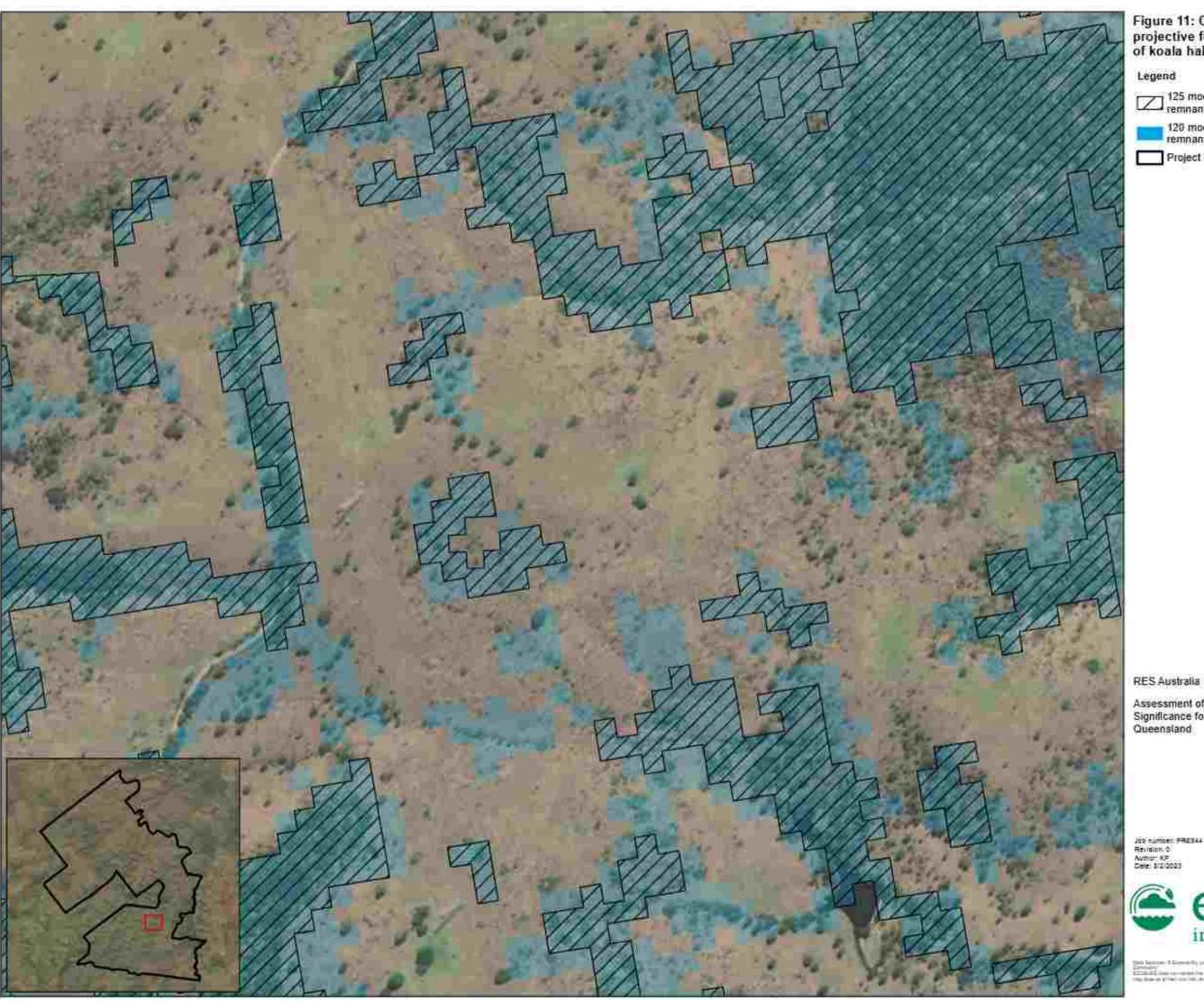


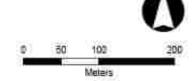
Figure 11: Comparison of woody vegetation projective foliage thresholds on modelling of koala habitat

125 model - potential koala habitat (non-remnant)

120 model – potential koala habitat (non-remnant)

Project boundary

Assessment of Matters of National Environmental Significance for Tarong West Wind Farm, Ironpot, Queensland



Job number: PRES44 Revision: 0 Aumor 67 Cele: 8/2/2023

GDA 1984 MSA Zone SS Projection: Transverse Melicator Datum: GSA 1984



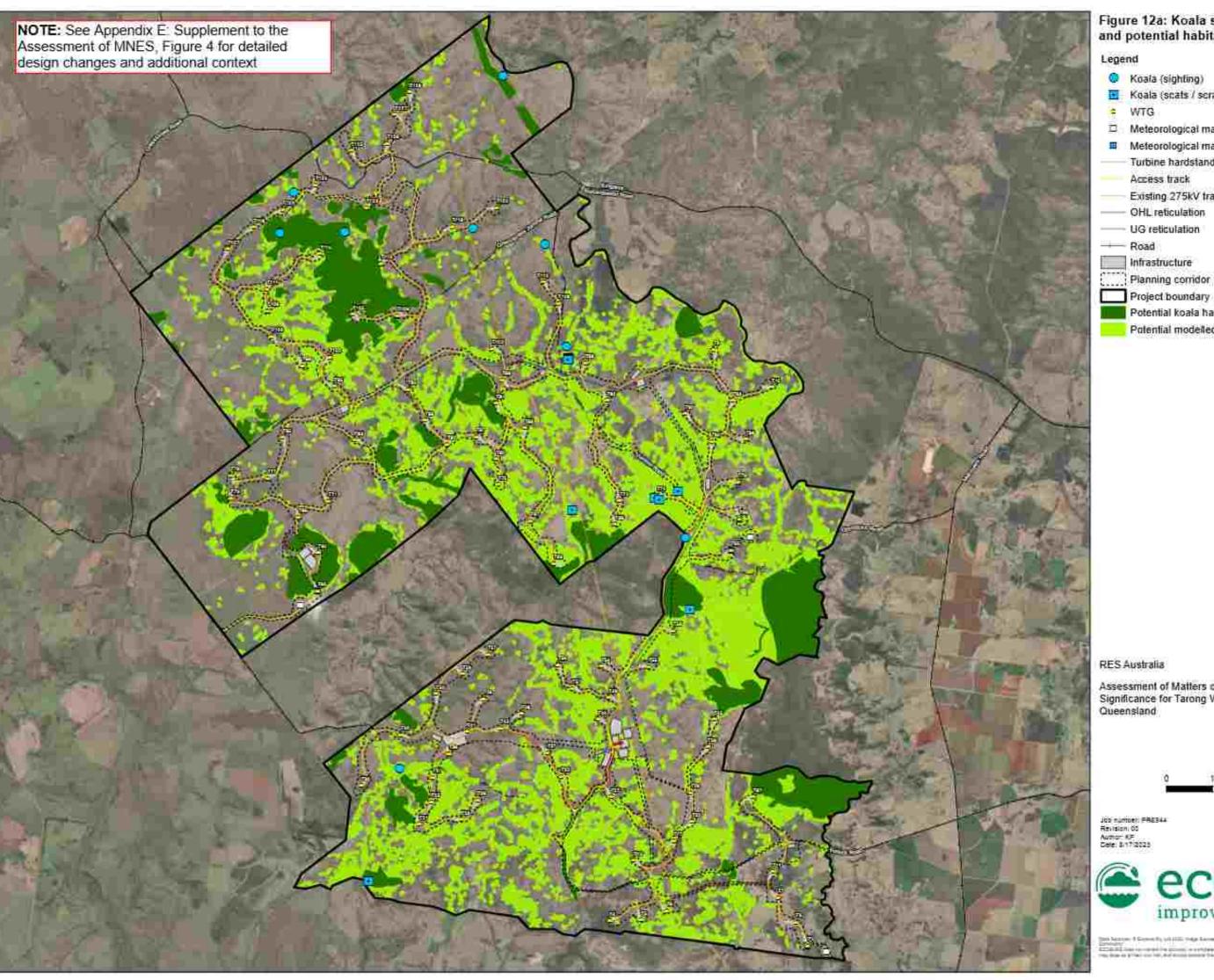


Figure 12a: Koala survey records 2018 - 2023 and potential habitat

Koala (sighting)

Koala (scats / scratches)

☐ Meteorological mast (permanent)

Meteorological mast (temporary)

Turbine hardstand

Access track

Existing 275kV transmission line

OHL reticulation

Infrastructure

Project boundary

Potential koala habitat (remnant / HVR)

Potential modelled koala habitat (non-remnant)

Assessment of Matters of National Environmental Significance for Tarong West Wind Farm, Ironpot,



GDA 1984 MSA Zone SE Projection: Transverse Mercator Datum: GSA 1984



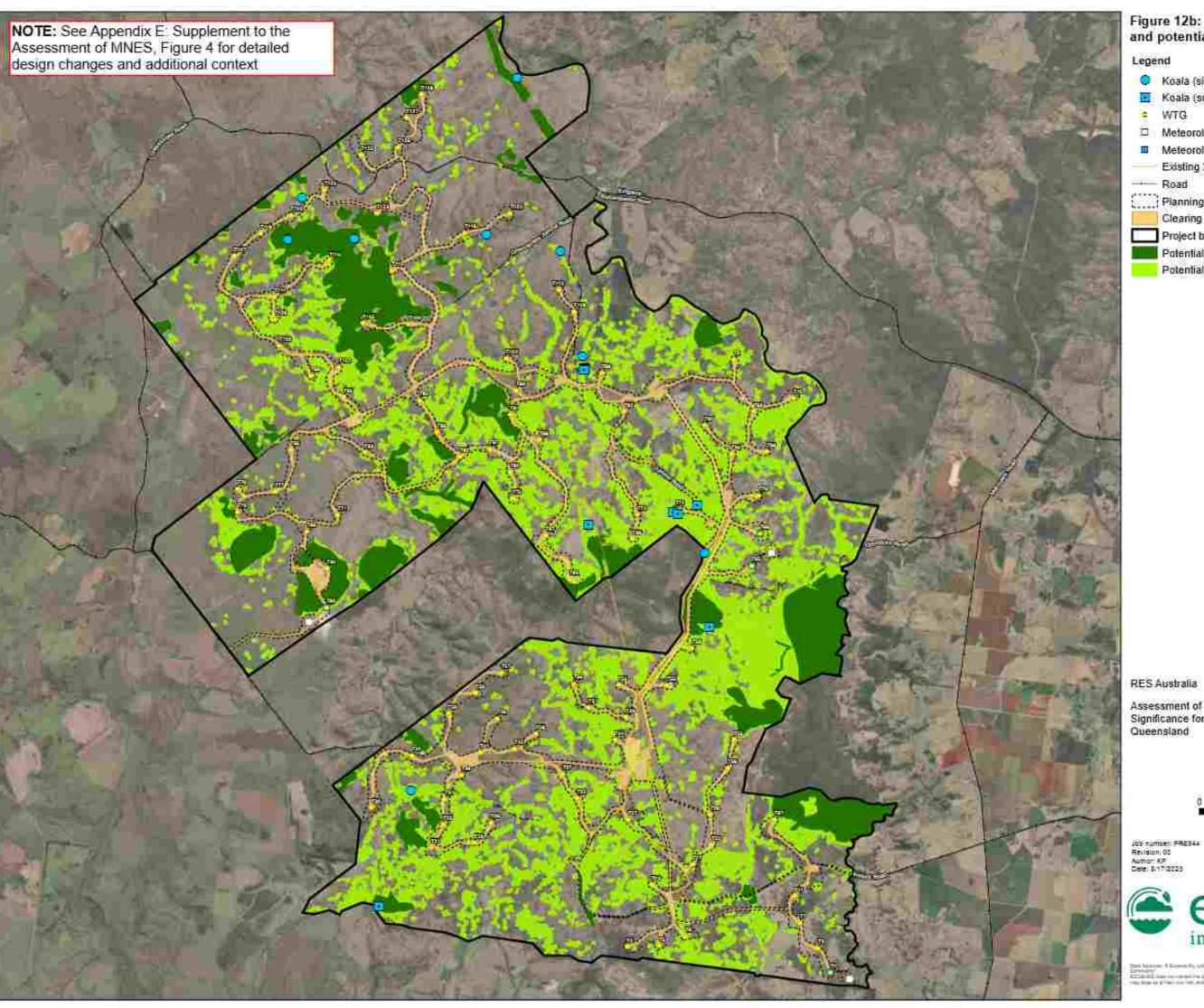


Figure 12b: Koala survey records 2018 - 2023 and potential habitat within clearing footprint

Koala (sighting)

Koala (scats / scratches)

☐ Meteorological mast (permanent)

Meteorological mast (temporary)

Existing 275kV transmission line

Planning corridor

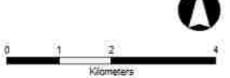
Clearing footprint

Project boundary

Potential koala habitat (remnant / HVR)

Potential modelled koala habitat (non-remnant)

Assessment of Matters of National Environmental Significance for Tarong West Wind Farm, Ironpot,



GDA 1984 MSA Zone SE Projection: Transverse Mercator Datum: GSA 1984





Figure 13: Regional and local koala connectivity

Koala record (Wildnet)

Boyne River

State road

Project boundary

Protected area

Remnant / HVR vegetation

Assessment of Matters of National Environmental Significance for Tarong West Wind Farm, Ironpot, Queenstand



GDA 1984 MSA Zone SS Projection: Transverse Melicator Datum: GSA 1984



NOTE: See Appendix E: Supplement to the Assessment of MNES Section 2.5.2 and Section 3.2.2 for detailed design changes and additional context



5.3.2 Greater glider

Spotlight surveys recorded 70 greater gliders in 55 locations (Figure 14), including:

- 33 gliders inside the project site
- 37 gliders outside the site (along Kingaroy Burrandowan Road and in properties now excluded from the project site, in habitat identical to that occurring in the site).

Greater gliders were predominantly recorded on hill crests in remnant forest containing REs 11.11.4, 11.11.15, 11.12.3 and 11.12.6. Two individuals were recorded in HVR vegetation adjacent to remnant forest. Habitat assessments confirmed that these REs and the riparian RE 11.3.25 contained trees with large hollows suitable for denning by greater gliders.

The national population of greater gliders is believed to be over 100,000 mature individuals (Wolnarski et al. 2014). Population density in coastal lowland forest near Maryborough ranged from 1.6 to 2.3 individuals per ha (Kehl & Borsboom 1984), while density in dry sclerophyll forest in Barakula State Forest ranged from 0.1 to 0.36 individuals per hectare (Smith et al. 2007). Population density was lower in areas with low availability of den trees containing suitable large hollows (Smith et al. 2007).

The EPBC Act conservation advice for greater glider identifies suitable habitat as eucalypt forests or woodlands that contain hollow-bearing trees, with highest abundance in taller, montane, moist eucalypt forests with relatively old trees and abundant hollows (TSSC 2016). Eyre et al. (2022) reviewed greater glider distribution and habitat information in Queensland and identified potential habitat as:

- REs with confirmed greater glider records or identified by experts as potential greater glider habitat
- areas with suitable habitat attributes, such as hollow-bearing trees, feed trees, large trees and habitat connectivity (but not necessarily containing all attributes).

Important habitat attributes identified in the review included:

- dominant or co-dominant species in most greater glider habitat in Queensland were Corymbia citriodora, Eucalyptus moluccana, E. tereticornis, E. crebra, C. intermedia and E. portuensis
- preferred denning trees had a DBH > 50 cm and preferred foraging trees were > 30 cm DBH.

Field surveys confirmed that suitable habitat was restricted to remnant and HVR vegetation containing REs 11.3.25, 11.11.4, 11.11.15, 11.12.3 and 11.12.6.

Potential greater glider habitat was therefore modelled as the ground-truthed extent of remnant and HVR vegetation dominated by REs 11.3.25, 11.11.4, 11.11.15, 11.12.3 and 11.12.6 (Figure 14). The project site contains approximately 1,651.8 ha of potential habitat for the species (321.35 ha HVR and 1,330.45 ha remnant). Greater gliders will use non-remnant areas of the project site to traverse between habitat patches, but these areas are unlikely to provide suitable habitat (e.g. denning sites and density of trees) for sustained periods of

NOTE: See Appendix E: Supplement to the Assessment of MNES Section 2.5.2, Section 3.2.2 and Section 3.2.5 for detailed design changes and additional context



occupancy.

Figure 13 presents the remnant habitat blocks surrounding the project site and potential movement corridors to promote regional connectivity of for greater gliders.

5.3.3 Grey-headed flying fox

Spring 2021 surveys detected grey-headed flying-fox foraging within the site. Grey-headed flying-fox prefer sub-tropical and temperate rainforest, tall open forest, swamps, heaths and urban areas. Roosting sites (camps) are usually found in dense forest adjacent to waterbodies. This species forages in flowering rainforest trees, eucalypts, paperbarks and banksias within 50 km of camps. It is highly nomadic and disperses in response to food availability (DCCEEW 2023b), so seasonal and yearly fluctuations in camp sizes do occur (DAWE 2021b).

Prior correspondence with DCCEEW has indicated grey-headed flying-foxes are known to forage within habitats similar to the koala (i.e. eucalypt dominated communities). The nearest known grey-headed flying-fox camp is near Cooyar (38 km south-east of the project site) and is a nationally important camp containing 10,000-16,000 bats in 2018 (DCCEEW 2022). Most recently in 2022, this camp was estimated to contain 500-2,500 bats (DCCEEW 2022). The project site lies within the nightly foraging range of the species (up to 50 km from camps) and therefore may be utilised for foraging by grey-headed flying-fox when feed species are in flower or fruit. However, generally this species forages within 15 km of their day roost site (Tidemann 1998).

Potential grey-headed flying-fox foraging habitat was modelled as the ground-truthed extent of remnant and HVR vegetation with eucalypt and vine thicket species containing foraging resources, and non-remnant areas modelled as containing habitat suitable for koala (see section 5.3.1) (Figure 15). There are no known camps within the project site and the nearest known camp is 38 km southeast of the project site.

The project site contains approximately 5,834.62 ha of potential foraging habitat for the greyheaded flying-fox (including 1,652.43 ha of remnant/HVR vegetation and 4,182.19 ha within non-remnant areas).

5.3.4 Glossy black-cockatoo

Glossy black-cockatoos are widespread across Queensland and New South Wales. They feed exclusively on the seeds of she-oaks, extracting the seeds from closed cones and leaving characteristic feeding litter (orts) under feeding trees (Morcombe 2004). The glossy black-cockatoo can spend up to 88% if its day foraging and feeding (Morcombe 2004). They utilise large hollows in living and dead trees and usually occur in pairs or groups of three (Morcombe 2004). Very little is known about the flight heights or behaviours of the glossy black-cockatoo, but the Kangaroo Island subspecies (Calyptorhynchus lathami halmaturinus) is capable of flying up to 30 km a day between nests and feeding areas (Mooney and Pedler 2005).

Surveys confirmed four sightings and signs of glossy black-cockatoo foraging activity (orts) at 21 locations. Sultable foraging habitat exists in small patches of Allocasuarina torulosa, A littoralis, A luehmannii and Casuarina cunninghamiana amongst forest and woodland communities across the site. Large hollow-bearing trees in remnant REs may provide nesting

NOTE: See Appendix E: Supplement to the Assessment of MNES Section 3.2.4 for detailed design changes and additional context



resources. Glossy black cockatoo require large old tree hollows, positioned 10 to 20 m above the ground in eucalypt species, in branches/stems 30 cm in diameter, at a branch/stem angle of vertical or no more than 45 degrees from vertical and with a minimum entrance diameter of 15 cm (Cameron 2006, Glossy Black Conservancy 2010).

Information on the foraging and nesting behaviour of glossy black-cockatoo in the wider region is limited. However, orts, feed trees, and potential nesting trees have also been recorded at a nearby site which borders the project boundary (Lot 61 on BO188), and a pair of glossy black-cockatoos were previously observed to the west of Jumma Road, just outside the current project site (Golder Associates 2018). Records of glossy black-cockatoo presence and signs of feeding activity have been made in 2018 (Golder Associates 2018), 2019, 2020 and 2021, suggesting sustained use of the wider area by this species.

Potential glossy black-cockatoo habitat was modelled as the ground-truthed extent of remnant and HVR vegetation which is most likely to contain large hollows and/or contains Allocasuarina or Casuarina food trees (which includes all eucalypt forest and riparian REs verified within the project site). The project site contains approximately 1,651.8 ha of potential habitat for the glossy black-cockatoo (Figure 16).

5.3.5 Black-breasted button quail

Only one small patch of suitable vine thicket habitat for black-breasted button quail was detected during surveys in the south-western corner of the project site (refer to Figure 8). Targeted surveys did not detect this species or any signs (e.g. platelets). The project site contains approximately 0.63 ha of potential habitat for the species. The current design does not include any potential habitat for black-breasted button quail.

5.3.6 White-throated needletail

White-throated needletail are listed as vulnerable and migratory under the EPBC Act. This species migrates into eastern and south-eastern Australia from late spring to early autumn and breeds in the northern hemisphere (TSSC 2019). In Australia, white-throated needletail are mostly aerial, reaching heights up to 1,000 m, and may occur singly or in large flocks. They fly above most habitats, although they are most common above wooded areas. Although previously believed to never land while in Australia, they have now been recorded roosting in dense foliage or tree hollows (Tarburton 1993, TSSC 2019). Studies using geolocators have shown that white-throated needletails move up and down the eastern coast of Australia and the Great Dividing Range and are capable of moving up to 900 km in a 24 hour period (Yamaquchi et al. 2021). Within Australia the area of occupancy of white-throated needletail is greater than 20,000 km² (TSSC 2019).

White-throated needletails were recorded flying above the project site during the spring 2018 (n = 2), spring 2021 (n = 1), summer 2022 (n = 12), spring 2022 (n = 26), and summer 2023 (n = 191) bird surveys (Figure 17). The volume and timing of sightings is not unexpected, as surveys have been conducted for six consecutive years and the species has a widespread distribution in Australia (TSSC 2019). Migration into Australia generally occurs in spring, and migration to breeding grounds in the northern hemisphere occurs in early/mid autumn (TSSC 2019).



The larger numbers recorded during summer 2022 and summer 2023 were generally associated with summer storms. Most birds observed in these summer periods were foraging in front of the summer storms. Group sizes in summer 2023 were variable, ranging from individual birds to flocks of approximately 50 individuals. The tendency to observe white-throated needletails during storms may indicate the species is more likely to occur along with suitable atmospheric conditions for foraging rather than for availability of suitable roosting habitat. The draft referral guidelines for migratory species (DoE 2015) considers 100 individuals to be an internationally significant proportion of the population and 10 individuals to be a nationally significant proportion of the population.

White-throated needletails have only been observed aerially and none were observed roosting across the project site. However, potential roosting habitat for white-throated needletail has been modelled as all remnant and HVR vegetation within the project site (Figure 17). The project site contains approximately 1,652.43 ha of potential roosting habitat for the species (321.35 ha HVR and 1,331.08 ha remnant) and potential foraging habitat includes all airspace above the project site.

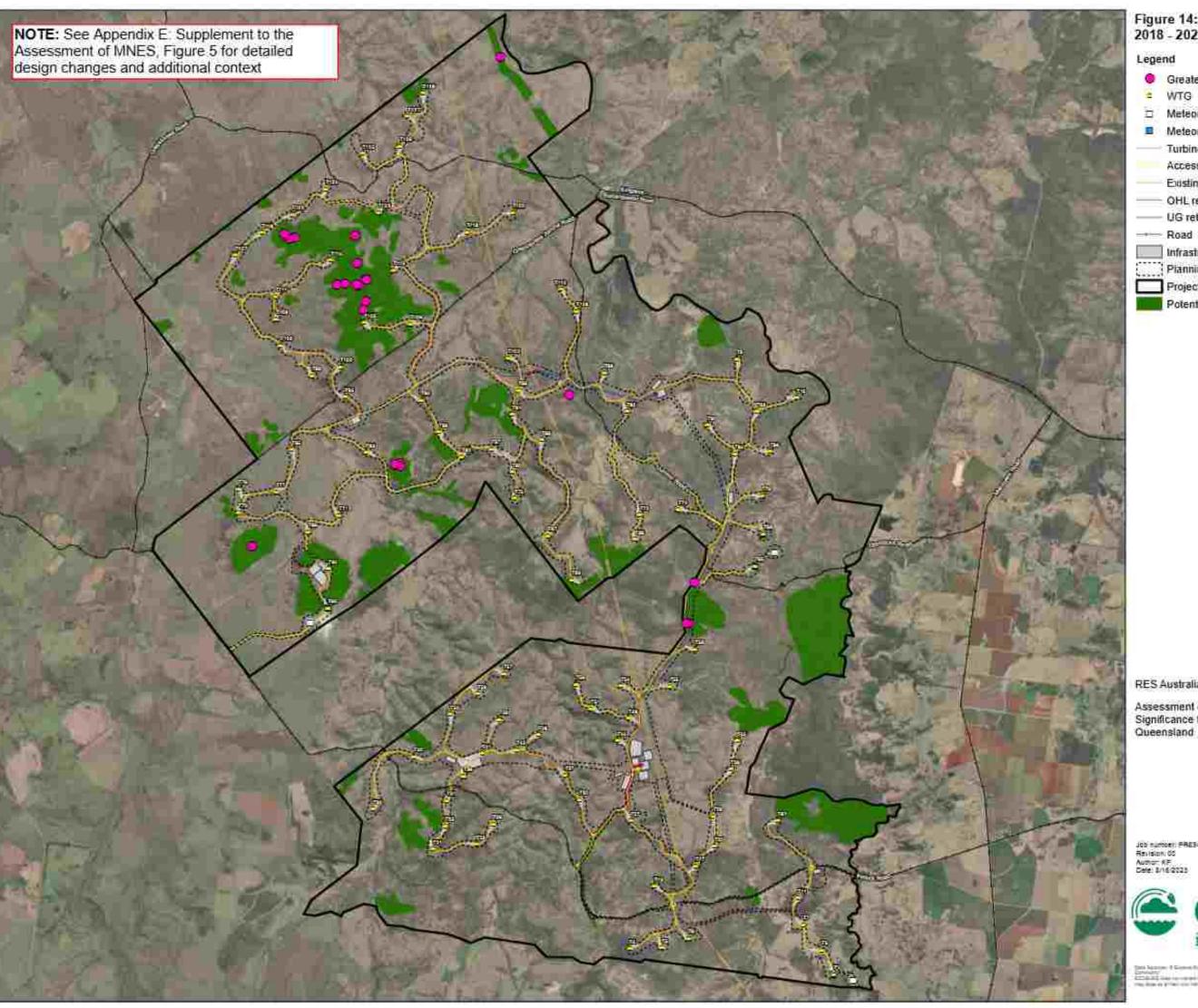


Figure 14: Greater glider survey records 2018 - 2022 and potential habitat

Greater glider (sighting)

☐ Meteorological mast (permanent)

■ Meteorological mast (temporary)

Turbine hardstand

Access track

Existing 275kV transmission line

OHL reticulation

UG reticulation

--- Road

Infrastructure

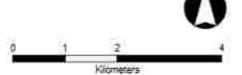
Planning corridor

Project boundary

Potential habitat

RES Australia

Assessment of Matters of National Environmental Significance for Tarong West Wind Farm, Ironpot,



Job number: FRE344 Hexistori 00 Autor: RF Cale: \$16,2223

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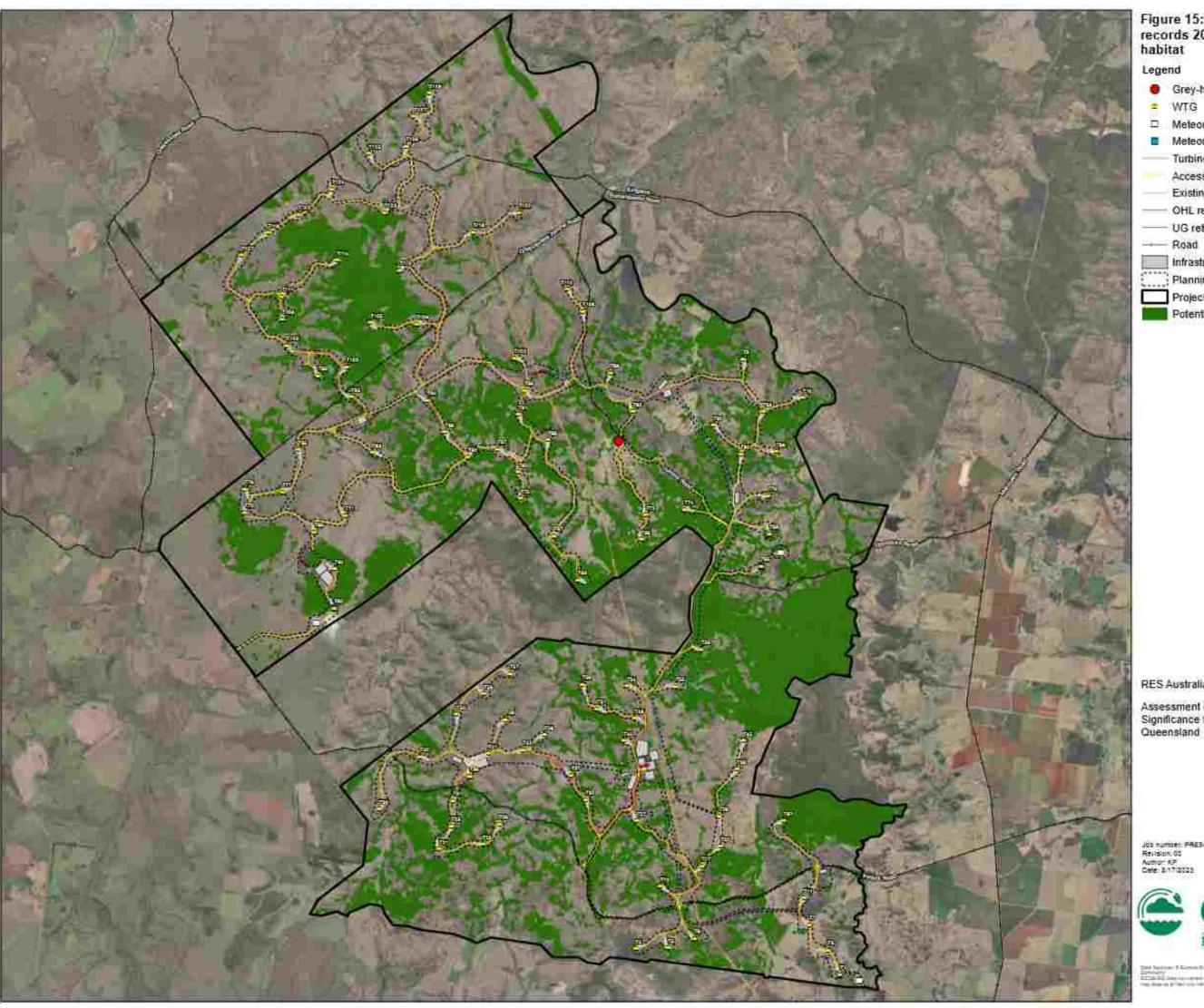


Figure 15: Grey-headed flying-fox survey records 2018 - 2023 and potential foraging

Grey-headed flying-fox (sighting)

☐ Meleorological mast (permanent)

Meteorological mast (temporary)

Turbine hardstand

Access track

Existing 275kV transmission line

OHL reticulation

UG reliculation

- Road

Infrastructure

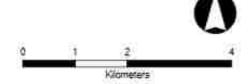
Planning corridor

Project boundary

Potential foraging habitat

RES Australia

Assessment of Matters of National Environmental Significance for Tarong West Wind Farm, Ironpot,



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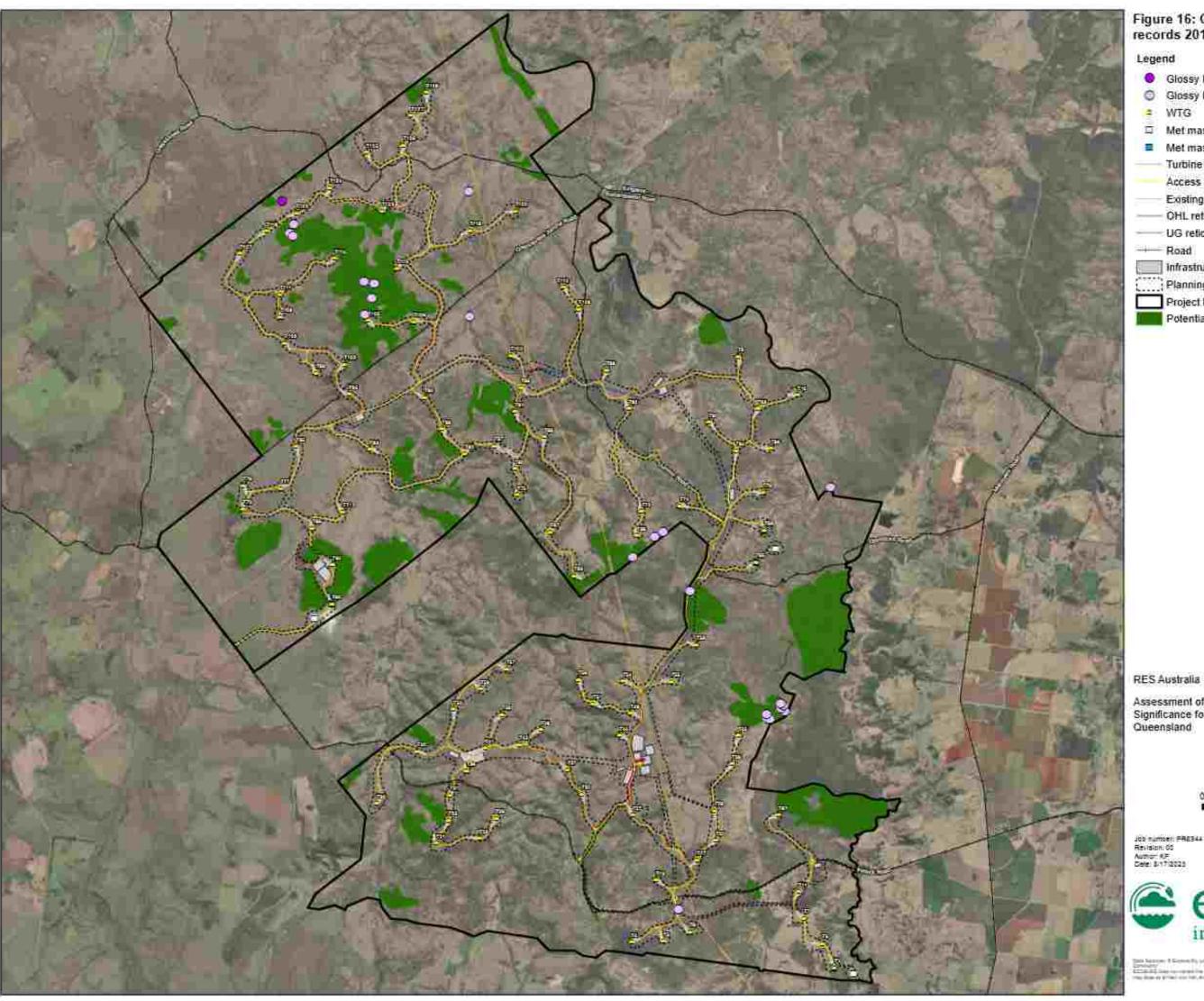
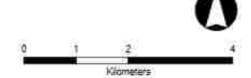


Figure 16: Glossy black-cockatoo survey records 2018-2023 and potential habitat

- Glossy black-cockatoo (sighting)
- Glossy black-cockatoo (orts)
- # WTG
- ☐ Met mast (permanent)
- Met mast (temporary)
- Turbine hardstand
- Access track
- Existing 275kV fransmission line
- **CHL** reticulation
- UG reticulation
- --- Road
- Infrastructure
- Planning corridor
- Project boundary
- Potential habitat

Assessment of Matters of National Environmental Significance for Tarong West Wind Farm, Ironpot,



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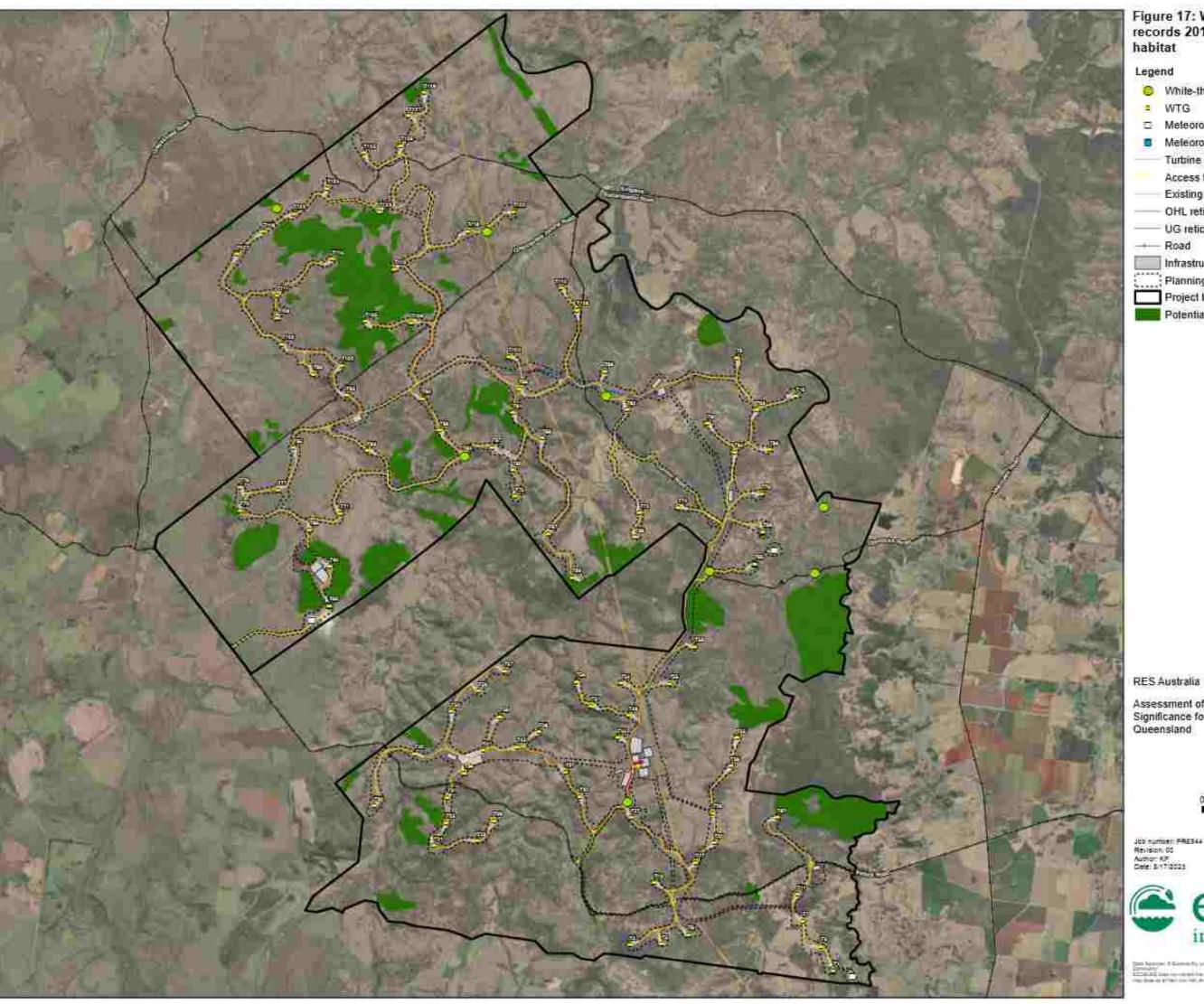


Figure 17: White-throated needletail survey records 2018-2023 and potential roosting

White-threated needletail (sighting)

Meleorological mast (permanent)

Meleorological mast (temporary)

Turbine hardstand

Access track

Existing 275kV transmission line

OHL reficulation

UG reticulation

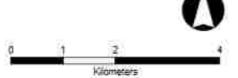
Infrastructure

Planning corridor

Project boundary

Potential habitat

Assessment of Matters of National Environmental Significance for Tarong West Wind Farm, Ironpot,



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Listed migratory species 5.4

Surveys recorded four species listed as migratory under the EPBC Act. White-throated needletail is also listed as vulnerable under EPBC Act and is discussed in detail in section 5.3.6. Sightings of rufous fantall are shown in Figure 18, satin flycatcher in Figure 19 and forktailed swift in Figure 20.

The referral guidelines for 14 birds listed as migratory species under the EPBC Act (DoE 2015) provides some guidance to determining important habitat for migratory species. Table 35 provides a summary of this information and an assessment of the potential occurrence of important habitats at the project site.

Table 35 Important habital for migratory species potentially occurring within the project site

Species	Important habitat	Site assessment
rufous fantail	Confirmed Moist, dense habitats, including mangroves, rainforest, riparian forests and thickets, and wet eucalypt forests with a dense understorey. When on passage a wider range of habitats are used including dry eucalypt forests and woodlands and brigatow shrublands. DoE (2015) considers 48 000 individuals to be an ecologically important population.	SEVT Riparian zones Eucalypt forest with dense understorey
salin flycalcher	Confirmed Eucalypt forest and woodlands, at high elevations when breeding. They are particularly common in tall wet sclerophyll forest, often in gullies or along water courses. In woodlands they prefer open, grassy woodland types. During migration, habitat preferences expand, with the species recorded in most wrooded habitats except rainforests. Wintering birds in northern Qid will use rainforest – gallery forests interfaces, and birds have been recorded wintering in mangroves and paperbark swamps. DoE (2015) considers 17,000 individuals to be an ecologically significant population.	Eucalypl forest and woodland Riparian zones
white-throated needletail (also vuinerable under EPBC Act and NC Act)	Confirmed Non-breeding habitat only. Found across a range of habitats, more often over wooded areas, where it is almost exclusively aerial. Large tracts of native vegetation particularly forest, may be a key habitat requirement for species. Found to roost in tree hollows in tall trees on ridge-tops, on bark or rock faces. Appears to have traditional roost sites. DoE (2015) considers 100 individuals to be an internationally significant proportion of the population.	Airspace over farmland, woodlands, riparian zones, SEVT and ridges.
fork-lailed swift	Ork-tailed swift Non-breeding habital only. Found across a range of habitals, from inland open plains to wooded areas, where it is exclusively aerial. DoE (2015) considers 1,000 individuals to be an internationally significant proportion of the population and 100 individuals to be a nationally significant proportion of the population.	
oriental cuckoo	Not detected Non-breeding habital only: monsoonal rainforest, vine thickets, wet sclerophyll forest or open Casuanna, Acacia or Eucalyptus woodlands. Frequently at edges or ecotones between habital types. Riparian forest is favoured habital in the Kimberley region.	SEVT Riparian zones
black-faced monarch	Not detected Wet forest specialist, found mainly in rainforest and wet scierophyll forest, especially in shellered gullies and slopes with a dense understorey of ferns and/or shrubs	SEVT Ripatian zones,

NOTE: See Appendix E: Supplement to the Assessment of MNES, Section 3.1, Table 13, and Section 3.2 for detailed design changes and additional context



5.4.1 Rufous fantail

Surveys recorded three rufous fantails, one in and two adjacent, to the project site during the fixed point count surveys, one in spring 2018 and two birds in autumn 2019. Records were in eucalypt forest with an understorey of shrubs and/or vine thicket species. Figure 18 shows the location where rufous fantail was recorded within the project site.

Rufous fantails occur along the eastern seaboard of Australia. Breeding populations live in moist, dense habitats (e.g. mangroves, rainforest, riparian forests and thickets, and wet eucalypt forests with dense understorey), while migrating birds may use a wider range of habitats (DoE 2015). They generally forage in the understorey but will also use mid-storey and canopy strata.

Potential habitat for this species within the project site is limited to areas of vine thicket, and patches of riparian vegetation or eucalypt forest with a dense understorey. These areas primarily occur in forest communities along the eastern edge of the site, although small patches of suitable habitat may be scattered throughout other parts of the site. As forest with suitable dense understorey could not be adequately ground-truthed, potential habitat for this species was defined as all riparian, remnant eucalypt forest and SEVT REs within the site (Figure 18). The project site contains approximately 2,594.01 ha of potential habitat for the species (941.58 ha riparian, 321.35 ha HVR and 1,331.08 ha remnant).

5.4.2 Satin flycatcher

Surveys recorded one satin flycatcher during the spring 2020 fauna surveys as an incidental observation, and two during a fixed point count surveys, one in spring 2021 and one in autumn 2022. The sightings were mainly within non-remnant open woodland with a grassy understory near the Boyne River. Figure 19 shows the location of satin flycatcher records within the site.

Satin flycatchers are widespread along the east coast of Australia and in Tasmania (DoE 2015). The species mainly inhabits eucalypt forest and woodlands, often with an open grassy understory. They are common in tall wet sclerophyll forest, in gullies and along watercourses.

The species migrates north in autumn to winter in northern Australia, returning south in spring to spend summer in south-eastern Australia. Migrating satin flycatchers have been recorded in most wooded habitats except rainforests. Breeding occurs between November to March at high elevations of more than 600 m above sea level. Being arboreal foragers, they generally feed high in the canopy and subcanopy of trees.

As potential habitat for this species with the project site largely comprises eucalypt forest and woodland, potential habitat within the site was modelled using the following criteria:

- ground-truthed remnant and HVR areas that contain known eucalypt forest or woodland areas (including REs 11.3.25, 11.5.20, 11.7.6, 11.11.4, 11.11.15, 11.12.3 and 11.12.6 - see Section 4.2.1)
- non-remnant areas meeting the following mapping rules:
 - pre-clear vegetation mapping (DoR 2022a) containing REs that are listed as eucalypt forest (Queensland Herbarium 2021), including REs 11.3.4, 11.3.25, 11.5.20, 11.7.6, 11.9.5, 11.10.1, 11.11.4a, 11.11.15, 11.12.3 and 11.12.6

NOTE: See Appendix E: Supplement to the Assessment of MNES, Section 3.1, Table 13, and Section 3.2 for detailed design changes and additional context



- woody vegetation foliage projective cover greater than a value of 125, based on Landsat imagery from 2014 (DES 2016)
- no evidence of clearing from 1998 to 2018, based on analyses of change in woody vegetation cover by the Statewide Land and Tree Survey (DES 2018b)
- habitat patches greater than 0.3 ha in size (i.e. removing isolated habitat patches less than 0.3 ha).

Modelled habitat is shown in Figure 19. The site contains approximately 5,833.99ha of potential habitat for this species (including 1,651.8 ha of remnant/HVR and 4,182.19 ha within non-remnant areas).

5.4.3 Fork-tailed swift

Two fork-tailed swifts were recorded flying above one site during summer 2023 surveys. The sighting occurred over open woodland and grassland in the east of the project site (Figure 20) DoE (2015) considers 1,000 individuals to be an internationally significant proportion of the population and 100 individuals to be a nationally significant proportion of the population. Survey results therefore indicate that the project site does not support an ecologically significant proportion of the fork-tailed swift population.

The habitat and flight behaviour of the fork-tailed swift is similar to the white-throated needletail. In Australia, fork-tailed swifts are believed to be exclusively aerial, flying at heights up to 1,000 m above the ground (DoE 2015). The species migrates to Australia in October and November and departs in April to breed in east Asia (DoE 2015). Fork-tailed swifts occurmostly over inland plains, but are also seen above vegetated areas, coastal habitats and urban environments, where they forage ahead of storm fronts to feed on aerial insects (DCCEEW 2023b).

The project site is highly unlikely to provide roosting habitat for fork-tailed swifts, however, they may forage aerially and roost on the wing over the entire site.

5.4.4 Other migratory species

Sightings and species biology of the white-throated needletail are discussed in the threatened species section (Section 5.3.6) as it is listed as vulnerable under the EPBC Act.

Oriental cuckoo and black-faced monarch were considered possible to occur on the basis of habitat sultability (riparian zones and SEVT). For the oriental cuckoo, there are no species records within 20 km of the project site. For the black-faced monarch numerous records exist. within 20 km of the project site but none exist within 10 km. Neither of these species were detected incidentally or during dam surveys, roaming surveys, or fixed point count bird surveys. As the oriental cuckoo and black-faced monarch are not considered likely to occur on the project site, the species were not further considered for significant impact assessment. No other migratory species were detected during surveys.

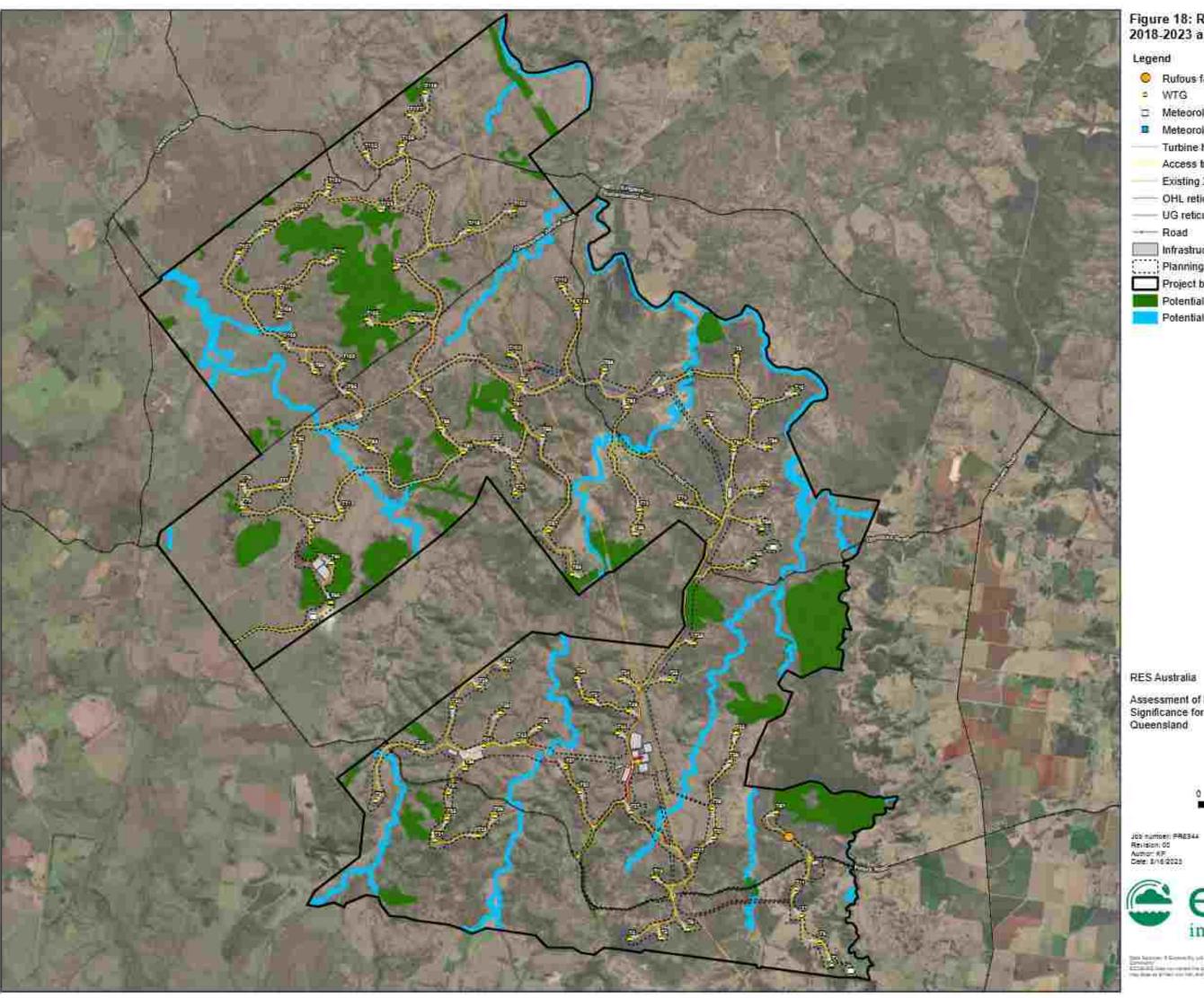
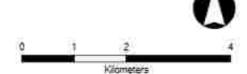


Figure 18: Rufous fantail survey records 2018-2023 and potential habitat

- Rufous fantail (sighting)
- Meteorological mast (permanent)
- Meteorological mast (temporary)
 - Turbine hardstand
- Access track
- Existing 275kV transmission line
- OHL reticulation
- UG reticulation
- Infrastructure
- Planning corridor
- Project boundary
- Potential habitat
- Potential riparian habitat

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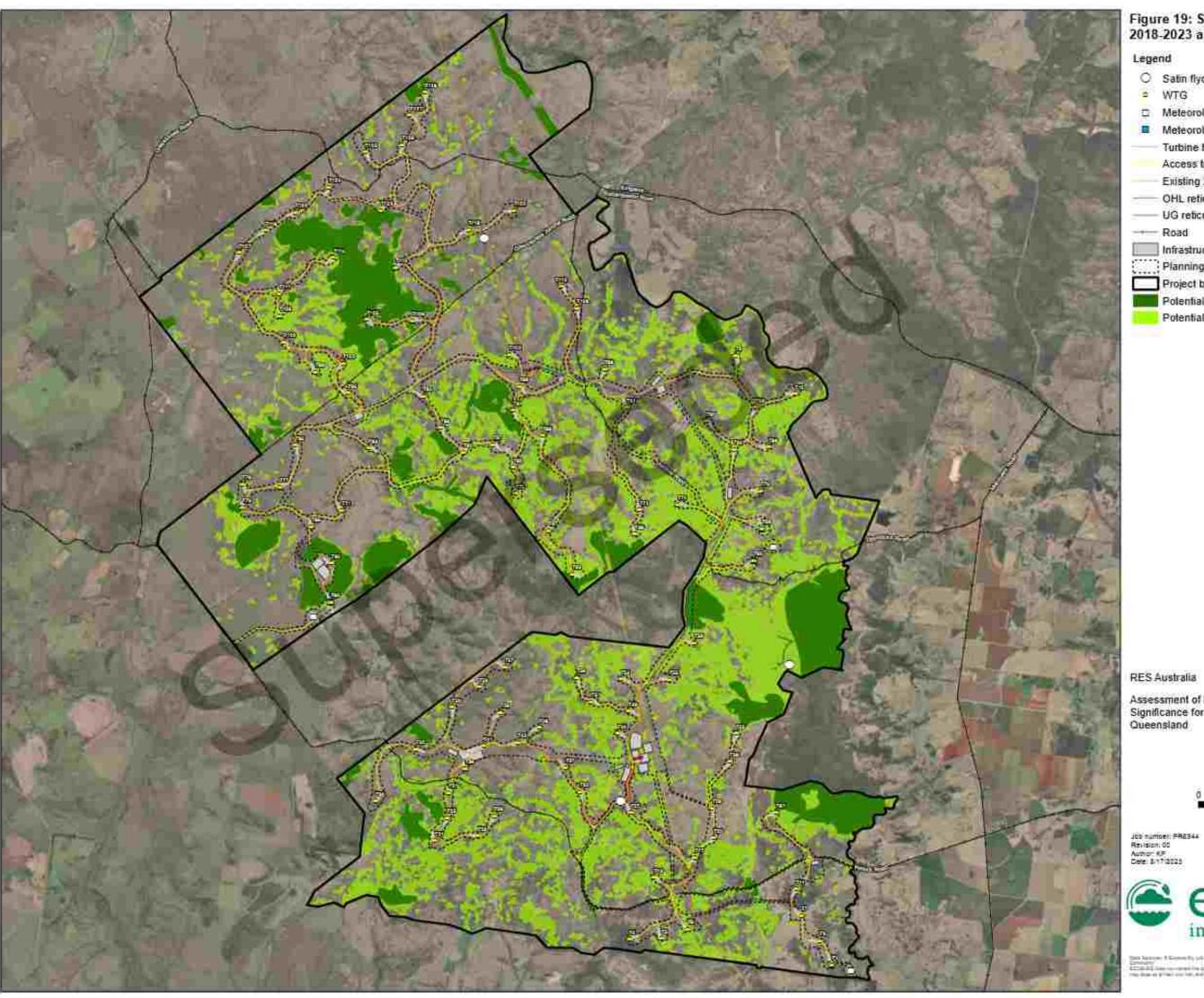


Figure 19: Satin flycatcher survey records 2018-2023 and potential habitat

O Satin flycatcher (sighting)

Meteorological mast (permanent)

Meteorological mast (temporary)

Turbine hardstand

Access track

Existing 275kV transmission line

OHL reticulation

UG reticulation

Infrastructure

Planning corridor

Project boundary

Potential habitat

Potential modelled habitat (non-remnant)

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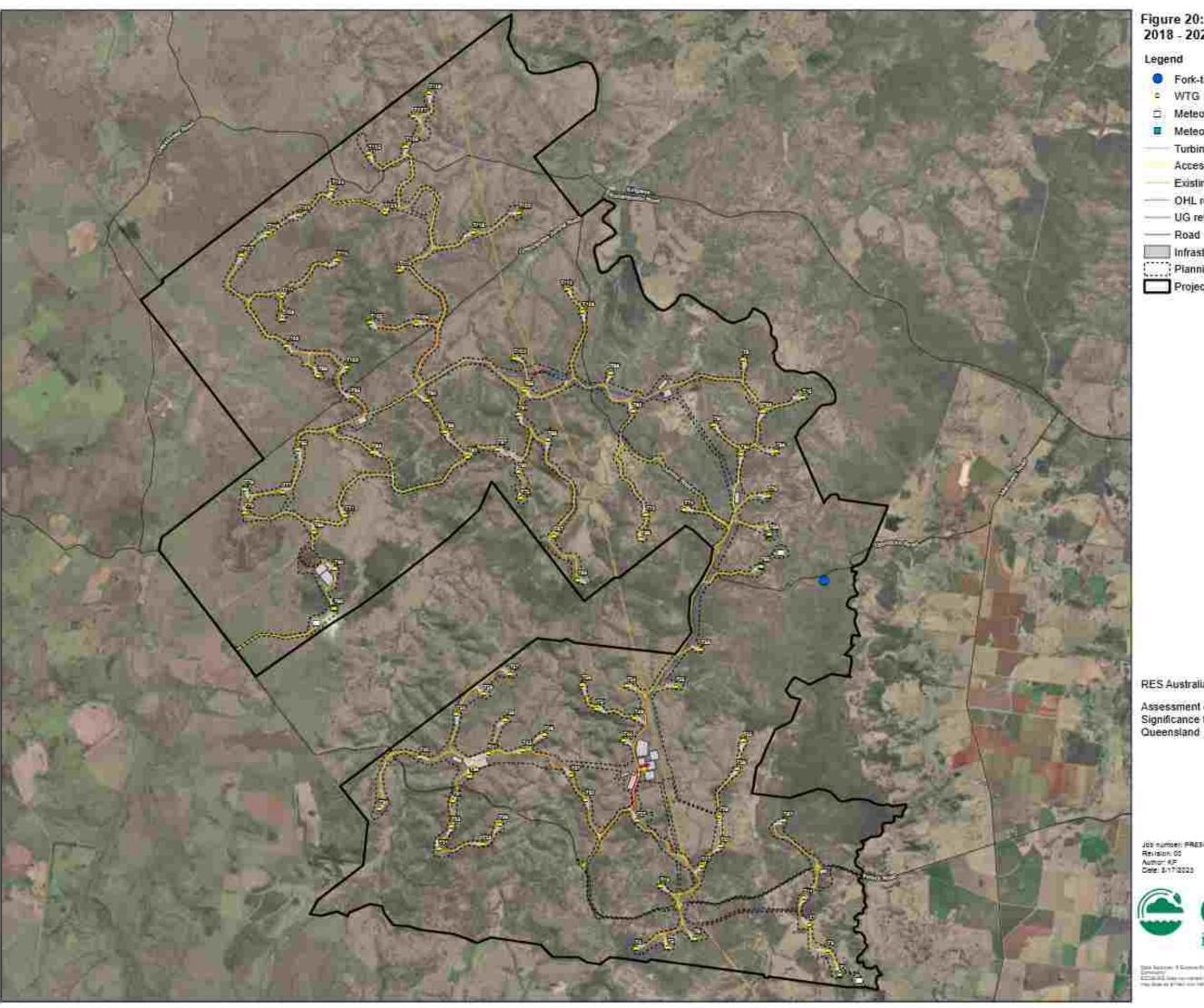
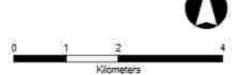


Figure 20: Fork-tailed swift survey records 2018 - 2023 and potential roosting habitat

- Fork-tailed swift (sighting)
- · WTG
- ☐ Meteorological mast (permanent)
- Meteorological mast (temporary)
- Turbine hardstand
- Access track
- Existing 275kV transmission line
- OHL reticulation
- UG reticulation
- Road
- Infrastructure
- Planning corridor
- Project boundary

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Impacts of proposed project 6

Summary of impacts 6.1

This section provides a summary of the potential impacts to ecological values that may be caused by the construction and/or operation of the project.

The development process for wind farms occurs gradually over time as new data is gained and analysed and solutions are developed to overcome resource, engineering, environmental and social issues. In practical terms, this means that the locations of WTGs, construction pads, cable routes and tracks may change, but within a defined corridor. This process is termed 'micro-siting' and allows for small changes to the project design to overcome site constraints. The current clearing footprint shown in Figure 2 represents the maximum proposed clearing area and may be reduced by ongoing refinement in the design and micro-siting of infrastructure.

6.1.1 Construction impacts

The construction of a wind farm has the potential to result in significant impacts to ecological values such as:

- direct impacts
 - loss of vegetation communities (remnant and HVR)
 - loss of habitat for fauna (which may include remnant, HVR and non-remnant) vegetation)
 - loss of habitat for threatened flora and fauna species and migratory species
 - fragmentation of vegetation through construction of tracks and powerlines
 - unintentional injury and mortality of animals through habitat clearance and collision with construction traffic
- indirect impacts
 - introducing and spreading weeds and pathogens and facilitating pest animal movement into new areas
 - contributing to erosion and sediment loss into receiving catchments
 - generating dust from construction activities.

Direct impacts

In determining the potential loss of vegetation and habitat from construction activities, the following assumptions have been made.

 WTG locations and associated hardstand areas are provided in the current planning corridor layer

NOTE: See Appendix E: Supplement to the Assessment of MNES, Section 3.1, Table 13, and Section 3.2 for detailed design changes and additional context



- proposed access tracks and existing tracks to be upgraded are:
 - designed using detailed contour data (to avoid steep terrain), waterways (to avoid areas within 50 m of waterways where possible) and roads (to minimise ingress / egress points onto public roads), supported by site visits to refine designs
 - contained within the planning corridor to allow for micro-siting of access tracks
 - powerlines from WTGs to the substation will generally be underground and contained within the proposed planning corridor (although some overhead powerlines will be required)
- larger infrastructure zones will be required in some areas to accommodate associated infrastructure (e.g. temporary construction facilities, permanent operation and maintenance facilities, substation and switching yard)
- minor clearing and road-widening along a transport route from Brisbane Port to the project site (as described in icubed 2022 and Ecosure 2022).

Construction of access tracks, WTGs and supporting infrastructure will likely exacerbate impacts to connectivity by:

- creating wider gaps within vegetation patches or creating new gaps
- increasing edge effects
- further facilitating introductions of pest animals and weeds into new patches.

Impacts of the project will be addressed in accordance with the impact minimisation hierarchy to:

- firstly avoid, then minimise, then mitigate any potential impacts on ecological values
- compensate (i.e. offset) any significant residual impacts.

Where possible, the location of supporting infrastructure for WTGs have been sited to avoid impacts to significant vegetation. Furthermore, where possible impacts will be minimised through micro-siting and through the detailed design phase. The potential impacts of proposed infrastructure are likely to present a maximum extent of clearing and are anticipated to be reduced by ongoing refinement in the design and micro-siting of infrastructure.

Indirect impacts

Indirect impacts of the project may include impacts to surface water quality, dust generation and introduction and spread of weeds and pest animals. Surface water quality has the potential to be affected during exposure of topsoil and subsoils which are then transported into downstream receiving environments from rainfall events. Generally, these impacts include increases in turbidity (from suspended solids) and mobilisation of pollutants (e.g. fuels, oils, rubbish). Generation of dust has the potential to coat vegetation and, in severe cases, interrupt photosynthetic processes leading to reduced plant growth or mortality. Vehicles, equipment and machinery can introduce and spread weed propagules. Disturbances caused by construction activities can also promote pest plant and animal invasions.

NOTE: See Appendix E: Supplement to the Assessment of MNES, Section 2.4.2, Section 2.5.2, Table 13, and Section 3.2 for detailed design changes and additional context



6.1.2 Operational impacts

Impacts through the operational phase of the project primarily relate to the potential injury or mortality of birds and bats from WTG blade strike or barotrauma (the sudden change in pressure experienced by small animals that can damage the lungs) from the motion of WTG blades. Other operational impacts include erosion of soils from tracks, powerline easements and WTG pads, accidental wildlife collisions by operational traffic and the introduction and spread of weeds from movement of vehicles, equipment and machinery.

6.2 Impacts on flora and vegetation

6.2.1 Clearing of vegetation

There is one small patch of SEVT (RE 11.8.3) on the western edge of the site (Figure 7). Although not determined to meet all criteria as a TEC community, this community will not be impacted by the project as the current planning corridor is over 450 m from the patch.

The maximum area of remnant vegetation to be cleared under the current design are summarised in Table 36 and mapped in Figure 7. Up to 16.98 ha of remnant vegetation, may be cleared for construction and operational works within the clearing footprint.

HVR vegetation has been avoided in the design phase, and no HVR vegetation occurs within the planning corridor. When compared to equivalent RE communities within the project site, these areas represent only 1.51% of remnant vegetation within the site. When compared to all ground-truthed REs in the project site the proposed works will clear only 1.03% of remnant/HVR vegetation within the site. Vegetation that may be cleared is comprised of least concern REs only. No of concern or endangered REs, or TECs, will be impacted.

Table 36 Impact of project infrastructure on remnant vegetation

RE	VM Act status	Total clearing within clearing footprint (ha)	Total site (he)	% of total project
Remnant RE Map		-		
41.41.4	Least concern	0.43	462.86	0.09%
11 11 15/11 3 25	Least concern	4.53	456.05	0.99%
11.12.8	Least-concern	0.44	11.97	3.68%
11.12.6/11.11.15	Least concern	10.82	58.52	18.49%
11.12.3/11.7.6	Least concern	-0.75	103:54	0.72%
11.12.3	Least concern	0.01	33.54	0.03%
Total (equivalent REs)	-	16.98	1,126,48	1.51%
Total (all REe)		16,98	1,652,44	1.03%

NOTE: See Appendix E: Supplement to the Assessment of MNES, Table 13, and Section 3.2.6 and Section 3.2.7 for detailed design changes and additional context



6.2.2 Threatened flora impacts

Based on the desktop assessment and field surveys, three EPBC Act-listed species may potentially occur within the project site (wandering peppercress, Austral toadflax, and Austral comflower).

The current design may remove up to 45:28 ha of potential habitat for wandering peppercress and Austral toadflax within the clearing footprint. Ongoing refinement of infrastructure design is expected to reduce impacts to riparian vegetation by:

- utilising existing farm tracks for watercourse crossings wherever possible
- reducing clearing widths at watercourse crossings
- minimising other infrastructure within riparian zones.

Austral comflower may potentially occur in woodlands on heavy clay soils derived from basalt. which were detected only in the eastern and western edge of the project site. As these areas are outside the planning corridor, this species is highly unlikely to be impacted by the project:

Table 37 summarises areas of potential habitat for threatened flora species that may be impacted by proposed infrastructure.

Table 37-Impact of project infrastructure on threatened flora habitat-

Species	Potential habitat	Maximum- proposed clearing within clearing- footprint (ha)-	Total habitat- within project site (ha)	% of total habital within project site
Wandering peppercrees	Remnant/HVR-RE-11-3-25 Riparian areas: 100 m corridor around stream order-3 and 4 watercourses and 200 m corridor around stream order-5 and 6 watercourses	15.28	980.19	1.55%
Austral toadflax	Remnant/HVR-RE-11-3-25 Riparian areas 100 m corridor around stream order 3 and 4 watercourses and 290 m corridor around stream order 5 and 6 watercourses	15.28	980.19	1.56%
Austral comflower	Woodlands on soils derived from basalf (rand zone 8)	O.	0.6	0%

6.3 Impacts on fauna and habitats

6.3.1 Construction impacts

The impacts of construction works on fauna and fauna habitats will primarily involve the loss of native habitats and habitat features that provide specialised shelter or foraging resources such as hollow-bearing trees (nesting and denning resources for birds and arboreal

NOTE: See Appendix E: Supplement to the Assessment of MNES, Section 3.1, Table 13, and Section 3.2 for detailed design changes and additional context



mammals), woody debris (shelter habitat for reptiles), flowering/fruiting species (food resources for a variety of species) and structurally complex vegetation (shelter habitat for small birds). Impacts to fauna may therefore include:

- removal of foraging habitat (e.g. primary and secondary food trees for koala)
- removal of hollow-bearing trees (e.g. nesting hollows for greater gliders)
- removal of hollow logs and coarse woody debris
- removal of potential and active breeding sites
- death or injury to fauna during clearing
- fauna collisions with construction vehicles
- fragmentation of habitat areas and movement corridors
- facilitating introduction of pest plants and animals into new areas.

6.3.2 Operational impacts

Operational impacts from the proposed development primarily relate to the potential for birds and bats to strike, or suffer barotrauma from, WTG blades. Other impacts may include:

- spread of pests from project infrastructure and movement of vehicles and machinery
- ongoing disturbance to wildlife (e.g. avoidance of habitat adjacent to WTGs)
- fauna collisions during operational vehicle movements.

A risk assessment to WTG strike for birds and bats has been included in the BBUS (Ecosure 2023).

6.3.3 General threatened fauna impacts

The project site contains potential habitat for six EPBC Act listed threatened fauna species: koala, greater glider, grey-headed flying fox, glossy black-cockatoo, white-throated needletail and black-breasted button-quail. Potential impacts on habitat for these species are summarised in Table 38 and further detailed in Sections 6.3.4, 6.3.5, 6.3.6, 6.3.7 and 6.3.8.

Table 38 Impact of project infrastructure on threatened fauna habital-

Species	Potential habitat	Maximum proposed clearing within clearing footprint (ha)	Total habitat within project site (ha)	% of total habitat within project site
koala	Remnant/HVR-REs containing koals food trees Non-remnant vegetation with -woody vegetation foliage projective cover > 125 and mapped as pre-clear REs containing koals food trees	186.03 (16.98 remnant, 169.05 non- remnant)	5,833.99 (1,651.8 remnant/HVR, 4,182.19 non- remnant)	3 19%

NOTE: See Appendix E: Supplement to the Assessment of MNES, Section 3.1, Table 13, and Section 3.2 for detailed design changes and additional context



Species -	Potential habitat	Maximum proposed clearing-within- clearing- footprint (ha)	Total habitat within project site (he)	% of total habitat within project site
greater glider	Remnant/HVR REs 11.3.25, 11.11.4, 11.11.15, 11.12.3 and 11.12.6	16:00	1,651.8	1.03%c
grey- headed flying fox-	Remnant/HVR REs containing foraging habitat. Non-remnant vegetation containing foraging habitat.	186.03- (16.98-remnant, 169.05 non- remnant)	5,831.62 (1,652.43 remnant/HVR 4,182.19 non- remnant)	3.19%
glossy bleck- cockaloo	Remnant/HVR REs containing foraging and resting habitat	16.98	1,651.8	1.03%
white- throated needletail	Receiting habitat Remnant/HVR REs	16.93	1,652.43	1-03%
black- breasted button- quaii	Remnant/HVR RE 11.8.3	0	0.63	0%

6.3.4 Impacts to koalas

Surveys detected 15 koala sightings (12 within and 3 adjacent to the project site) and a further 21 koala signs (koala scats and scratches) in vegetation containing Queensland blue gum (RE. 11.3.25) and narrow-leaved ironbark (REs 11.5.20, 11.11.4, 11.11.15 and 11.12.3). Eight koala food tree species were recorded during surveys (Table 34).

The current project design will remove up to 486.03 ha of modelled koala habitat (46.98 ha of remnant vegetation and 169.05 ha within non-remnant areas) within the clearing footprint for the construction of project infrastructure (Table 38, Figure 12).

Operational activities may increase the risk of vehicle strike, especially vehicle movements when koalas are most active (e.g. at night and in the lead up to the breeding season from July to September).

6.3.5 Impacts to greater gliders

Nocturnal spotlighting surveys detected 70 greater gliders within and adjacent to the project site. Gliders were distributed across numerous areas of remnant and HVR forest (REs 11.3.25, 11.11.4, 11.11.15, 11.12.3 and 11.12.6) throughout the project site, primarily on hill crests (Figure 14).

Approximately 16.98 ha of potential habitat for greater glider will be cleared within the clearing footprint for the construction of project infrastructure (Table 38, Figure 14). In addition to the impacts of habitat loss, fragmentation of remnant habitat patches by clearing areas greater than 50 m wide will likely force gliders to traverse across the ground increasing their susceptibility to predation (Taylor and Goldingay 2014).

NOTE: See Appendix E: Supplement to the Assessment of MNES, Section 3.1, Table 13, and Section 3.2 for detailed design changes and additional context



Operational activities are unlikely to directly impact significantly on greater gliders.

6.3.6 Impacts to grey-headed flying-fox

The spring 2021 surveys observed grey-headed flying-fox foraging on flowering eucalypts within the site. Potential grey-headed flying-fox foraging habitat was modelled as the ground-truthed extent of remnant and HVR vegetation containing flowering eucalypt species and non-remnant areas modelled as containing habitat suitable for koala (Figure 15). There are no known camps within the project site or within 20 km of the site.

The current project design will remove up to 186.03 ha of modelled foraging habitat within the clearing footprint for the construction of project infrastructure (Table 38, Figure 15).

Operational impacts to grey-headed flying-fox are likely to be limited to direct strike if travelling within the RSA, particularly during seasons when vegetation is in flower and fruit.

6.3.7 Impacts to glossy black-cockatoo

Surveys sighted four adult birds and detected orts in 21 locations, confirming glossy black-cockatoos utilise the site for feeding habitat. Several remnant patches and non-remnant areas of vegetation contain Allocasuarina and Casuarina species. Habitat for glossy black-cockatoo occurs within numerous vegetation communities, including REs 11.5.20, 11.11.4, 11.11.15, 11.12.3, and 11.12.6 (Figure 16).

Up to 46.98 ha of potential habitat for glossy black-cockatoo will be cleared within the clearing footprint for the construction of project infrastructure (Table 38).

Operational activities have the potential to impact glossy black-cockatoos through direct strike if travelling within the RSA or disturbance to nesting behaviour if WTG is located adjacent to a nesting location. No glossy black-cockatoo nesting locations are currently known within the project site.

6.3.8 Impacts to white-throated needletail

A total of 232 white-throated needletails were recorded flying above non-remnant vegetation across all of the spring 2018, spring 2021, and summer 2022, spring 2022, and summer 2023 bird surveys (Figure 17). White-throated needletail group sizes ranged from one individual to flocks of approximately 50 birds, with the higher numbers observed during summer storms. In any one survey period, the total number of white-throated needletail sightings ranged from one to 191 sightings (Table 29). Recent counts in Australia range from single birds to flocks of hundreds (DoE 2015).

The large number of sightings over the summer 2023 survey period may include repeated sightings of the same individuals. Throughout the six-day survey, conditions were ideal for feeding for this species, with multiple weather fronts passing through generating updrafts which would carry insects to feeding height. It is possible that the ideal feeding conditions encouraged the same flock to remain in the area, resulting in a high number of sightings in

NOTE: See Appendix E: Supplement to the Assessment of MNES, Section 3.1, Table 13, Section 3.2 and Section 3.3 for detailed design changes and additional context



total (n = 191), but not necessarily meaning that 191 individual birds were seen during the survey. The largest number of white-throated needletails observed at any one time was approximately 50, so we can conclude that at least 50 individual white-throated needletails were sighted during the survey period.

Repeated sightings are valuable for understanding bird utilisation in the project site, but must be kept in mind when considering estimates of the number of individual birds which may experience impacts from the project. The draft referral guidelines for 14 bird species listed as migratory species under the EPBC Act (DoE 2015) considers 100 individuals to be an internationally significant proportion of the population and 10 individuals to be a nationally significant proportion of the population. The project site is therefore known to contain nationally significant populations of white-throated needletail.

Studies using geolocators have shown that white-throated needletails move up and down the eastern coast of Australia and the Great Dividing Range and are capable of moving up to 900 km in a 24-hour period (Yamaquchi et al. 2021). Within Australia the area of occupancy of white-throated needletail is greater than 20,000 km².

White-throated needletail are almost exclusively aerial in Australia, but have been recorded roosting in dense foliage or tree hollows (Tarburton 1993, TSSC 2019). Up to 16.98 ha of potential roosting habitat for white-throated needletail will be cleared within the clearing footprint for the construction of project infrastructure (Table 38, Figure 17), however no roosting activity has been observed on site. Construction activities are unlikely to impact significantly on feeding habitat, as this species is an aerial forager.

Potential operational impacts include blade strike when flying and foraging at RSA height and disturbance of foraging habitat for white-throated needle-tail caused by the WTG operations. Habitat disturbance will be minimised by micro-siting WTGs as far away as practicable from remnant vegetation. Blade strike issues are assessed and discussed in more detail in the BBUS (Ecosure 2023). White-throated needletail are known to collide with WTGs in Australia (Hull et al. 2013; Tarburton 2021). As they also fly before and after daylight hours, Tarburton (2021) noted that they are at a greater risk of strike. Observations of white-throated needletail at the project site have ranged between morning (7:30 am, 9:30 am), noon (11:55 am) and evening (5:20 pm).

6.3.9 Impacts to migratory species

Surveys detected four migratory species listed under the EPBC Act – white-throated needletail (discussed in Section 6.3.8 as it is also listed as vulnerable), rufous fantail (Figure 18), satin flycatcher (Figure 19), and fork-tailed swift (Figure 20).

Rufous fantall

Three rufous fantails were observed in areas of eucalypt forest with an understorey of shrubs and/or vine thicket species (Figure 18). Up to 27.72 ha of potential habitat for rufous fantail will be cleared for the construction of project infrastructure. This is approximately 0.11% of potential habitat for the rufous fantail within the project site.

NOTE: See Appendix E: Supplement to the Assessment of MNES, Section 3.1, Table 13, Section 3.2 and Section 3.3 for detailed design changes and additional context



Potential operational impacts include blade strike if flying and foraging at RSA height and disturbance from WTGs to habitat used for foraging or roosting. However, the rufous fantall is considered a low risk of collision with WTGs as it generally flies below RSA height between patches of habitat (Ecosure 2023). While mortality as a result of blade strike is not likely, behavioural disturbance from WTGs may occur during operation (Marques et al. 2021).

DoE (2015) considers 15,000 individuals to be an internationally significant proportion of the north-eastern rufous fantail population and 1,500 individuals to be a nationally significant proportion of the population. DoE (2015) also defines a threshold level of 340 km² for a nationally significant area of important habitat for the north-eastern rufous fantail.

Satin flycatcher

Three satin flycatchers were observed, one in eucalypt forest with a grassy understory approximately 20 m west of the Boyne River, one in remnant eucalypt woodland to the east of the project site and one in non-remnant woodland in the north of the project site (Figure 19). The current project design will remove up to 186.03 ha of potential habitat for the satin flycatcher (16.98 ha of remnant vegetation and 169.05 ha within non-remnant areas) for the construction of project infrastructure. This is approximately 17.5% of potential habitat for the satin flycatcher within the project site.

Potential operational impacts include blade strike if flying and foraging at RSA height and disturbance from WTGs to habitat used for foraging or roosting. However, as satin flycatchers are arboreal feeders and generally forage in the canopy and subcanopy, rarely flying above the canopy the species is considered a low risk of collision with WTGs as it will generally fly below RSA height between patches of habitat (Ecosure 2023). While mortality as a result of blade strike is not likely, behavioural disturbance from WTGs may occur during operation (Marques et al. 2021).

DoE (2015) considers 17,000 individuals to be an internationally significant proportion of the satin flycatcher population and 1,700 individuals to be a nationally significant proportion of the population. DoE (2015) also defines a threshold level of 440 km² for a nationally significant area of important habitat for the satin flycatcher.

Fork-tailed swift

Surveys recorded two fork-tailed swifts during summer 2023 fixed point count bird surveys. The sightings occurred over open woodland and grassland in the east of the project site.

In Australia, fork-tailed swifts are believed to be exclusively aerial, roosting on the wing and flying at heights up to 1,000 m above the ground (DoE 2015). The species migrates to Australia in October and November and departs in April to breed in east Asia (DoE 2015). Fork-tailed swifts occur mostly over inland plains, but are also seen above vegetated areas, coastal habitats and urban environments, where they forage ahead of storm fronts to feed on aerial insects (DCCEEW 2023b).

Fork-tailed swifts have only been observed aerially and none were observed roosting across the project site. Construction impacts are not considered for this species as the project site is

NOTE: See Appendix E: Supplement to the Assessment of MNES, Section 3.1, Table 13, Section 3.2 and Section 3.3 for detailed design changes and additional context



highly unlikely to provide roosting habitat, as they forage aerially and roost on the wing.

Potential operational impacts include blade strike if flying and foraging at RSA height and disturbance of foraging habitat caused by the WTG operations.

6.4 Transport route impacts

The proposed project will require transport of turbine infrastructure (including blades up to 90 m long) along a transport route from Brisbane Port to the project site (icubed 2022). While the majority of the route follows major roads, some minor clearing and road-widening may be required at some intersections and small sections of Ironpot Road (on the southern edge of the project site). The areas of the transport route that fall within the project site and planning corridor, have been included in this assessment of impacts.

An ecological assessment of the proposed transport route (Ecosure 2022) concluded that the small extent of clearing associated with the transport route outside of the project site was unlikely to result in a significant impact or increase the cumulative impact of the project on any MNES.



7 Recommended mitigation measures

Impacts will be managed in accordance with the impact minimisation hierarchy to firstly avoid, then minimise, then mitigate any potential impacts on ecological values.

7.1 Avoidance of impacts

Most impacts to ecological values have been avoided through siting of infrastructure away from sensitive values. This includes the placement of WTGs and tracks away from regulated vegetation and watercourses as far as possible. As detailed design progresses, micro-siting of infrastructure will be implemented to avoid important habitat features such as hollow-bearing trees and food trees, where possible.

The project site was reduced during project redesign to avoid large patches of remnant and HVR vegetation to the east of the site. Additionally, the current planning corridor will avoid the largest, most intact patches of vegetation along the eastern boundary and in the north west section of the site. The current design will remove up to a maximum of 16.98 ha of ground-truthed vegetation, comprising 16.98 ha of remnant REs (Table 36, Figure 7). This clearing represents 1.03% of the total remnant and HVR vegetation in the project site. As the project design progresses, all practicable efforts will be made to avoid impacts to vegetation communities and fauna habitats, including seasonal impacts to flora and fauna.

No TECs will be cleared or disturbed by the proposed development.

Pre-clearance surveys are recommended at varying stages before and during construction, including:

- walk-through assessment:
 - pre-clear surveys and assessments to identify the potential presence of threatened flora and fauna within all significant habitats to be disturbed
 - can occur months before any clearing or construction commences (e.g. as part of the infrastructure siting and layout process) and generally cover the area proposed to be disturbed as well as a buffer to allow micro-siting of infrastructure to occur
- pre-clear survey
 - surveys and assessments to identify the presence of constraints and sensitive areas (including flora and fauna, threatened and otherwise) within a proposed clearing footprint and vicinity
 - generally undertaken within about seven days prior to clearing, but no later than 24 hours prior to clearing
 - identify and mark potential animal breeding places and hollow-bearing trees.
- fauna spotter-catching.
 - assessments undertaken just prior to clearing, to identify whether fauna is present that needs to be left in situ and avoided, or relocated, whether habitat

NOTE: See Appendix E: Supplement to the Assessment of MNES, Section 3.2 and PER Section 4.6 and 4.7 for detailed design changes and additional context



trees, breeding or foraging places are being utilised, or to identify other features need to be retained and or works rescheduled

also undertaken during all habitat clearing works (e.g. trees, shrubs, earthen banks, built infrastructure, waterbodies or grassed areas) to check habitat for presence of fauna, relocate fauna where feasible and take relocated and/or injured fauna to a qualified carer if required.

7.2 Minimisation of impacts

Where avoidance of an impact is not possible, impacts may be minimised by redesign and/or relocation of infrastructure or low impact construction methods. Impacts to ecological values may be minimised through various strategies including:

- siting of infrastructure in areas that have already been cleared
- siting of infrastructure on the edge of vegetation patches to reduce fragmentation
- micro-siting the location of access tracks and other infrastructure based on the results of pre-clear flora and fauna surveys
- reconfiguring infrastructure to minimise the amount of vegetation impacted (e.g. elongating pad dimensions may be possible on some sites)
- upgrading existing farm tracks for construction traffic to minimise the amount of vegetation requiring removal and reducing fragmentation (compared with clearing required for new tracks)
- minimising track width where possible
- minimising the width of new and upgraded tracks within sensitive habitats such as stream crossings or through remnant/HVR vegetation
- retaining the ground stratum and top soil (e.g. by trimming trees and woody shrubs) may be possible in some areas (e.g. adjacent to tracks and watercourse crossings) rather than ground disturbance works in order to retain soil structure and prevent erosion
- retaining large hollow-bearing trees that provide important nesting habitat for threatened species (e.g. greater glider or glossy black-cockatoo) where possible
- demarcation of clearing boundaries and designation of areas outside clearing boundaries as "no go" zones to avoid accidental damage to adjacent vegetation
- pre-clear surveys to identify habitat features before clearing commences and allow development of an appropriate tree removal procedure if required
- developing a traffic management plan to minimise damage to sensitive ecological areas and injury/mortality of fauna
- presence of a fauna spotter catcher during habitat clearing works (e.g. trees, shrubs.) earthen banks, built infrastructure, waterbodies or grassed areas) to detect fauna and conduct appropriate capture and release methods
- avoiding seasonal foraging or breeding seasons of threatened fauna where possible

NOTE: See Appendix E: Supplement to the Assessment of MNES, Section 3.2 and PER Section 4.6 and 4.7 for detailed design changes and additional context



 protecting trees adjacent to work sites in accordance with Australian Standard AS4970-2009 (Protection of trees in development sites).

7.3 Mitigation of impacts

After impacts have been avoided and minimised as far as practicable, remaining impacts will be mitigated. Mitigation strategies may include:

- rehabilitating disturbed areas following completion of construction activities such as temporary WTG construction pads, laydown areas and other infrastructure (site office, substations) or removal of temporary infrastructure
- rehabilitating unused verges of tracks within sensitive habitats following construction
- protection and potential restoration of any vegetation corridors that may facilitate the long-term survival and dispersal of the threatened flora and fauna species identified in this assessment
- development of appropriate environmental management procedures in a construction environmental management plan (e.g. erosion and sediment control, dust suppression, weed and pest animal management, offsite rubbish disposal)
- installation of wildlife movement or nesting furniture or structures (e.g., glider poles, koala crossings, nest boxes for unavoidable loss of hollows).

Aerial fauna that fly at RSA height may be killed by blade strike or barotrauma. The following mitigation of impacts should be considered to mitigate turbine strike.

- Where possible micro-site WTGS to maximise separation from the edges of remnant vegetation.
- Maintain the RSA height at no less than 60 m above ground height.
- An adaptive management and monitoring program to assess the effectiveness and implementation of controls as required.

Fauna may also be injured or killed by vehicles travelling within the project site during construction and operational stages. A traffic management plan for the project should incorporate measures to reduce the risk of collisions with vehicles including:

- limiting vehicle traffic to authorised tracks and roads
- avoid travel at night and minimise travel at dawn and dusk, where possible
- minimise the number of vehicles by using buses to transport construction staff around site
- enforcing strict speed limits and fauna safe behaviour through signage and staff training.

Generic minimising and mitigating strategies are provided in Table 39.



Table 39 Potential impacts to ecological values and recommended mitigation measures

Potential impact	Recommended mitigation measures
Removal of habitat	Set clear boundaries for clearing works.
	Keep clearing footprints to a minimum.
	Where possible, remove limbs from trees rather than entire trees (e.g. adjacent to tracks and waterway crossings).
	Avoid removal of significant vegetation communities (e.g. SEVT)
Declines in threatened species populations	Avoid vegetation clearing where previously cleared areas in the project site are available for the location of infrastructure.
3000	Avoid removal of critically important features of threatened species trabitats (e.g. targe hollow-bearing trees for greater gliders) where possible.
	Use fauna spotter catchers to identify and, if necessary, relocate threatened fauna before clearing works. Clearing should be completed in a sequential manner to allow fauna to first self-relocate.
	Establish temporary exclusion fencing to minimise entrapment, injury and/or mortality of fauna in sensitive areas during construction, where possible.
	Develop a vegetation management plan to address potential impacts of construction on flora and vegetation communities.
	Develop a fauna management plan to address potential impacts of construction on fauna and habitat
	Develop a traffic management plan that includes measures to minimise impacts of construction on fauna and sensitive environmental areas.
	Develop a Bird and Bat Management Plan (BBMP) to address potential impacts of WTG operation on aerial species.
Erosion of waterways	Best Practice Erosion and Sediment Control Guidelines (IECA 2008) should be followed to prevent off-site impacts to downstream receiving environments.
Removal of hollow-bearing trees or logs	Where possible, logs and hollow limbs cleared during construction should be placed in adjacent vegetation, so they can be used for habitat.
Removal of potential and active breeding sites	Fauna spotter catcher to undertake pre-clear survey to identify habital features and potential breeding sites prior to clearing works so that eggs or young can be removed and taken to qualified carer. A Queensland approved Species Management Plan high risk of impacts should be implemented for potential impacts to the breeding places of threatened and colonial breeding species.
Death or injury to fauna	Fauna spotter catcher to check all habital prior to and during clearing.
	Fauna spotter catcher should also check creeks and drainage lines for frogs and aquatic fauna prior to any proposed works in waterways.
	Have contact details of qualified carer to take any fauna injured or orphaned during works for rehabilitation.
	Develop a traffic management plan that includes measures to minimise impacts of construction on fauna including:
	- designated access routes
	restricting vehicle traffic to daylight hours where possible
	enforcing strict speed limits
Spread of weeds	Restricted weed species must be treated prior to construction commencing using an appropriate control fechnique. Reasonable control would include treating individual plants with a registered herbicide, which must be applied by an experienced and licenced weed control contractor. Ensure all plant conduct washdowns prior to entering site.
Spread of pest animals	Restricted pest animals must be managed to minimise biosecurity risks. During construction and operation, rubbish and food waste should be appropriately stored and disposed off-site to minimise affracting foxes, wild dogs and pigs. Contributing

NOTE: See Appendix E: Supplement to the Assessment of MNES, Section 3.2 and PER Section 4.6 and 4.7 for detailed design changes and additional context



Potential impact	Recommended mitigation measures
	to existing landholder and local government control programs for foxes, wild dogs and pigs may be beneficial to reduce impacts on native ecosystems and infrastructure (e.g. watercourse crossings, fences) and enhance community engagement.

Offsets will be developed to compensate for any significant residual impacts that remain after implementing all practicable measures to avoid, minimise and mitigate impacts. RES Australia Pty Ltd has purchased a property contiguous with the project site to be dedicated for use as land-based environmental offsets. The management of this offset will be subject to a future management plan required under a future Approval.



Significant impact assessment 8

Threatened ecological communities 8.1

No impacts are proposed to occur in or adjacent to the SEVT TEC (RE 11.8.3). Therefore, no further assessment of impacts will be completed for this TEC.

8.2 Threatened species

The MNES Significant Impact Guidelines 1.1 (DoE 2013a) provide criteria to assess whether a proposed action will have, or is likely to have, a significant impact on threatened species. Criteria for vulnerable and endangered species are listed in Table 40.

Table 40 Significant impact criteria for vulnerable and endangered species

Vulnerable species	Endangered species
Lead to a long-term decrease in the size of an important population of a species	Lead to a long-term decrease in the size of a population
Reduce the area of occupancy of an important population	Reduce the area of occupancy of the species
Fragment an existing important population into two or more populations	Fragment an existing population into two or more populations
Adversely affect habitat critical to the survival of a species	Adversely affect habitat critical to the survival of a species
Disrupt the breeding cycle of an important population	Disrupt the breeding cycle of a population
Modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	Modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline
Result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat	Result in invasive species that are harmful to an endangered species becoming established in the endangered species' habitat
Introduce disease that may cause the species to decline	Introduce disease that may cause the species to decline
Interfere substantially with the recovery of the species	Interfere with the recovery of the species

This section identifies whether the project is likely to result in a significant impact to any EPBC Act listed species.

When assessing the significance of an action on a vulnerable species, it is necessary to define whether an 'important population' of the species occurs or could potentially occur within the project site. An important population is defined as one that is necessary for a species' longterm survival and recovery. This may include populations identified as such in recovery plans, and/or that are:

NOTE: See Appendix E: Supplement to the Assessment of MNES, Table 13, Section 3.2 and PER Section 4.6 and 4.7 for detailed design changes and additional context



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

Table 41 provides an assessment of important populations for vulnerable species that are known, likely or possible to occur within the project site. Wandering peppercress, koala and greater glider are not included in this assessment as the use of 'important population' is not used for endangered species.

Table 41 Assessment of important populations for vulnerable species

Species	Key source population	Maintaining genetic diversity	Limit of the species' range	Important
Austral comflower	No. The species was not detected despite searches within suitable habitat areas. Suitable habitat on heavy clay soils is restricted to small areas on the eastern and western edge of the project site, which will not be disturbed by the proposed development.	No. There are many records of the species within the wider region. Much of the vegetation within the project site is fragmented and isolated, which limits genetic exchange.	No. The project site occurs within the central portion of the species range (Allora (north of Wanvick) to Callide (north-west of Biloela).	No
Austral toadflax	Unlikely. The species was not detected despite searches within suitable habitat areas. Suitable habitat within the site is likely to be limited to riparian areas.	No. There are many records of the species within the wider region. Much of the vegetation within the project site is fragmented and isolated, which limits genetic exchange.	No. The species extends form Carnarvon Gorge to Victoria.	No
black breasted button quail	No. There are extensive areas of vegetation surrounding the project site, which are likely to provide similar habital values.	No. There are many records of the species within the wider region. Suitable SEVT habitat within the project site is fragmented and isolated, which limits genetic exchange both across the site and in the broader landscape.	No. The project site is not at the limit of the species' range.	No
grey- headed flying-fox	No. There are no known camps within proximity of the project site.	No. The grey-headed flying- fox is a highly mobile species, ranging up to 50 km a night from camps	No. Although most of the population occurs along the coastal fringe, the species ranges further west to Chinchilla, Taroom and beyond.	No)
glossy black- cockatoo	No. There are extensive areas of vegetation surrounding the project site which are likely to provide similar habitat values.	No. There are many records of the species within the wider region. Much of the vegetation within the project site is fragmented and isolated, which limits genetic exchange.	No The project site is not at the limit of the species' range:	₩o

NOTE: See Appendix E: Supplement to the Assessment of MNES, Table 13, Section 3.2 and PER Section 4.6 for detailed design changes and additional context



Species	Key source population	Maintaining genetic diversity	Limit of the species' range	Important population
while- throated needletail	Yes One six day survey in summer 2023 recorded up to 191 bird sightings and flocks of approximately 50 birds, which is regarded as a nationally important population (DoE 2015).	No. There are many records of the species within the wider region. The species does not breed within Australia.	No. The species occurs throughout eastern and south-eastern Australia from late spring to early autumn.	Yes

Habitat critical to the survival of the species is further defined as areas that are necessary:

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

Threatened flora species 8.3

Targeted searches in potential habitat did not detect any EPBC Act-listed flora species.

The vulnerable Austral comflower may potentially occur in woodland communities on heavy clay soils, which occur only in the western edge of the project site. The proposed development will avoid these areas, so will not impact on potential habitat for Austral comflower.

The vulnerable Austral toadflax and endangered wandering peppercress can grow in remnant and non-remnant woodlands and grasslands within riparian areas, so clearing of riparian habitat could impact potential habitat for these species.

8.3.1 Austral toadflax

A formal impact assessment for the Austral toadflax listed as vulnerable under the EPBC Act is provided in Table 42.

The project may clear up to 15.28 ha of potential habitat associated with riparian areas, which represents 1.55% of available habitat within the project site. An important focus of ongoing project refinement has been to avoid riparian areas where possible, and the current design has substantially reduced proposed clearing of riparian areas. Further surveys will be required if clearing is proposed in riparian areas outside of the current planning corridor to search for populations of Austral toadflax. Micro-siting of project infrastructure in or near riparian areas will avoid and minimise impacts to areas where populations of toadflax or kangaroo grass are found. Provided that these measures are successfully implemented, it is unlikely that the proposed infrastructure will result in a significant impact to the species.

NOTE: See Appendix E: Supplement to the Assessment of MNES, Table 13, Section 3.2.6, Table 18 and PER Section 4.6 for detailed design changes and additional context



Table 42 EPBC Act significant impact assessment for vulnerable Austral toadflax

Significant impact criteria	Assessment of the site
lead to a long-term decrease in the size of an important population of a species	Unlikely— An important population of Austral toadflex is not known to not occur within the site. No individuals were detected during surveys, although 2 records are known from a riparian area approximately 1 km west of the site.
reduce the area of eccupancy of an important population	Unlikely. An important population of Austral toadflax is not known to not occur within the site. The proposed project will remove up to 15.28 he of potential inparian habitat which is only 1.55% of available habitat within the site. Project refinements have substantially reduced proposed clearing of riparian habitat within the site. Ongoing micro-siting of infrastructure will further reduce proposed clearing of potential habitat.
fragment an existing important population into two or more populations	Unlikely An important population of Austral toadflax is not known to occur within the site Watercourse crossings for the proposed project may cause minor fragmentation along riparian corridors. Clearing at crossing points will be minimised as far as possible and is unlikely to result in significant barriers to pollination and seed dispersal. Proposed riparian clearing is also unlikely to impact on host grass species (e.g. kangaroo grass).
adversely affect habital critical to the survival of a species	Unlikely There is no advice relating to what habital is considered habital critical to the survival of the species. Surveys within suitable habital did not detect this species with the nearest known records about 1 km west of the project site (Figure 3). Current negative survey results suggest that the project site does not contain critical habital for this species.
disrupt the breeding cycle of an important population	Unlikely— An important population of Austral loadflax is not known to occur within the site. The reproductive ecology of Austral loadflax is unknown, but related species are thought to be pollinated by small bees and flies, and seeds may be dispersed by gravity, water and ants (USDA 2019). The proposed project will remove up to 15.28 ha of potential riparian habital, which is only 1.55% of available habital within the site. This level of clearing is unlikely to result in significant impacts to pollination or seed dispersal.
medify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	Surveys within suitable habital did not detect this species, with the nearest known records about 1 km west of the project site (Figure 3). Current negative survey results suggest that the project site does not contain critical habital for this species. The proposed project will remove up to 15-28 ha of potential riparian habital, which is only 1-55% of available habital within the site. Ongoing micrositing of infrastructure will further reduce proposed clearing of potential habital. Other potential impacts on habital quality could include weed invasion, increased grazing pressure, changed fire regimes and riparian erosion. Measures to minimise impacts to habital quality will include weed and pest animal management and erosion and sediment control.
result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat	Unlikely Austral leadflex and its host grass species may be heavily grazed by demestic stock such as cattle and horses, and some feral herbivores such as rabbits (Scarlett et al 2013). Riparian weeds may also outcompete and smother austral toadflex and its host grass species. A construction environmental management plan will be developed to manage weed and pest animal management. This will include appropriate weed hygiens measures and treatment of weeds prior to and during construction.



Significant impact criteria	Assessment of the site
introduce disease that may cause the species to decline	Unlikely. Austral toodflax is not known to be susceptible to any diseases that may cause the species to decline.
interfere substantially with the recovery of the species	Unlikely. The project may remove up to 15-28 ha of potential riparian habitat, but this represents only 1-55% of available habitat within the site. If further surveys detect a population of this species, it is likely that micro-siting of infrastructure would be able to avoid the population. The small amount of proposed clearing is unlikely to be substantial enough to interfere with the recovery of the species.
Overall impact assessment-	The proposed project is unlikely to have a significant impact on austral toadflax assuming all practical impact mitigation measures are applied.

8.3.2 Wandering peppercress

A formal impact assessment for wandering peppercress listed as endangered under the EPBC Act is provided in Table 43.

The project may clear up to 15.28 ha of potential habitat associated with riparian areas, which represents 1.55% of available habitat within the project site. An important focus of ongoing project refinement has been to avoid riparian areas where possible, and the current design has substantially reduced proposed clearing of riparian areas. Further surveys will be required if clearing is proposed in riparian areas outside of the current planning corridor to search for populations of wandering peppercress. Micro-siting of project infrastructure in or near riparian areas should avoid or minimise impacts if populations are found. Provided that these measures are successfully implemented, it is unlikely that the proposed infrastructure will result in a significant impact to the species.

Table 43 EPBC Act significant impact assessment for endangered wandering peppercress

Significant impact criteria	Assessment of the site
lead to a long-term decrease in the size of a population	No individuals were detected during surveys, and the nearest known records are about 20 km to the south in very different montane habitat in the Bunya Mountains. Based on current desklop and field results, it is unlikely that a population exists within the proposed development area. Nevertheless, further targeted surveys will be completed in all potential riparian habitat within the footprint of the planning corridor. The corridor contains sufficient buffers, so that any detected individuals could likely be avoided by micro-siting of infrastructure.
reduce the area of occupancy of the species	Unlikely. No individuals were detected during surveys, and the nearest known records are about 20 km to the south. Based on current desktop and field results, it is unlikely that a population exists within the proposed development area. The proposed project will remove up to 15.28 ha of potential riparian habitat, which is only 1.55% of available habitat within the site. Project refinements have substantially reduced proposed clearing of riparian habitat within the site. Ongoing micro-siting of infrastructure will further reduce proposed clearing of potential habitat.
fragment an existing population into two or more	Unlikely. Watercourse cressings for the proposed project may cause minor fragmentation

NOTE: See Appendix E: Supplement to the Assessment of MNES, Table 13, Section 3.2.7, Table 19, and PER Section 4.6 for detailed design changes and additional context



populations -	along riparian corridors. Clearing at crossing points will be minimised as far as
Inspectation of	possible and is unlikely to result in significant barriers to pollination and seed dispersal.
adversely affect habitat critical to the survival of a species	Unlikely-
	There is no advice relating to what habitat is considered habitat critical to the survival of the species. Surveys within suitable habitat did not detect this species, with the nearest known records about 20 km to the south in very different montane habitat in the Bunya Mountains. Current negative survey results suggest that the project site does not contain critical habitat for this species.
disrupt the breeding cycle of a	Unlikely-
population	Seeds have a mucilaginous coat so are likely to be dispersed by attaching to feathers and fur of passing animals (Heenan and de Lange 2011). This is supported by records of introduction into New Zealand and Europe on sheep fleeces. Pollinators are unknown, but related species are pollinated by bees and other insects (Robertson and Klemash 2003). The proposed project will remove up to 15.28 ha of potential riparian habitat, which is only 1.55% of available habitat within the site. This level of clearing is unlikely to result in significant impacts to pollination or seed dispersal.
modify, destroy, remove or	Unlikely-
isolate or decrease the availability or quality of hebital to the extent that the species is likely to decline	No individuals were detected during surveys, and the nearest known records are about 20 km to the south. Current negative survey results suggest that the project site does not contain critical habitat for this species. The proposed project will remove up to 15.28 ha of potential riparian habitat, which is only 1.55% of available habitat within the site. Ongoing micro-siting of infrastructure will further reduce proposed clearing of potential habitat.
	Other potential impacts on habital quality could include weed invasion, increased grazing pressure and riparian crosion (DoE 2014b). Measures to minimise impacts to habital quality will include weed and pest animal management and erosion and sediment control.
result in invasive species that	Unlikely-
are hamful to a vulnerable species becoming established in the vulnerable species habitat	Wandering peppercress may be grazed by domestic stock such as callie and horses, and some foral herbivores such as rabbits (DoE 2014b). Riparian weeds may also outcompete and smother this species.
	A construction environmental management plan will be developed to manage weed and pest animal management. This will include appropriate weed hygiene measures and treatment of weeds prior to and during construction.
introduce disease that may	Unlikely-
cause the species to decline	Wandering peppercress is not known to be susceptible to any diseases that may cause the species to decline
interfere with the recovery of	Unlikely-
the species	The project may remove up to 15.28 ha of potential riparian habitat, but this represents only 1.55% of available habitat within the sile. If further surveys detect a population of this species, it is likely that micro-string of infrastructure would be able to avoid the population. The small amount of proposed clearing is unlikely to be substantial enough to interfere with the recovery of the species.
Overall impact assessment	The proposed project is unlikely to have a significant impact on wandering peppercress, assuming all practical impact mitigation measures are applied.

Based on the current results, it is considered unlikely that the project will have significant impacts on EPBC Act listed flora species

NOTE: See Appendix E: Supplement to the Assessment of MNES, Table 14, Section 3.2.7, Table 19, Section 3.2.1 and PER Section 4.6 for detailed design changes and additional context.



Walk-through assessments are recommended if the final designs propose clearing outside of the current planning corridor to search for threatened flora species where cleaning is proposed within the following areas:

- remnant and HVR woodland REs on heavy clay soils (Austral comflower)
- riparian communities, including remnant, HVR and non-remnant areas (Austral toadflax, wandering peppercress).

If walk-through assessments detect an EPBC Act listed species, further assessment will be required to determine the size and extent of populations, identify measures to avoid, minimise and mitigate potential impacts and assess whether any residual impacts are significant. Offsets may be required for any significant residual impact.

8.4 Threatened fauna species

Koala 8.4.1

The koala was recently upgraded from vulnerable to endangered under the EPBC Act. The previous koala referral guidelines were repealed on 12 February 2022 and no new guidelines specific to koala have been published. As survey works and previous report iterations were completed prior to this change, sections of the previous assessment (e.g. assessment of critical habitat and impacts on koala recovery) are included in Appendix 6. The current assessment follows the MNES Significant Impact Guidelines (DoE 2013a) for an endangered species.

A formal significant impact assessment for koalas at the site is provided in Table 44. Impacts to koalas include the clearing of up to 186.03 ha of habitat (16.98 ha of remnant vegetation and 169.05 ha of non-remnant vegetation) that could reduce habitat availability and connectivity, increase risk of predation from terrestrial predators such as dogs and exacerbate stress-induced disease.

General measures to mitigate impacts to koala include:

- minimising clearing works within identified koala habitat, including ongoing refinement and micro-siting of infrastructure to avoid habitat
- minimising injury/mortality of koalas during clearing works through pre-clear surveys and sequential clearing
- use of fauna spotter-catchers to identify and temporarily retain any occupied tree to allow koalas to self-relocate
- temporary exclusion fencing around areas of habitat identified as koala habitat during the environmental assessment process or during works by a fauna spotter catcher
- traffic management to minimise collisions during construction and operational phases
- predator control if signs of koala predation or increased predator numbers are observed during construction

NOTE: See Appendix E: Supplement to the Assessment of MNES, Section 3.1, Section 3.2.1 and Table 14, and PER Section 4.6 for detailed design changes and additional context



weed and pest animal management during construction and operational phases.

Table 44 EPBC Act significant impact assessment for endangered koala-

Significant impact criteria	Assessment of the site
lead to a long-term decrease in the size of a population	Likely— The number of koala sightings/signs and significant areas of suitable habitat distributed throughout the site suggest that the local population of koalas is likely to be regionally significant.
	The local population could be reduced by loss or degradation of habital, direct injury/mortality, and increased predation. The project will require clearing of up to 186.03 ha of potential keals habitat (16.98 ha remnant and 169.05 ha non-remnant), which represents 3.19% of the potential habitat within the project site. The habitat is recognised as habitat critical to the survival of the species and any clearing of this habitat has the potential to result in the decrease of the size of the local keals population. However, the clearing area will be further reduced by ongoing refinement and micro-siting to minimise impacts to keals habitat.
reduce the area of occupancy of the species	Unlikely The project will clear up to 186.03 ha of potential koala habitat and reduce the area of occupancy for the local populations by approximately 3.19% of the potential habitat within the project site. Impacts will be further reduced by ongoing refinament and micro-siting to reduce clearing. Provided that recommended mitigation measures are successfully implemented the project will not displace koalas from a significant proportion of the project site. However, it is still likely that the area of occupancy of the species will be reduced in the local area.
fragment an existing population into two or more populations	Unlikely. Fragmentation of koala habital through the construction of access tracks and other infrastructure may make kealas more vulnerable to vehicle collisions and predators such as wild dogs. However, given the already fragmented nature of the project site and the relatively small proportion of suitable habitat to be cleared, the current project is unlikely to increase fragmentation significantly. Strict traffic management procedures (e.g. limited access routes, speed controls, limited night traffic with reduced speeds during breeding season) will reduce potential impacts of access tracks. Rehabilitation works, where possible will include planting of locally important koala trees, especially in areas that provide connectivity between larger habital patches.
adversely affect habital critical to the survival of a species	Likely— The current koala guidelines do not specify areas of critical koala habitat. Under the repealed previous koala guidelines (DoE 2014a), the site contains habitat critical to the survival of the koala (scores 7 out of 10 as described in Appendix 6) within inland areas. The project will result in the clearing of up to 186.03 he of potential koala habitat that would provide foraging, breeding or shelter. While proposed mitigation measures (ongoing refinement and micrositing of infrastructure, weed and pest animal management, rehabilitation) will turther reduce direct and indirect impacts on habitat, the project is likely to adversely affect critical koala habitat.
disrupt the breeding cycle of a population	Likely Koala home ranges very widely from 3 to 500 ha, with the home range of the dominant male overlapping with home ranges of several females (DCCEEW 2023b; DECC 2008). Koalas are most active during the breeding season from September to February with males seeking females and sub-adults dispersing from their mother's home range (DCCEEW 2023b; Dique et al. 2003). The removal of subadult males by treuma has the potential to critically disrupt geneficw (DCCEEW 2023b). The risk of geneficw disruption is exacerbated by the higher mobility in subadult males compared to their temale counterparts, increasing their vulnerability to fatal encounters with

NOTE: See Appendix E: Supplement to the Assessment of MNES, Section 3.1, Section 3.2.1 and Table 14, and PER Section 4.6 for detailed design changes and additional context



Significant impact criteria	Assessment of the site
	vehicles and dogs. During the breeding season, keelas are at a greater risk of morfality from predation and vehicle strike, especially in fragmented landscapes.
	Measures to miligate impacts to breeding cycles will include engoing refinement and micro-siting to reduce clearing and fragmentation, strict traffic management procedures (e.g. limited access routes, speed centrols, limited night traffic with reduced speeds during breeding season), and monitoring and centrol of predators. However, as clearing and construction operations are likely to occur during breeding season disruption to the breeding cycle of the local population cannot be discounted.
modify, destroy, remove; isolate	Unlikely:
or decrease the availability or quality of habitat to the extent that the species is likely to decline	The project will require clearing of up to 186.03 ha of potential koala habitat which represents 3.19% of the potential habitat within the project site. Impacts will be further reduced by ongoing refinement and micro-siting to reduce clearing.
	The site contains habital critical to the survival of the koala. Reduction in areas of koala habital containing food tree species may reduce the availability of food resources for koalas and may lead to trees being unsustainably over-browsed or koalas leaving the area in search of new and higher quality food resources. These impacts while possible on a local level, will not occur on a scale that will likely cause the species to decline.
	Measures to minimise impacts to habital quality will include weed and pest animal management, erosion and sediment control, dust suppression and offsite rubbish disposal.
	The project will lead to some clearing and fragmentation of koala habitat. However, given the relatively small percentage of available habitat to be cleared within the project site and the already fragmented nature of the project site due to existing farming practices, it is unlikely to decrease the availability or quality of habitat to the extent that the species is likely to decline
result in invesive species that are harmful to a critically endangered or endangered species becoming established in the critically endangered or endangered species habitat	Unlikely. Koalas are threatened by dogs (domestic and wild) when they come down to the ground between trees or travel to new areas. Dogs are already well established within the region, so the proposed activity is unlikely to result in dogs becoming more prevalent or moving into previously uninhabited areas. However, the project may increase population levels of introduced predators during the operation phase, through an increase in available food resources (carcasses, from turbine strike). Provided pest animal management is undertaken along with carcass monitoring, introduced predator populations can be managed to avoid impacts to the koala population.
introduce disease that may cause	Unlikely
the species to decline	Koalas have been impacted by chlamydia which is prevalent in some populations; including SEQ Most koalas observed during the surveys displayed the tell-tale 'dirty bottom' appearance of chlamydia infection. Stress caused by land clearing and habital reductions are known to exacerbate chlamydia in koalas. The proposed project will result in clearance of troala habital that could increase stress in the short term, but is unlikely to cause a long term increase in stress induced disease. Stress will be further reduced by sequential clearing, which involves staged clearing of trees to allow koalas to relocate without human intervention, and the temporary retention of any tree in which a koala is present.
interfere with the recovery of the	Unlikely.
species	The proposed activity in its current form will clear up to 186.93 ha of keala habitat leading to a reduction in the availability of keala habitat in structural terms and in the form of local food availability. Provided that recommended mitigation measures as described above and in Appendix 6 are successfully implemented, the project is unlikely to interfere with the recovery of the species on a regional or national level.

NOTE: See Appendix E: Supplement to the Assessment of MNES, Section 3.1, Section 3.2.2 and Table 15, and PER Section 4.6 for detailed design changes and additional context



Significant impact criteria	Assessment of the site
Overall impact assessment	The proposed project is likely to have a significant impact on koala, after all practical impact mitigation measures are applied.

8.4.2 Greater glider

A formal impact assessment for the greater glider listed as endangered under the EPBC Act is provided in Table 45. Out of 70 total sightings of greater glider, 33 were within the project site and 37 occurred in vegetation adjacent to the project site (along Kingaroy Burrandowan Road and in properties now excluded from the project site, in habitat identical to that occurring in the site).

The project may clear up to 16.98 ha of greater glider habitat with an associated potential loss of hollow-bearing trees used for denning. However, only 1.03% of the total available greater glider habitat within the site is proposed to be cleared. Greater gliders require large hollows that usually take over 150 years to form in eucalypts, use 4-20 den trees each, and will coutilize the same dens at different times (Smith et al. 2007). Nest boxes suitable for greater gliders will aid to minimise impacts of unavoidable clearing of any potential denning hollows in mapped glider habitat.

Tracks will cause some limited fragmentation. Greater gliders can traverse gaps 75 m to 100 m in width (Van Dyck & Strahan 2008), however, gaps of 55 m wide across roads have been reported to create a complete barrier for greater gliders attempting to move between adjacent forest patches (Taylor and Goldingay 2009), Although the proposed planning corridor is generally 100 m wide to allow micro-siting, the final clearing footprint of tracks within this corridor will generally be narrower. Pre-clearing surveys will be undertaken to inform, where possible, micro-siting of project infrastructure that minimises loss of tree hollows, clearing and fragmentation of habitat. As a precautionary measure to mitigate against potential fragmentation of populations, installation of fauna crossing infrastructure (e.g., glider poles) will assist in areas where tracks are greater than 50 m in width within the planning corridor. Provided that these measures are successfully implemented, it is unlikely that the proposed infrastructure will result in a significant impact to the species

Table 45 EPBC Act significant impact assessment for endangered greater gliders

Significant impact criteria	Assessment of the site
lead to a long form decrease in the size of a population	Unlikely— The number of greater glider sightings and significant areas of suitable habitat distributed throughout the site suggest that the local population of greater gliders is likely to be regionally significant.
	The local population could be reduced by loss or degradation of habital, direct injury/mortality and increased predation. The project will require clearing of up to 16.98 ha of potential greater glider habital. This represents 1.93% of the potential habital within the project site. Impacts to foraging and nesting habital loss will be reduced by ongoing infrastructure layout refinement and WTG micro-siting to reduce cleaning. Additionally, surveys recorded large numbers of greater gliders in extensive areas of suitable habital immediately north of the project site.
	Measures to minimise injury/mortality will include pre-clear surveys, sequential

NOTE: See Appendix E: Supplement to the Assessment of MNES, Section 3.1, Section 3.2.2 and Table 15, and PER Section 4.6 for detailed design changes and additional context



Significant impact criteria	Assessment of the site
	clearing and use of fauna spotter-catchers to identify and allow greater gliders to self-relocate during construction or be relocated (if required), traffic management to minimise collisions, minimise track widths, install permanent fauna movement infrastructure (e.g. glider poles), undertake pest management and install temporary exclusion fencing in areas of mapped glider habitat during the construction phase. Provided these measures are successfully implemented, the project is unlikely to lead to a long term decrease in the size of the local population.
	S WE
reduce the area of occupancy of the species	While the project will require clearing of up to 16.98 ha of potential greater glider habitat, it represents only 1.03% of the potential habitat within the project site. Additionally, surveys recorded large numbers of greater gliders in extensive areas of suitable habitat immediately north of the project site that will not be impacted by this project.
	Impacts will be further reduced by ongoing refinement and micro-siting to reduce clearing of important greater glider denning habitat. Provided the recommended mitigation measures are successfully implemented, the project will not displace greater gliders from a significant proportion of the project site and will therefore not reduce the area of occupancy of the local population.
fragment an existing	Unlikely
population into two or more populations	Fragmentation of greater glider habitat through the construction of access tracks and other infrastructure may result in greater gliders moving across the ground making them more vulnerable to vehicle soliisions and predators such as wild dogs. The planning corridor avoids most large blocks of known and potential habitat for greater glider, which occurs in the hilltop remnant vegetation. Clearing for the upgrade of one section of Jumma Road will slightly increase fragmentation of one habitat block known to support greater glider. Clearing in this section will be minimised as far as possible. Nevertheless, clearing should be kept to less than 50 -75 m wide wherever possible, which greater gliders are capable of gliding between (Van Dyck & Strahan 2008). Where detailed design for the track drainage and confider for electrical reticulation will clear spans wider than 50 m, glider poles will be installed at key points to avoid gliders having to traverse the ground. Installation of these structures are assential to minimizing the impact of habitat fragmentation of glider habitat along Jumma Road. Strict reflic management procedures (e.g. limited access routes, speed controls, limited hight traffic with reduced speeds) will further reduce potential impacts of access tracks on habitat fragmentation, along with pest animal management during operation phases of the project. Provided that proposed measures are successfully implemented, it is unlikely that the proposed infrastructure will result in significant fragmentation of populations.
adversely affect habitat critical to the survival of a species	Unlikely. There is no advice relating to what habitat is considered habitat critical to the survival of the species. However, habitat characteristics likely to contribute to the survival of the species include tall forests, presence of cucalypt food species, abundant large hollows, and low levels of fragmentation. Pastoral clearing within the site has caused substantial loss of suitable habitat, with areas containing suitable large hollows now restricted to areas of remnant vegetation. Even within remnant areas, selective logging has reduced the abundance of hollows. Critical habitat is therefore confined to areas of remnant cucalypt forest, especially those areas along the eastern edge of the site that are least fragmented.
	The proposed project will remove 16.98 ha of potential habital, which is only 1.03% of available habital within the project site. Impacts will be further reduced by ongoing refinement and micro-siting to reduce cleaning of important greater-glider denning habital (trees with large hollows). Tracks will not notably contribute to further habital fragmentation. It is expected that sufficient habital will remain at the site to support the existing population of greater gliders.
disrupt the breeding cycle of a population	Unlikely. Strict traffic and construction management procedures (e.g. limited access

NOTE: See Appendix E: Supplement to the Assessment of MNES, Section 3.1, Section 3.2.2 and Table 15, and PER Section 4.6 for detailed design changes and additional context



Significant impact criteria	Assessment of the site
	routes, speed controls limiting activities to daylight use as far as possible) will minimise impacts on this nocturnal species, as well as nest box installation for all hollows unavoidably removed. The proposed level of clearing and ongoing disturbance is unlikely to disrupt the breeding cycle of greater glider.
modify, destroy, remove, isolate or decrease the availability or quality of habital to the extent that the species is likely to decline	Unlikely The loss of 16.98 ha of potential habitat is unlikely to exacerbate the existing extent and degree of fragmentation of vegetation patches within the project site in addition, the proposed clearing will be restricted to WTG pads, access tracks and associated infrastructure, which will not result in large areas of habitat loss. Some hollow-bearing trees providing important denning resources may be removed by clearing works. However, where possible, large hollow-bearing trees will be avoided by micro-string of infrastructure guided by pre-clearing surveys.
result in invasive species that are harmful to a critically endangered or endangered species becoming established in the critically endangered or endangered species habitat	Greater gliders are known to be taken by wild dogs, dingoes and foxes (Maloney 2007), and these predators were observed at the project site during field surveys. The project is not likely to result in an invasive fauna species becoming further established in the species habitat. However, the project may increase population levels of introduced predatore during the operation phase, through an increase in available food resources (carcasses from turbine strike). Provided pest animal management is undertaken including carcass monitoring, predator populations can be managed to avoid impacts to the greater glider population. Additionally, installation of fauna movement infrastructure (e.g. glider poles) on tracks wider than 50 m will limit gliders traversing the ground, where they are at higher risk of predation (Taylor and Goldingay 2014).
	Some invasive weeds can increase the flammability of the habitat, amplifying wildfire risks. The proposed project will implement appropriate weed management in accordance with a Vegetation Management Plan for the areas within and adjacent to the clearing footprint. Therefore is unlikely to result in the establishment of an invasive weed species that could harm greater glider habitat.
introduce disease that may cause the species to decline	Unlikely Greater gliders are not threatened by any disease that could be brought into the species' habitat by the project.
interfere with the recovery of the species:	Unlikely. The small amount of proposed clearing is unlikely to exacerbate the existing extent and degree of fragmentation of suitable habitat within the project site but could reduce large hollows providing important greater glider denning resources. Protecting and retaining hollow-bearing trees is an important resovery action for the greater glider. Pre-clearing surveys will allow micro-siting of project infrastructure that minimises loss of tree hollows and clearing and fragmentation of habitat, avoiding any significant impact on species resovery.
Overall impact assessment	The proposed project is unlikely to have a significant impact on greater glider, assuming all practical impact mitigation measures are applied.

Grey-headed flying-fox 8.4.3

A formal impact assessment for the grey-headed flying-fox listed as vulnerable under the EPBC Act is provided in Table 46. The project site contains approximately 5,834.62 ha of potential foraging habitat for the grey-headed flying-fox (including 1,652.43 ha of remnant/HVR vegetation and 4,182.19 ha within non-remnant areas). The current design may remove up to 486.03 ha of potential foraging habitat for the grey-headed flying-fox, which is only 3.19% of potential habitat within the project site. Pre-clearing surveys will be undertaken NOTE: See Appendix E: Supplement to the Assessment of MNES. Section 3.1, Section 3.2.3 and Table 16, and PER Section 4.6 for detailed design changes and additional context



to allow micro-siting of project infrastructure that, where possible, minimises clearing of mature eucalypts or foraging sources such as large fig trees.

Operational impacts to grey-headed flying-fox are likely to be limited to direct strike if travelling within the RSA and disturbance from WTGs to foraging habitat when trees are in flower and fruit. Habitat disturbance will be minimised by micro-siting WTGs as far away as practicable from remnant vegetation. Blade strike issues are assessed and discussed in more detail in the BBUS (Ecosure 2023).

Provided that mitigation measures are successfully implemented, it is unlikely that the proposed infrastructure will result in a significant impact to an important population of the species.

Table 46 EPBC Act significant impact assessment for vulnerable grey-headed flying-fox-

Significant impact criteria	Assessment of the site-
lead to a long-term decrease in the size of an important population of a species	Given grey-headed fiying-fox is considered to exist within a single national population due to its highly mobile and fluid nature between colonies. Therefore, an important population of grey-headed flying-fox does not occur within the site. The project may clear up to 188 03 ha of foraging habital, including 16 98 ha of remnant vegetation and 169.05 ha within non-remnant areas (representing 3.19% of potential foraging habital within project site.) There are no known grey-headed flying-fox camps within 20 km of the project site. Ample foraging habitat exists within the surrounding landscape (within 50 km of the project site in large patches of vegetation). The removal of potential foraging habitat for the project works is unlikely to lead to a long-term decrease in the population size of this species. Operational impacts may include collision with WTGs and behavioural disturbance in potential foraging habitat. Behavioural disturbance will be minimised by micro-siting WTGs as far away as practicable from remnant vegetation. The risk of collisions will be monitored and adaptive management measures applied in accordance in a future BBMP.
reduce the area of occupancy of an important population	Unlikely The project may clear up to 186.03 ha of foraging habital, including 15.98 ha of remnant vegetation and 169.05 ha within non-remnant areas (representing 3.19% of potential habital within site). There are no known grey-headed flying-fox camps within 20 km of the project site. The project will result in the loss of some foraging habital, but large tracts of foraging habital are present in the surrounding landscape. Therefore, the impact to this highly mobile species is minimal and unlikely to result in a significant reduction in area of occupancy.
fragment an existing important population into two or more- populations	Unlikely. The gray headed flying fox is a highly mobile species which occurs as a single national population due to its ability to move between colonies. Ample foraging habital is available within 50 km of the nearest known camp (38 km south-east of the project site). This project is therefore unlikely to fragment an existing important population of grey-headed flying-fox.
adversely affect habital critical to the survival of a species	Unlikely Reliable foraging resources in spring are critical to the survival of grey-headed flying-fox to avoid poor reproductive success (DCCEEW 2023b). The project site contains eucalypt species that provide foraging resources when flowering. The project will clear up to 186.03 ha of potential foraging habitat but large areas of foraging habitat will remain within the project site and surrounding landscape.

NOTE: See Appendix E: Supplement to the Assessment of MNES. Section 3.1, Section 3.2.3 and Table 16, and PER Section 4.6 for detailed design changes and additional context



Significant impact criteria	Assessment of the site
	The project site is over 20 km from the nearest known camp. Therefore, it is unlikely that this project will adversely affect habital critical to the survival of the grey-headed flying fox.
disrupt the breeding cycle of	Unlikaly
an important population	The proposed works will remove potential foraging habitat, but large areas of foraging habitat will remain within the project site and surrounding landscape, and there are no known camps within 20 km of the project site.
	Given the high mobility of this species and the abundance of flowering eucalypts in the region, the project is unlikely to disrupt the breeding cycle of grey-headed flying-fox. Nevertheless, as reliable foraging resources in spring are critical to the survival of gray-headed flying-fox, removal of flowering curalypts should be avoided during this period where possible.
modify, destroy, remove.	Unlikely-
isolate or decrease the availability or quality of habital- to the extent that the species	No roosting grey-headed flying-fox have been observed during field surveys. The proposed works will remove potential foraging habitat, but there are no known camps within 20 km of the project site.
is likely to decline	Given the amount of foraging habital remaining within the wider locality, the proposed clearing is unlikely to cause the species' population to decline
result in invasive species that	Unlikely-
are harmful to a vulnerable species becoming established in the vulnerable species' habitat	Clearing of vegetation which may provide foraging habitat for grey headed flying- fox has the potential to allow for weed species to establish in place. Provided appropriate mitigation measures (e.g., adopting effective weed hygiene measures and progressive rehabilitation of disturbed areas) are implemented during the proposed works, it is highly unlikely an invasive species will impact the grey-headed flying-fox.
infroduce disease that may	Unlikely-
cause the species to decline	The impact of disease on flying foxes is relatively unknown (DAWE 2021b). Grey-headed flying-foxes generally exist in equilibrium with Lyssavirus, but population impacts have been observed when the species is under significant ecological stress (DCCEEW 2023b).
	Grey-headed flying-foxes can be susceptible to Angiostrongylosis and a number of other diseases, however, the impact of these diseases at a population level is unknown (DAWE 2021b).
	It is unlikely the proposed project works will result in significant ecological stress to the species, and result in increased rates of the disease through the population.
interfere substantially with the	Unlikaly-
recovery of the species	National key recovery targets focus on improving the national population trend of grey-headed flying fox by reducing the impact of threats. Recovery objectives include protecting and increasing foraging habitat, increasing public awareness and improving management of camps (DCCEEW 2023b).
	The project site contains vegetation which may provide foraging habital for the species. Though potential foraging habital is proposed to be cleared as part of the clearing, given the availability of large tracts of vegetation within the wider landscape, this is not considered a substantial interference to this species recovery.
Overall impact assessment	The proposed project is unlikely to have a significant impact on grey-headed flying-fox, assuming all practical impact mitigation measures are applied.



Glossy black-cockatoo

A formal impact assessment for the glossy black-cockatoo listed as vulnerable under the EPBC Act is provided in Table 47. Approximately 16.98 ha of potential habitat for glossy blackcockatoo will be cleared for the construction of project infrastructure but large areas of similar habitat are available within the project site and the surrounding region. Construction activities are unlikely to significantly reduce foraging habital. While some hollow-bearing trees may be removed during construction, micro-siting of WTGs and other infrastructure will avoid clearing these trees where possible.

Operational impacts to glossy black-cockatoo are likely to be limited to direct strike if travelling within the RSA and disturbance from WTGs to breeding behaviours. Habitat disturbance will be minimised by siting WTGs as far away as practicable from remnant vegetation, in particular areas where (if any) suitable nesting hollows are identified and watering points. The BBUS (Ecosure 2023) concluded that the glossy black-cockatoo has a moderate risk of blade strike. Ongoing carcass monitoring to assess strike numbers of glossy black-cockatoo, revised risk assessments and adaptive management measures should be applied during the operational phase of the project in accordance with an approved BBMP.

Table 47 EPBC Act significant impact assessment for vulnerable glossy black-cockatoo

Significant impact criteria	Assesument of the site
lead to a long term decrease in the size of an important population of a species	Unlikely- Important glossy-black-cockatoo populations have not been identified on the project site.
	Construction will clear up to 16.98 ha of potential foraging and nesting habitat, which is only 1.03% of available habitat within the project site. Impacts to stands of preferred feed trees and nesting hollows will be managed by identification of areas during preclearing surveys and micro-siling of WTGS to avoid clearing these areas where possible.
	Operational impacts may include collision with WTG blades and behavioural disturbance in nesting/roosting habital. The risk of collisions and behavioural disturbance will be minimised by siting WTGs as far away as practicable from remnant vegetation and watering points. The risk of collisions will be monitored and adaptive management measures applied in accordance with a future BBMP.
reduce the area of occupancy of an important population	Unlikely. An important population of glossy black-cockatoo does not occur within the site. Clearing of 46.98 ha of foraging and nesting habital will not significantly reduce the area of occupancy in the broader region.
fragment an existing important population into two or more populations	Unlikely An important population of glossy black cockatoo does not occur within the site. The project is unlikely to create barriers to movement or fragment populations of this highly mobile species.
adversely affect habitat entical to the survival of a species	Unlikely. The project will require clearing of 16.98 ha of potential foraging and nesting habital. This represents only 1.03% of similar foraging and nesting habital available within the project site. There is also significant habital immediately adjacent to the project site and surrounding landscape (Golder Associates 2018) impacts to stands of preferred feed trees and nesting hollows will be managed by identification of areas during preclearing surveys and micro-siting of WTGs to avoid clearing these areas where possible. If these measures are implemented, it is unlikely that this project will adversely affect habital critical to the survival of



Significant impact criteria	Assessment of the site
	the species
disrupt the breeding cycle of an important population	An important population of glossy black cockatoo does not occur within the site. Preclearance surveys will be undertaken prior to the removal of vegetation to identify potential nesting hollows or valuable foraging areas. To mitigate any potential impacts to breeding cycles, it is recommended the removal of glossy black cockatoo foraging and breeding habitat be scheduled outside of the breeding season, which will be identified in a detailed BBMP.
modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	Unlikely. The project will require clearing of 16.98 ha of foraging and nesting habitat, this represents only 1.03% of similar habitat within the project site. Given the amount of habitat remaining within the wider locality (including known foraging areas adjacent to the project site), the proposed clearing is unlikely to cause the species population to decline.
result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species habitat	Unlikely- No invasive species are known to threaten the glossy black-cockatoo. However, invasive weeds can alter the characteristics of habital, thereby changing foraging and nesting resource availability and some weeds may increase the flammability of the habital, amplifying wildfire risks. The proposed project will implement appropriate weed management in accordance with a Vegetation Management Plan for the areas within and adjacent to the cleaning footprint, therefore it is unlikely to result in the establishment of an invasive species that could harm glossy black-cocketoos or their habitat.
introduce disease that may cause the species to decline	Unlikely Glossy black-cockatoos are not threatened by any known disease that could be brought into the species habital by the project.
interfere substantially with the recovery of the species	Unlikely— The project site contains vegetation which provides foraging and nesting habitat for glossy black-cockator. Some habitat is proposed to be cleared, however, given the availability of large tracts of vegetation within and adjacent to the project site that will remain, it is unlikely that construction of this project will significantly impact the species—
Overall impact assessment	The proposed project is unlikely to have a significant impact on glossy black- cockatoo, assuming all practical impact mitigation measures are applied.

8.4.5 White-throated needletail

A formal impact assessment for the white-throated needletail listed as vulnerable under the EPBC Act is provided in Table 48. Approximately 16.98 ha of potential roosting habitat for white-throated needletail will be cleared for the construction of project infrastructure. However, surveys did not record any roosting and large areas of similar habitat are available within the project site and the surrounding region. Construction activities are unlikely to impact significantly on feeding habitat, as this species is an aerial forager.

Potential operational impacts include blade strike when fiying and foraging at RSA height. Ongoing carcass monitoring to assess strike numbers of white-throated needletail, revised risk assessments and adaptive management measures should be applied during the operational phase of the project in accordance with an approved BBMP. NOTE: See Appendix E: Supplement to the Assessment of MNES, Section 3.1, Section 3.2.4 and Table 17 for detailed design changes and additional context



Surveys have identified numbers of white-throated needletail which represent a nationally significant proportion of the population. Given that white-throated needletail are at high risk of collision with WTG and adequate WTG strike mitigation measures are not currently known for this species, the project may result in a significant impact on white-throated needletail.

Table 48 EPBC Act significant impact assessment for vulnerable white throated needletail

Significant impact criteria	Assessment of the site
lead to a long-turm decrease in the size of an important population of a species	White throated needletail were detected in five of the nine survey periods, predominately during spring and summer periods. Total sighting numbers ranged from 1 to 191 individual sightings over a six day period and flock sizes ranged from a single individual to at least 50 birds. DoE (2015) considers 100 individuals to be an internationally significant proportion of the population and 10 individuals to be a nationally significant proportion of the population. The project site therefore contained a nationally important population of white-throated needletail. Sightings were more prevalent during suitable atmospheric conditions, such as summer storms. White-throated needletail may aerially forage above the entire site and could potentially roost within remnant/HVR woodland (although no roesting was recorded during surveys). Construction will have minimal impact on foraging habitat and will clear up to 16.98 ha of potential roosting habitat, which is only 1.03% of available habitat within the project site. Additionally, the site is not close to the species distribution limit and is surrounded by equivalent habitat containing known records of the species. White throated needletail rarely roost in Australia, and so operational impacts (including collision with WTG blades) represent a higher risk of impact through direct mortality. The risk of collisions will be monitored and adaptive management measures applied in accordance with a future 8BMP:
reduce the area of occupancy of an important population	Unlikely The estimated area of occupancy in Australia is over 20,000 km² (TSSC 2019). Cleaning of 16.98 ha of roosting habitat will not significantly reduce the area of occupancy.
fragment an existing important population into two or more populations	Unlikely A nationally important population of white-throated needletail has been observed within the project site, however the species is a highly mobile aerial forager, so the project is highly unlikely to create barriers to movement.
adversely affect habital critical to the survival of a species	Unlikely. Critical breeding habitat for the species does not occur in Australia. The project will require clearing of 16.98 ha of potential roosting habitat, but this represents only 1.03% of similar habitat within the project site.
disrupt the breeding cycle of an important population	White-throated needletail does not breed in Australia and so we consider for the purposes of this assessment that disruption of breeding activities (through removal of potential nesting habitat or behavioural disturbance) is unlikely to occur. However, turbine strike could impact the breeding cycle through the reduction of the population size. Ongoing carcass munitoring and revised risk assessments should be completed during the operational phase of the project to continue to assess strike numbers and population impacts of white-throated needletail.
modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	Unlikely— The project will require cleaning of 15.98 ha of potential receting habitat, but this represents only 1.03% of similar habitat within the project site. White throated needletail is a highly mobile species that forages serially over most habitats; so

NOTE: See Appendix E: Supplement to the Assessment of MNES, Section 3.1, Section 3.2.4 and Table 17 for detailed design changes and additional context



Significant impact criteria	Assessment of the site-
	the small clearing footprint is unlikely to significantly reduce foraging habitat.
result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species habitat	Unlikely— No invasive species are known to threaten the white-throated needletail. The proposed project will not result in the establishment of an invasive species that could harm white-throated needletails or their habitat.
introduce disease that may cause the species to decline or-	Unlikely— White threated needletails are not threatened by any known disease that could be brought into the species habital by the project.
interfere substantially with the recovery of the species	Likely A recovery plan has not been prepared for this species. However, conservation actions focus on working with East Asia to protect breeding habitat and identify areas of important habitats in Australia. Although the project will clear up to 16.88 ha of potential roosting habitat this is unlikely to impact on this highly mobile aerial species. Individuals may collide with WTGs during operation. However, ongoing monitoring of the strike risk to the population and adapting management measures in a future BBMP during the operational phase will help to mitigate impacts to the species.
Overall impact assessment	The proposed project is likely to have a significant impact on white throated needletail, after all practical impact miligation measures are applied.

8.5 Migratory species

Migratory species confirmed during surveys were the rufous fantail, satin flycatcher, whitethroated needletail (also listed as vulnerable) and fork-tailed swift.

8.5.1 Rufous fantail

A formal impact assessment for the rufous fantail is provided in Table 49. Up to 27.72 ha of potential habitat for this species will be cleared for the construction of project infrastructure. Areas within the planning corridor have limited understorey vegetation so are marginally suitable for this species. Areas of more suitable habitat are available within the eastern edgeof the project site and the surrounding region, however, as a conservative measure the 27.72 ha of marginal habitat should still be considered suitable for the species. As this species is highly mobile, the limited level of clearing is unlikely to lead to significant fragmentation of potential habitat

Potential operational impacts include collisions with WTGs and disturbance of WTGs to habitat used for foraging or nesting. Habitat disturbance will be minimised by micro-siting WTGs asfar away as practicable from remnant vegetation. Rufous fantalls are unlikely to collide with WTGs during operation as they generally forage in the lower and mid strata and rarely flyabove the canopy (Ecosure 2023).

Provided that recommended mitigation measures are successfully implemented, the proposed development is unlikely to have a significant residual impact on rufous fantail.



Table 49 EPBC Act significant impact assessment for rufous fantail-

Significant impact criteria	Assessment of the site
substantially modify (including by fragmenting, altering fire regimes, altering nutrient cycles or altering hydrological cycles), destroy or isolate an area of important habitat	Unlikely. The site is not important habital for rufous fantall as the region is not known to contain a nationally significant proportion of the species population (1.500 individuals for the north eastern rufous fantail), does not contain substantial areas of forest with dense understoray suitable for breeding habital, and is not near the limit of the species range.
	The project will require clearing of 27.72 ha of potential habitat, but this represents only 0.11% of similar habitat within the project site. The area within the planning corridor does not contain a dense understorey layer preferred by rufous fantail. This area is also well below the threshold level for a nationally significant area of important habitat (340 km² for the north-eastern rufous fantail).
result in an invasive species that is harmful to the migratory species becoming established in an area of important habitat for the migratory species	Unlikely— Invasive species that may be harmful to rufous fantail include black rat and invasive riparian vines (DoE 2015). No introduced rats were detected during fauna surveys. Flora surveys recorded one invasive vine, cat's claw creeper, along larger watercourses, but the project is unlikely to result in further spread of this species or the introduction of other invasive species.
seriously disrupt the lifecycle (breeding, feeding, migration or resting behaviour) of an ecologically significant proportion of the population of a migratory species	Unlikely. The project will require clearing of 27.72 ha of marginal habital for rufous fantail, which is unlikely to impact on the foraging and breeding success of this species. Nine seasonal surveys detected only three individuals, indicating that the site supports a relatively small local population. The species is a highly mobile aerial forager, so the project is highly unlikely to create barriers to movement.
	Rufous fantalis generally forage in the lower and mid strata and rarely fly above the canopy, so collisions with WTGs are unlikely. The risk of collisions and disturbance to foraging birds will be further reduced by micro-siting WTGs as far as practicable from remnant vegetation during construction.
#24 ren 2012 Joseph 2012 ren 193 194 1	
Overall impact assessment	The proposed project is unlikely to have a significant impact on rufous fantail, assuming all practical impact mitigation measures are applied.

8.5.2 Satin flycatcher

A formal impact assessment for the satin flycatcher is provided in Table 50. Approximately 186.03 ha of potential habital (16.98 ha of remnant vegetation and 169.05 ha within nonremnant areas) for this species will be cleared for the construction of project infrastructure. However large areas of more suitable habitat are available within the eastern edge of the project site (where the species was recorded) and the surrounding region. As this species is highly mobile, the limited level of clearing is unlikely to lead to significant fragmentation of potential habitat. Potential operational impacts include collisions with project infrastructure and disturbance of WTGs to habitat used for foraging or nesting. Habitat disturbance will be minimised by micro siting WTGs as far away as practicable from remnant vegetation and watercourses. Satin flycatchers are unlikely to collide with WTGs during operation as they generally forage in the canopy and mid-canopy and rarely fly above the canopy (Ecosure 20231

Provided that recommended mitigation measures are successfully implemented in a future BBMP, the proposed development is unlikely to have a significant residual impact on the satinflycatcher.

NOTE: See Appendix E: Supplement to the Assessment of MNES, Section 3.1, Section 3.2.4, Table 17 and Section 3.3 for detailed design changes and additional context



Table 50 EPBC Act significant impact assessment for salin flyoatcher-

Significant impact criteria	Assessment of the site
substantially modify (including by fragmenting, altering fire regimes, altering nutrient cycles or altering hydrological cycles), destroy or isolate an area of important habitat	Unlikely. The site is not important habital for safin flycatcher as the region is not known to contain a nationally significant proportion of the species population (1,700 individuals for the safin flycatcher), is below the species preferred breeding elevation of >800 m ASL and is not near the limit of the species range. The project will require clearing of up to 186 03 ha of potential habitat, but this represents only 3.19% of equivalent suitable habitat within the project site, with
	large areas of more suitable habitat in the surrounding region. The cleaning area is also below the threshold level for a nationally significant area of important habitat (440 km² for the satin flycatcher).
result in an invasive species	Uniikely-
that is harmful to the migratory species becoming- established in an area of important habitat for the migratory species	Invasive species that may be harmful to satin flycatcher include black rat and invasive riparian vines (DoE 2015). No introduced rats were detected during fauna surveys. Flora surveys recorded one invasive vine, calls claw creeper, along larger watercourses, but the project is unlikely to result in further spread of this species or the introduction of other invasive species.
seriously disrupt the lifecycle	Unlikely-
(breeding, feeding, migration or resting behaviour) of an ecologically significant proportion of the population of a migratory species	The project will require clearing of 185.02 ha of marginal habitat for satinflycatcher, which is unlikely to impact on the foraging and breeding success of this species given the regional widespread availability of eucalypt habitat and the species tendency to breed at high altitude (>600 m elevation). Nine seasonal surveys detected only three individuals indicating that the site supports a relatively small local population. The species is a highly mobile arboreal forager, so the project is highly unlikely to create barriers to movement.
	Satin flycatchers generally forage in the canopy and sub-canopy and rarely fly above the canopy so collisions with WTGs are unlikely. The risk of collisions and disturbance to foraging birds will be further reduced by micro-siting WTGs as far as practicable from remnant vegetation during construction.
Overall impact assessment	The proposed project is unlikely to have a significant impact on satin flycatcher, assuming all practical impact mitigation measures are applied.

8.5.3 White-throated needletail

A formal impact assessment for the white-throated needletail against EPBC Act migratory criteria is provided in Table 51. Approximately 16.98 ha of potential roosting habitat for white-throated needletail will be cleared for the construction of project infrastructure. However, surveys did not record any roosting birds and large areas of similar habitat are available within the project site and the surrounding region. Construction activities are unlikely to impact significantly on feeding habitat, as this species is an aerial forager.

Potential operational impacts include collisions with WTGs. Surveys have recorded numbers of white-throated needletail which represent nationally (and potentially internationally) significant proportions of the population. Given that white-throated needletail are at high risk of collision with WTGs, the project may result in a significant impact to a nationally important population of white-throated needletail.

NOTE: See Appendix E: Supplement to the Assessment of MNES, Section 3.1, Section 3.2.4, Table 17 and Section 3.3 for detailed design changes and additional context



Table 51 EPBC Act significant impact assessment for white-throated needletall against migratory criteria

Assessment of the site
Unlikely
This species does not breed in Australia DuE (2015) lists important roosting habitat as tree hollows in tall trees on ridge-tops, on bank or rock faces, and identifies large tracts of native vegetation, particularly forest, may be a key habitat requirement.
The project will require clearing of 16.08 ha of potential roosting habitat, but this represents only 1.03% of potential roosting habitat within the project site. White-threated needletail is a highly mobile species that forages aerially over most habitats, so the small clearing footprint is unlikely to significantly impact foraging habitat.
A threshold level for a nationally significant area of important habitat has not been defined for this species.
Unlikely-
No invasive species are known to threaten the white-threated needletail. The proposed project will not result in the establishment of an invasive species that could harm white-throated needletails or their habitat.
Likely. Surveys have recorded nationally important populations of white throated needletail on the project site. The species is a highly mobile aerial forager, which is considered more likely to frequent the site during suitable atmospheric conditions (summer atorms) for foraging rather than for roesting habitat. Construction will have minimal impact on foraging habitat and will clear. 16.98 ha of potential roesting habitat, which is only 1.03% of available habitat within the project site. Additionally, the site is not close to the species distribution limit, and is surrounded by equivalent habitat containing known records of the species. White-throated needletails may collide with-WTGs, and the presence of WTGs.
may disrupt the migration or feeding behaviour or an ecologically significant proportion of the species (DEWHA 2009). The risk of collisions will be managed in accordance with a future BBMP, including engoing manifering of carcasses, regular review of the strike risk and adapting management measures where possible.
The proposed project is likely to have a significant impact on white-throated

8.5.4 Fork-tailed swift

A formal impact assessment for the fork-tailed swift against EPBC Act migratory criteria is provided in Table 52. Fork-tailed swifts have only been observed aerially and none were observed roosting across the project site. Construction impacts are not considered for this species as the project site is highly unlikely to provide roosting habitat, as they forage aerially and roost on the wing.

Potential operational impacts include blade strike if flying and foraging at RSA height and disturbance of foraging habitat caused by the WTG operations. Blade strike issues are assessed and discussed in more detail in the BBUS (Ecosure 2023).

NOTE: See Appendix E: Supplement to the Assessment of MNES, Section 3.1, Section 3.2.4, Section 3.3.1 and Section 4 for detailed design changes and additional context.



Table 52 EPBC Act significant impact assessment for fork-tailed swift

Significant impact criteria	Assessment of the site
substantially modify (including by fragmenting, altering fire regimes, altering nutrient cycles or altering hydrological cycles), destroy or isolate an area of important habitat	Unlikely This species does not breed in Australia. DoE (2015) lists important habitat as inland open plains to wooded areas, though it is believed to be exclusively aerial. Fork-tailed swift is a highly mobile species that forages aerially over most habitats, so the clearing feetprint is unlikely to significantly reduce or fragment foraging habitat. A threshold level for a nationally significant area of important habitat has not been defined for this species.
result in an invasive species that is harmful to the migratory species becoming established in an area of important habitat for the migratory species	Unlikely No invasive species are known to threaten the fork-tailed swift (DoE 2015). The proposed project will not result in the establishment of an invasive species that could harm fork-tailed swifts or their habitat.
seriously disrupt the lifecycle (breeding, feeding, migration or resting behaviour) of an ecologically significant proportion of the population of	Unlikely. The project site does not support an ecologically significant proportion of the population. The species is a highly mobile aerial forager, which is most likely to frequent the project site during suitable almospheric conditions (summer storms) for foraging.
a migratory species	This species does not breed in Australia. Construction is unlikely to impact on foraging or roosting habitat, as fork-tailed swift is exclusively aerial, roosting on the wing (DoE 2015). Individuals may occasionally collide with WTGs during operation. The risk of collisions will be managed in accordance with an approved BBMP, including ongoing monitoring of carcasses, regular review of the strike risk and adapting management measures where possible.
Overall impact assessment	The proposed project is unlikely to have a significant impact on fork-tailed swift, assuming all practical impact mitigation measures are applied.

8.6 Summary of impacts to MNES

Table 53 summarises the predicted impacts of the proposed project on MNES known or likely to occur within the project site, based on the current design and following application of all recommended avoidance, minimisation, and mitigation measures. As a vulnerable and migratory species, white-throated needletail are assessed separately under different impact assessment criteria for threatened and migratory fauna (DoE 2013a).

Table 53 Summary of impacts to MNES

MNES	Presence within project site and level of impact	Significance of impact after mitigation
	Threatened ecological communities	
SEVT of the Brigatow Belt (North and South) and Nandewar Bioregions	Confirmed present in properties no longer included in the project site	Not significant
	None located within or adjacent to planning corridor, no impact	

NOTE: See Appendix E: Supplement to the Assessment of MNES, Section 3.1, Table 13, and Section 4 for detailed design changes and additional context



MNES	Presence within project site and level of impact	Significance of impact affer mitigation
	Threatened flora	
wandering peppercress Lepidium peregrinum	Not detected Possible in all riparian areas within the planning corridor.	Not significant
Austral toadflax Thesium australe	Not detected. Possible in all riparian areas within the planning corridor.	Not significant
Austral cornflower Leuzea australis	Not detected. Possible areas of heavy clay soils derived from basalt. No habitat located within current planning corridor.	Not significant
	Threatened fauna	
koala Phascolarctos cineraus	Confirmed in numerous remnant and non-remnant eucalypt communities within site. Potential habitat loss of up to 186.03 ha, including 16.98 ha of remnant vegetation and 169.05 ha modelled habitat within non-remnant areas (representing 3.19% of potential habitat within project site). Habitat would be considered critical to the survival of koala (Appendix 6).	Significant
greater glider Petauroïdes volans	Confirmed in remnant eucalypt forest. Potential habitat loss of up to 16.98 ha (representing 1.03% of potential habitat within project site).	Not significant
grey-headed flying-fox Pteropus poliocephalus	Confirmed foraging in non-remnant areas: Potential foraging habitat loss of up to 186.03 ha, including 16.98 ha of remnant vegetation and 169.05 ha within non-remnant areas (representing 3.19% of potential foraging habitat within project site).	Not significant
glossy black-cockatoo Calyptorhynchus lathami lathami	Confirmed through sighting above dam and evidence of orts. Potential habitat loss of up to 16.98 ha (representing 1.03% of potential habitat within project site).	Not significant
while-throated needletail Hirundapus caudacutus (also migratory)	Confirmed flying above several habital types. Potential loss of roosting habital up to 16-98 ha (representing 1-03% of potential roosting habital within project site). No significant impact to foraging habital. Species is considered a risk of collision with WTGs. While no individuals or low numbers of individuals have been observed during eight out of nine survey periods, one survey period (summer 2023) recorded large numbers of birds (n = 191 in total). WTG collision could impact a nationally significant population through direct mortality	Significant

NOTE: See Appendix E: Supplement to the Assessment of MNES, Section 3.1, Table 13, Section 3.4 for detailed design changes and additional context



MNES	Presence within project site and level of impact	Significance of impact after mitigation
	Migratory fauna	
	Confirmed in eucalypt forest with understorey of shrubs and/or vine thicket species	Not significant
rufous fanteil Rhipidura rufifrons	Potential habitat less of up to 27.72 ha (representing 9.11% of potential habitat within project site). However, habitat within planning corndor has open understorey and is considered marginally suitable for rufous fantail.	
	Species is considered at low risk of collision with WTGs as it generally foreges in lower and mid strate.	
satin flycalcher Mylegra cyanolcuca	Confirmed in non-remnant open woodland with a grassy understory	Not significant
	Potential habitat loss of up to 186.03 ha (representing 3.19% of potential habital within the project site). Suitable eucalypt forest/wood/and habitat is widespread throughout the project site and surrounding region.	
	Species is considered at low risk of collision with WTGs as it generally forages in lower and mid-strata	
	Confirmed flying above several habitat types.	Significant
white-throated needletail Hirundapus caudecutus (also threatened)	Potential loss of roosting habitat up to 16.98-ha (representing 1.03% of potential roosting habitat within project site). No significant impact to foraging habitat.	100
	Species is considered a risk of collision with WTGs. While no individuals or low numbers of individuals have been observed during eight out of nine survey periods, one survey period (summer 2023) recorded large numbers of birds (n = 191 in total). WTG collision could impact a nationally population through direct mortality.	
	Confirmed flying above eucalypt woodland.	Not significant
fork-tailed swift	No significant impact to foraging habitat. No roosting habitat present at the project site.	
Apus pacificus	Species is considered a risk of collision with WTGs, however only two individuals have been observed over nine survey periods.	

NOTE: See Appendix E: Supplement to the Assessment of MNES, Section 3.1, Table 13, Section 3.4 for detailed design changes and additional context



Conclusion 9

This MNES assessment has identified the flora and fauna values existing within the project site of Tarong West Wind Farm. The project site is currently used for cattle grazing, with areas of cleared paddock and standing vegetation. The project site consists predominantly of nonremnant vegetation (90.56%), but much of the field-verified remnant vegetation (7.61%) and high-value regrowth vegetation (4.84%) present on the project site is in average to good condition, providing a number of fauna habitat values such as hollows, seasonal nectarresources, and rocky outcrops.

Impacts to all MNES have been refined through avoidance in the design phase of the project. Several previous turbine layouts, planning corridors and clearing footprints have been considered, and the layout revised to minimise impacts on remnant and high value regrowth vegetation, which provides much of the flora and fauna habitat in the project site. Impacts to one MNES, semi-evergreen vine thickets of the Brigalow Belt (North and South) and Nandewar Bioregions, have been avoided entirely by exclusion of this area from the project site.

Over the construction phase of the project, within the clearing footprint (1,062.14 ha), the following may be removed:

- Up to 16.98 ha of remnant vegetation, which represents only 1.03% of equivalent vegetation communities within the project site
- Up to 469.05 ha of non-remnant vegetation modelled as threatened fauna habitat
- Up to 876.11 ha of non-remnant vegetation.

This MNES assessment has identified eight EPBC Act-listed fauna species confirmed or likely to occur within the project site. These species have been identified through a desktop assessment and detailed targeted field surveys carried out over several periods from 2018 to 2023. The potential impacts of the proposed project on these species have been identified and assessed in accordance with the EPBC Act Matters of National Environmental Significance Significant Impact Guidelines 1.1 (DoE 2013a).

Management measures have been proposed to avoid, mitigate, or minimise impacts to those species confirmed or likely to be present in the project site. Based on detailed ecological assessment, the following recommendations can be made:

- Provided that the management and mitigation measures detailed in Sections 7 and 8 are implemented, impacts to greater glider (endangered), grey-headed flying-fox (vulnerable), glossy black-cockatoo (vulnerable), rufous fantall (migratory), satin flycatcher (migratory), fork-tailed swift (migratory), are not likely to be significant.
- After recommended management and mitigation measures have been implemented. impacts to koala (endangered) as a result of this project are likely to be significant. This results mainly from habitat clearing during the construction phase of the project (up to 186.03 ha of potential koala habital, including 16.98 ha of remnant vegetation



- and 169.05 ha within non-remnant areas). Environmental management of land-based offsets is being considered at an early stage to offset the residual impact to koala. RES Australia Pty Ltd has purchased a property contiguous with the project site to be dedicated for use as land-based environmental offsets. The management of this offset will be subject to a future management plan required under a future Approval.
- After recommended management and mitigation measures have been implemented, impacts to white-throated needletail (vulnerable and migratory) as a result of this project are likely to be significant. Though some potential roosting habitat may be cleared (up to 16.98 ha of remnant vegetation), the species is almost exclusively aerial and rarely roosts in Australia. The likelihood of a significant impact to whitethroated needletail results primarily from potential operational impacts (strike with WTGs). Measures to minimise the residual impact to white-throated needletail include:
 - ongoing monitoring of bird use and collision risk within the project site, and development of an adaptive management plan in a future approved BBMP.



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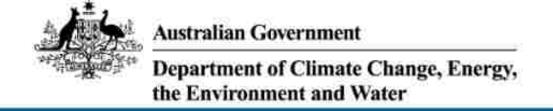
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Appendix 1 Database search results

A. Protected Matters Search



EPBC Act Protected Matters Report

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

Report created: 23-Feb-2023

Summary

Details

Matters of NES

Other Matters Protected by the EPBC Act

Extra Information

Caveat

<u>Acknowledgements</u>

Summary

Matters of National Environment Significance

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

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Importance (Ramsar	4
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	8
Listed Threatened Species:	43
Listed Migratory Species:	14

Other Matters Protected by the EPBC Act

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

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

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

Commonwealth Lands:	None
Commonwealth Heritage Places:	None
Listed Marine Species:	20
Whales and Other Cetaceans:	None
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Australian Marine Parks:	None
Habitat Critical to the Survival of Marine Turtles:	None

Extra Information

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

State and Territory Reserves:	1
Regional Forest Agreements:	None
Nationally Important Wetlands:	None
EPBC Act Referrals:	7
Key Ecological Features (Marine):	None
Biologically Important Areas:	None
Bioregional Assessments:	1
Geological and Bioregional Assessments:	None

Details

Matters of National Environmental Significance

Wetlands of International Importance (Ramsar Wetlands)		[Resource Information]
Ramsar Site Name	Proximity	Buffer Status
Banrock station wetland complex	1300 - 1400km upstream from Ramsar site	In buffer area only
Narran lake nature reserve	500 - 600km upstream from Ramsar site	In buffer area only
Riverland	1200 - 1300km upstream from Ramsar site	In buffer area only
The coorong, and lakes alexandrina and albert wetland	1400 - 1500km upstream from Ramsar site	In buffer area only

Listed Threatened Ecological Communities

[Resource Information]

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

Status of Vulnerable, Disallowed and Ineligible are not MNES under the EPBC Act.

Community Name	Threatened Category	Presence Text	Buffer Status
Brigalow (Acacia harpophylla dominant and co-dominant)	Endangered	Community known to occur within area	In buffer area only
Coolibah - Black Box Woodlands of the Darling Riverine Plains and the Brigalow Belt South Bioregions	Endangered	Community may occu within area	rIn feature area
Lowland Rainforest of Subtropical Australia	Critically Endangered	Community likely to occur within area	In buffer area only
Natural grasslands on basalt and fine- textured alluvial plains of northern New South Wales and southern Queensland	Critically Endangered	Community likely to occur within area	In buffer area only
Poplar Box Grassy Woodland on Alluvial Plains	Endangered	Community likely to occur within area	In feature area
Semi-evergreen vine thickets of the Brigalow Belt (North and South) and Nandewar Bioregions	Endangered	Community likely to occur within area	In buffer area only

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

Status of Conservation Dependent and I	Extinct are not MNES und	er the EPBC Act.	
Number is the current name ID.			
Scientific Name	Threatened Category	Presence Text	Buffer Status
BIRD			
Anthochaera phrygia Regent Honeyeater [82338]	Critically Endangered	Foraging, feeding or related behaviour may occur within area	In buffer area only
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area	In feature area
Calyptorhynchus lathami lathami South-eastern Glossy Black-Cockatoo [67036]	Vulnerable	Species or species habitat may occur within area	In feature area
Cyclopsitta diophthalma coxeni Coxen's Fig-Parrot [59714]	Endangered	Species or species habitat may occur within area	In buffer area only
Erythrotriorchis radiatus Red Goshawk [942]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Falco hypoleucos Grey Falcon [929]	Vulnerable	Species or species habitat may occur within area	In feature area
Geophaps scripta scripta Squatter Pigeon (southern) [64440]	Vulnerable	Species or species habitat may occur within area	In feature area
<u>Grantiella picta</u> Painted Honeyeater [470]	Vulnerable	Species or species habitat likely to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area	In feature area
Lathamus discolor Swift Parrot [744]	Critically Endangered	Species or species habitat may occur within area	In buffer area only
Rostratula australis Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur within area	In feature area
Turnix melanogaster Black-breasted Button-quail [923]	Vulnerable	Species or species habitat likely to occur within area	In feature area
MAMMAL			
Chalinolobus dwyeri			
Large-eared Pied Bat, Large Pied Bat [183]	Vulnerable	Species or species habitat may occur within area	In feature area
Dasyurus hallucatus Northern Quoll, Digul [Gogo-Yimidir], Wijingadda [Dambimangari], Wiminji [Martu] [331]	Endangered	Species or species habitat likely to occur within area	In feature area
Dasyurus maculatus maculatus (SE mair Spot-tailed Quoll, Spotted-tail Quoll, Tiger Quoll (southeastern mainland population) [75184]	land population) Endangered	Species or species habitat may occur within area	In buffer area only
Nyctophilus corbeni Corben's Long-eared Bat, South-eastern Long-eared Bat [83395]	Vulnerable	Species or species habitat may occur within area	In feature area
Petauroides volans Greater Glider (southern and central) [254]	Endangered	Species or species habitat likely to occur within area	In feature area
Petaurus australis australis Yellow-bellied Glider (south-eastern) [87600]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Petrogale penicillata Brush-tailed Rock-wallaby [225]	Vulnerable	Species or species habitat may occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Phascolarctos cinereus (combined popul Koala (combined populations of Queensland, New South Wales and the Australian Capital Territory) [85104]	ations of Qld, NSW and the Endangered	Species or species habitat known to occur within area	In feature area
Pteropus poliocephalus Grey-headed Flying-fox [186]	Vulnerable	Foraging, feeding or related behaviour known to occur within area	In feature area
PLANT			
Acacia grandifolia [3566]	Vulnerable	Species or species habitat known to occur within area	In buffer area only
Arthraxon hispidus Hairy-joint Grass [9338]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Cadellia pentastylis Ooline [9828]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Clematis fawcettii Stream Clematis [4311]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Cossinia australiana Cossinia [3066]	Endangered	Species or species habitat likely to occur within area	In buffer area only
Denhamia parvifolia Small-leaved Denhamia [18106]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Dichanthium setosum bluegrass [14159]	Vulnerable	Species or species habitat likely to occur within area	
Haloragis exalata subsp. velutina Tall Velvet Sea-berry [16839]	Vulnerable	Species or species habitat known to occur within area	In feature area
Lepidium peregrinum Wandering Pepper-cress [14035]	Endangered	Species or species habitat may occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Macadamia integrifolia Macadamia Nut, Queensland Nut Tree, Smooth-shelled Macadamia, Bush Nut, Nut Oak [7326]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Phebalium distans Mt Berryman Phebalium [81869]	Endangered	Species or species habitat likely to occur within area	In feature area
Picris evae Hawkweed [10839]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Plectranthus omissus [55729]	Endangered	Species or species habitat may occur within area	In buffer area only
Rhaponticum australe Austral Cornflower, Native Thistle [22647]	Vulnerable	Species or species habitat likely to occur within area	
Sophora fraseri [8836]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Thesium australe Austral Toadflax, Toadflax [15202]	Vulnerable	Species or species habitat known to occur within area	In feature area
REPTILE			
Anomalopus mackayi Five-clawed Worm-skink, Long-legged Worm-skink [25934]	Vulnerable	Species or species habitat may occur within area	In feature area
Delma torquata Adorned Delma, Collared Delma [1656]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Egernia rugosa Yakka Skink [1420]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Elseya albagula Southern Snapping Turtle, White-throated Snapping Turtle [81648]	Critically Endangered	Species or species habitat may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Furina dunmalli Dunmall's Snake [59254]	Vulnerable	Species or species habitat may occur within area	In feature area
Hemiaspis damelii Grey Snake [1179]	Endangered	Species or species habitat likely to occur within area	In feature area
Listed Migratory Species		[Re	source Information]
Scientific Name	Threatened Category	Presence Text	Buffer Status
Migratory Marine Birds			
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area	In feature area
Migratory Terrestrial Species			
Cuculus optatus Oriental Cuckoo, Horsfield's Cuckoo [86651]		Species or species habitat may occur within area	In feature area
Hirundapus caudacutus			
White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area	In feature area
Monarcha melanopsis			
Black-faced Monarch [609]		Species or species habitat known to occur within area	In feature area
Motacilla flava			
Yellow Wagtail [644]		Species or species habitat may occur within area	In feature area
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat known to occur within area	In feature area
Rhipidura rufifrons Rufous Fantail [592]		Species or species habitat known to occur within area	In feature area
Symposiachrus trivirgatus as Monarcha Spectacled Monarch [83946]	trivirgatus	Species or species habitat may occur within area	In buffer area only
Migratory Wetlands Species			

Scientific Name	Threatened Category	Presence Text	Buffer Status
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat may occur within area	In feature area
Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat may occur within area	In feature area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area	In feature area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area	In feature area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Species or species habitat known to occur within area	In feature area
Pandion haliaetus Osprey [952]		Species or species habitat likely to occur within area	In buffer area only

Other Matters Protected by the EPBC Act

Listed Marine Species		[Res	source Information
Scientific Name	Threatened Category	Presence Text	Buffer Status
Bird			
Actitis hypoleucos			
Common Sandpiper [59309]		Species or species habitat may occur within area	In feature area
Anseranas semipalmata			
Magpie Goose [978]		Species or species habitat may occur within area overfly marine area	In feature area
Apus pacificus			
Fork-tailed Swift [678]		Species or species habitat likely to occur within area overfly marine area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Bubulcus ibis as Ardea ibis Cattle Egret [66521]		Species or species habitat may occur within area overfly marine area	In feature area
Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat may occur within area	In feature area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area overfly marine area	In feature area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area overfly marine area	In feature area
Chalcites osculans as Chrysococcyx osc	culans		
Black-eared Cuckoo [83425]		Species or species habitat likely to occur within area overfly marine area	In feature area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Species or species habitat known to occur within area overfly marine area	In feature area
Haliaeetus leucogaster			
White-bellied Sea-Eagle [943]		Species or species habitat likely to occur within area	In feature area
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area overfly marine area	In feature area
Lathamus discolor			
Swift Parrot [744]	Critically Endangered	Species or species habitat may occur within area overfly marine area	In buffer area only
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area overfly marine area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Monarcha melanopsis Black-faced Monarch [609]		Species or species habitat known to occur within area overfly marine area	In feature area
Motacilla flava Yellow Wagtail [644]		Species or species habitat may occur within area overfly marine area	In feature area
Myiagra cyanoleuca			
Satin Flycatcher [612]		Species or species habitat known to occur within area overfly marine area	In feature area
Pandion haliaetus			
Osprey [952]		Species or species habitat likely to occur within area	In buffer area only
Rhipidura rufifrons			
Rufous Fantail [592]		Species or species habitat known to occur within area overfly marine area	In feature area
Rostratula australis as Rostratula bengh	alansis (sansu lata)		
Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur within area overfly marine area	In feature area
Symposiachrus trivirgatus as Monarcha	trivirgatus		
Spectacled Monarch [83946]	TIVII GUILLO	Species or species habitat may occur within area overfly marine area	In buffer area only

Extra Information

State and Territory Reserves			[Resource Information]
Protected Area Name	Reserve Type	State	Buffer Status
Boyneside	Nature Refuge	QLD	In buffer area only

EPBC Act Referrals			[Resource Information		
Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status	
Controlled action					
Wambo Wind Farm	2020/8727	Controlled Action	Post-Approval	In buffer area only	

Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Not controlled action				
Coal Conveyor between New Acland Coal Mine and Tarong Power Stations	2007/3430	Not Controlled Action	Completed	In feature area
Coopers Gap Wind Farm	2008/4559	Not Controlled Action	Completed	In buffer area only
Coopers Gap Wind Farm	2008/4237	Not Controlled Action	Completed	In buffer area only
Development of the Coopers Gap Wind Farm	2011/5976	Not Controlled Action	Completed	In buffer area only
Improving rabbit biocontrol: releasing another strain of RHDV, sthrn two thirds of Australia	2015/7522	Not Controlled Action	Completed	In feature area
Surat Basin to Tarong Railway project	2003/1264	Not Controlled Action	Completed	In feature area
Bioregional Assessments				
SubRegion	BioRegion	Websit	e Bi	uffer Status
Maranoa-Balonne-Condamine	Northern Inla Catchments	and BA web	osite In	buffer area only

Caveat

1 PURPOSE

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

The report contains the mapped locations of:

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

2 DISCLAIMER

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

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

3 DATA SOURCES

Threatened ecological communities

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

Threatened, migratory and marine species

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

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

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

4 LIMITATIONS

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

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

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

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

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

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

Acknowledgements

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

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

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

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

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B. Wildnet species search



WildNet species list

Species List for a Specified Point Search Criteria:

> Species: All Type: All

Queensland status: All

Records All

Date: Since 1980 Latitude -26 5941 Longitude: 151.5207

Distance: 20

Email: mcastelli@ecosure.com.au

Date submitted: Thursday 23 Feb 2023 13:32:25 Date extracted: Thursday 23 Feb 2023 13:40:06

The number of records retrieved = 383

Disclaimer

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The State of Queensland disclaims all responsibility for information contained in this product and all liability (including liability in negligence) for all expenses, losses, damages and costs you may incur as a result of the information being inaccurate or incomplete in any way for any reason. Information about your Species lists request is logged for quality assurance, user support and product enhancement purposes only The information provided should be appropriately acknowledged as being derived from WildNet database when it is used. As the WildNet Program is still in a

process of collating and vetting data, it is possible the information given is not complete. Go to the WildNet database webpage (https://www.gid.gov.au/environment/plants-animals/species-information/wildnet) to find out more about WildNet and where to access other WildNet information

products approved for publication. Feedback about WildNet species lists should be emailed to wildlife online@des.gld.gov.au.

Kingdom	Class	Family	Scientific Name	Common Name	1	Q	Α	Records
animals	amphibians	Bufonidae	Rhinella marina	cane toad	Y			ï
animals	amphibians	Hylidae	Cyclorana alboguttata	greenstripe frog		C		1
animals	amphibians	Hylidae	Cyclorana brevipes	superb collared frog		000000000000000000000000000000000000000		1
animals	amphibians	Hylidae	Litoria belatus	slender bleating treefrog		C		1
animals	amphibians	Hylidae	Litoria caerulea	common green treefrog		C		4
animals	amphibians	Hylidae	Litoria fallax	eastern sedgefrog		C		6
animals	amphibians	Hylidae	Litoria latopalmata	broad palmed rocketfrog		Ĉ		2
animals	amphibians	Hylidae	Litoria peronii	emerald spotted treefrog		č		3
animals	amphibians	Hylidae	Liforia rubella	ruddy treefrog		ē		ž
animals	amphibians	Limnodynastidae	Limnodynastes peronii	striped marshfrog		ĕ		5
animals	amphibians	Limnodynastidae	Limnodynastes taamaniensis	spotted grassfrog		ĕ		5
animals	amphibians	Limnodynastidae	Limnodynastes terraereginae	scarlet sided pobblebook		č		5
animals	amphibians	Limnodynastidae	Platyplectrum ornatum	ornate burrowing frog		ĕ		7
animals	amphibians	Myobatrachidae	Uperoleia rugosa	chubby gungan		ĕ		÷
	birds					ĕ		
animals	birds	Acanthizidae	Acenthiza chrysorrhoa	yellow-rumped thornbill		ĕ		7
animals		Acanthizidae	Acanthiza reguloides	buff-rumped thornbill		8		
animals	birds	Acanthizidae	Gerygone olivacea	white-throated gerygone		5		9
animals	birds	Acanthizidae	Pyrrholaemus sagittatus	speckled warbler		Š		3
animals	birds	Acanthizidae	Sericarnis frontalis	white-browed scrubwren		5		4
animals	birds	Acanthizidae	Smicrornis brevirostris	weebill		8		5
animals	birds	Accipitridae	Aquile audax	wedge-tailed eagle		Č		4
animals	birds	Acrocephalidae	Acrocephalus australis	Australian reed-warbler		Ē		. 1
animals	birds	Alcedinidae	Dacelo novaeguineae	laughing kookaburra		G		10 5 4
animals	birds	Alcedinidae	Todiramphus sanctus	sacred kingfisher		С		5
animals	birds	Anatidae	Anas gracilis	grey teal		C		4
animals	birds	Anatidae	Anas superciliosa	Pacific black duck		C		9
animals	birds	Anatidae	Aythya australis	hardhead		C		4
animals	birds	Anatidae	Chenonetta jubata	Australian wood duck		C		5
animals	birds	Anatidae	Cygnus atratus	black swan		C		1
animals	birds	Anatidae	Dendrocygna eytoni	plumed whistling-duck		c		2
animals	birds	Anatidae	Oxyura australis	blue-billed duck		C		2
animals	birds	Anhingidae	Anhinga novaehollandiae	Australasian darter		C		4
animals	birds	Ardeidae	Ardea alba modesta	eastern great egret		C		2
animals	birds	Ardeidae	Ardea pacifica	white-necked heron		C		2
animals	birds	Ardeidae	Egretta novaehollandiae	white-faced heron		C		7
animals	birds	Artamidae	Artamus cinereus	black-faced woodswallow		C		1
animals	birds	Artemidae	Cracticus nigrogularis	pled butcherbird		è		14
animals	birds	Arlamidae	Cracticus torquatus	grey butcherbird		č		14 5
animals	birds	Artamidae	Gymnorhina tibicen	Australian magple				12
animals	birds	Artamidae	Strepera graculina	pied currawong		c		7
animais	birds	Cacatuidae	Cacatua galerita	sulphur-crested cocketoo		č		9
animals	birds	Cacatuidae	Calyptorhynchus banksii	red-tailed black-cockatoo		Č		š
	birds	Cacatuldae	Eolophus roseicapilia	galah		8		17
animals animals	birds	Cacatuidae	Nymphicus hollandicus	cockatiel		00000		3 17 5
The second second second second				black-faced cuckoo-shrike		0		7
animals	birds	Campephagidae	Coracina novaehollandiae			9		7
animals	birds	Campephagidae	Coracina papuensis	white-bellied cuckoo-shrike		(5)		1

Kingdom	Class	Family	Scientific Name	Common Name	Î	Q	Α	Records
animals	birds	Campephagidae	Lalage tricolor	white-winged triller		c		Ĩ
animals	birds	Charadriidae	Elseyornis meianops	black-fronted dotterel		000000000000000		3
animals	birds	Charadriidae	Vanellus miles	masked lapwing		C		2
animals	birds	Charadriidae	Vanellus miles novaehollandiae	masked lapwing (southern subspecies)		C		5
animais	birds	Charadriidae	Vanellus tricolor	banded lapwing		C		1
animals	birds	Ciconiidae	Ephippiorhynchus asiaticus	black-necked stork		C		1
animals	birds	Climacteridae	Cormobates leucophaea metastasis	white-throated treecreeper (southern)		C		1
animals	birds	Columbidae	Geopelia humeralis	bar-shouldered dove		C		3
animals	birds	Columbidae	Geopelia placida	peaceful dove		C		2
animals	birds	Columbidae	Ocyphaps lophotes	crested pigeon		Ċ		7
animals	birds	Columbidae	Phaps chalcoptera	common bronzewing		Ĉ		Ĥ.
animals	birds	Coraciidae	Eurystomus orientalis	dollarbird		C		6
animals	birds	Corcoracidae	Corcorax melanorhamphos	white-winged chough		ē		5
animals	birds	Corcoracidae	Struthidea cinerea	apostlebird		õ		6
animals	birds	Corvidae	Corvus coronoides	Australian raven				Ă
animals	birds	Corvidae	Corvus orru	Torresian crow		ĕ		20
animals	birds	Cuculidae	Centropus phasianinus	pheasant coucal		ĕ		4 20 2
animals	birds	Cuculidae	Chalcites minutillus barnardi	Eastern little bronze-cuckoo		ĕ		7
animals	birds	Cuculidae	Scythrops novaehollandiae	channel-billed cuckoo		ĕ		2
animals	birds	Dicaeidae	Dicaeum hirundinaceum	mistletoebird		ĕ		2
animals	birds	Dicruridae	Dicrurus bracteatus			ĕ		7
animais	birds	Estrildidae	Lonchura castaneothorax	spangled drongo chestnut-breasted mannikin		ĕ		2
The state of the s	birds	Estriididae	Neochmia modesta			6		
animals				plum-headed finch		000000000000000000000000000000000000000		
animals	birds	Estriididae	Taeniopygia bichenovil	double-barred finch		č		2
animals	birds	Estrildidae	Taeniopygia guttata	zebra finch		ž		2
animals	birds	Falconidae	Falco cenchroides	nankeen kestrel		Ħ		1
animals	birds	Hirundinidae	Cheramoeca leucosterna	white-backed swallow		2		35
animals	birds	Hirundinidae	Hirundo neoxena	welcome swallow		ĕ		3
animals	birds	Hirundinidae	Petrochelidon ariel	fairy martin		ğ		1
animals	birds	Maluridae	Malurus cyaneus	superb fairy-wren		8		4
animals	birds	Maluridae	Malurus lamberti	variegated fairy-wren		C		2
animals	birds	Maluridae	Malurus lamberti sensu lato	variegated fairy-wren		Č		2
animals	birds	Maiuridae	Malurus melanocephalus	red-backed fairy-wren		E .		8
animals	birds	Megapodiidae	Alectura lathami	Australian brush-turkey		C		1
animals	birds	Meliphagidae	Acanthagenys rufogularis	spiny-cheeked honeyeater		C		2
animals	birds	Meliphagidae	Caligavis chrysops	yellow-faced honeyeater		C		3
animals	birds	Meliphagidae	Entomyzon cyanotis	blue-faced honeyeater		C		4
animals	birds	Meliphagidae	Lichmera indistincta	brown honeyeater		C		5
animals	birds	Meliphagidae	Manorina melanocephala	noisy miner		C		13
animals	birds	Meliphagidae	Meliphaga lewinii	Lewin's honeyeater		C		2
animals	birds	Meliphagidae	Melithreptus albogularis	white-throated honeyeater		0000000		2 2
animals	birds	Meliphagidae	Myzomela sanguinolenta	scarlet honeyeater		C		1
animals	birds	Meliphagidae	Philemon citreogularis	little friarbird		C		3
animals	birds	Meliphagidae	Philemon corniculatus	noisy friarbird		C		3 5
animals	birds	Meliphagidae	Plectorhyncha lanceolata	striped honeyeater		C		2
animals	birds	Meliphagidae	Ptilotula penicillata	white-plumed honeyeater		C		1

Kingdom	Class	Family	Scientific Name	Common Name	Ĭ.	Q	Α	Records
animals	birds	Meropidae	Merops ornatus	rainbow bee-eater		C		ï
animals	birds	Monarchidae	Grallina cyanoleuca	magpie-lark		00000000000000		14
animals	birds	Monarchidae	Myragra rubecula	leaden flycatcher		C		2
animals	birds	Motacillidae	Anthus novaeseelandiae	Australasian pipit		C		2
animais	birds	Neosittidae	Daphoenositta chrysoptera	varied sittella		C		1
animals	birds	Oriolidae	Onolus sagittatus	olive-backed priole		C		1
animals	birds	Pachycephalidae	Colluricincia harmonica	grey shrike-thrush		C		1
animals	birds	Pachycephalidae	Colluricincia megarhyncha	little shrike-thrush		C		1
animals	birds	Pachycephalidae	Pachycephala pectoralis	golden whistler		C		1
animals	birds	Pachycephalidae	Pachycephala rufiventris	rufous whistler		Ċ		7
animals	birds	Pardalotidae	Pardalotus punctatus	spotted pardalote		C		1
animals	birds	Pardalotidae	Pardalotus striatus	striated pardalote		G		13
animals	birds	Petroicidae	Eopsaltria australis	eastern yellow robin		ē		1
animals	birds	Petroicidae	Microeca fascinaris	jacky winter		õ		1
animals	birds	Petroicidae	Petroica rosea	rose robin		C		*
animals	birds	Phalacrocoracidae	Microcarbo melanoleucos	little pied cormorant		č		2
animals	birds	Phalacrocoracidae	Phalacrocorax carbo	great cormorant		Ĉ		ī
animals	birds	Phalacrocoracidae	Phalecrocorex sulcirostris	little black cormorant		õ		î
animals	birds	Phalacrocoracidae	Phalacrocorax varius	pied cormorant		č		2
animals	birds	Podargidae	Podargus strigoides	tawny frogmouth		č		1
animals	birds	Podicipedidae	Tachybaptus novaehollandiae	Australasian grebe		õ		3
animais	birds	Pomatostomidae	Pomatostomus temporalis	grey-crowned babbler		ĕ		ž.
animals	birds	Psittaculidae	Alisterus scapularis	Australian king-parrot		č		ą.
animals	birds	Psittaculidae	Aprosmictus erythropterus	red-winged parrol		ĕ		3
animals	birds	Psittaculidae	Parvipsitta pusilla	little lorikeet		č		4
animals	birds	Psittaculidae	Platycercus adscitus	pale-headed rosella		ĕ		6
animals	birds	Psittaculidae	Platycercus elegans	crimson rosella		ĕ		¥
animals	birds	Psittaculidae	Platycercus eximius	eastern rosella		ĕ		â
animals	birds	Psittaculidae	Psephotus haematonotus	red-rumped parrot		6		2
animals	birds	Psittaculidae	Trichoglossus chlorolepidatus	scaly-breasted lorikeet		ĕ		ž
animals	birds	Psittaculidae	Trichoglossus moluccanus	rainbow lorikeet		ĕ		Ē
animals	birds	Psophodidae	Psophodes olivaceus	eastern whipbird		č		ž.
animals	birds	Rallidae	Fulica atra	Eurasian coot		č		2
animais	birds	Rallidae	Gallinula tenebrosa	dusky moorhen		0000000000000000000000000		8
animals	birds	Rallidae	Porphyrio melanotus			ĕ		*
animals	birds	Rallidae	Tribonyx ventralis	purple swamphen black-tailed native-hen		ĕ		4
EPHERMINISTER	birds	Recurvirostridae	Himantopus leucocephalus	pied stilt		ĕ		2
animals animals	birds	Rhipiduridae		grey fantail		č		6
			Rhipidura albiscapa			6		2
animals	birds	Rhipiduridae Rhipiduridae	Rhipidura leucophrys	willie wagtail		GECCCC		4
animals animals	birds birds	Strigidae	Rhipidura rufifrons Ninex boobook	rufous fantail southern boobook		O.L		
						0		2
animals	birds	Threskiornithidae	Platalea flavipes	yellow-billed spoonbill		2		2
animals	birds	Threskiornithidae	Threskiornis malucca	Australian white ibis		ä		1
animals	birds	Threskiornithidae	Threskiornis spinicollis	straw-necked ibis				2
animals	birds	Zosteropidae	Zosterops lateralis	silvereye	220	C		3
animals	mammals	Felidae	Felis catus	cat	Y			1

Kingdom	Class	Family	Scientific Name	Common Name	Ĩ	Q	Α	Records
animals	mammais	Leporidae	Lepus europaeus	European brown hare	Y			ï
animals	mammals	Leporidae	Oryctolagus cuniculus	rabbit	Y			1
animals	mammals	Macropodidae	Macropus giganteus	eastern grey kangaroo		C		1
animals	mammals	Macropodidae	Notamacropus rufogriseus	red-necked wallaby		опоопо		1.
animais	mammals	Peramelidae	Isoodon macrourus	northern brown bandicoot		C		1
animals	mammals	Phalangeridae	Trichosurus vulpecula	common brushtail possum		C		1
animals	mammals	Phascolarctidae	Phascolarctos cinereus	koala		E	E	9
animals	mammals	Pteropodidae	Pteropus scapulatus	little red flying-fox		C		6
animals	mammals	Tachyglossidae	Tachyglossus aculeatus	short-beaked echidna		SL		1
animals	reptiles	Agamidae	Intellagama lesueurii	eastern water dragon		C		1
animals	reptiles	Agamidae	Pogona barbata	bearded dragon		C		1
animals	reptiles	Boldae	Antaresia maculosa	spotted python		C		1
animals	reptiles	Carphodactylidae	Underwoodisaurus milii	thick-tailed gecko		e		1
animals	reptiles	Chelidae	Chelodina longicollis	eastern snake-necked turtle		Ĉ		4/4
animals	reptiles	Elapidae	Pseudoneja textilis	eastern brown snake		C		# S
animals	reptiles	Scincidae	Cryptoblepharus pulcher pulcher	elegant snake-eyed skink		Č		1
animals	reptiles	Scincidae	Lygisaurus foliorum	tree-base litter-skink		Ĉ		1
animals	reptiles	Scincidae	Tiliqua scincoides scincoides	eastern bluetongue		0000000000000		Ŷ.
animals	reptiles	Varanidae	Varanus gouldii	sand monitor		ĕ		9
animals	reptiles	Varanidae	Varanus varius	lace monitor		ĕ		3
fungi	Agaricomycetes	Agaricaceae	Calvatia lilacina	The state of the s		õ		2/1
fungi	Agaricomycetes	Agaricaceae	Chiorophyilum			~		1/1
fungi	Agaricomycetes	Agaricaceae	Coprinus truncorum			C		1/1
fungi	Agaricomycetes	Boletaceae	Boletus			~		1/1
fungi	Agaricomycetes	Fomitopsidaceae	Postia					1/1
fungi	Agaricomycetes	Ganodermataceae	Amauroderma rude			0		1/1
fungi	Agaricomycetes	Gloeophyllaceae	Veluticeps			C		1/1
fungi	Agaricomycetes	Hymenochaetaceae				ొ		1/1
		Marasmiaceae	Marasmius crinisequi			6		1/1
fungi fungi	Agaricomycetes	Omphalotaceae	Lentinula lateritia			000		2/1
	Agaricomycetes					ĕ		1/1
fungi	Agaricomyceles	Panaeolaceae	Panaeolus bernicis			0		
fungi fungi	Agaricomycetes	Polyporaceae Polyporaceae	Lenzites Trametes hirsuta					1/1
fungi	Agaricomycetes	And the second of the second o	14 C 27 P C 2 2 2 2 1 1 1 1 1 1 2 2 2 2 2 1			8		
fungi	Agaricomycetes	Polyporaceae	Trametes versicolar			5		1/1
fungi	Agaricomycetes	Stereaceae	Stereum hirsutum			0000		1/1
fungi	Agaricomycetes	Stereaceae	Stereum illudens			100		1/1
fungi	Pezizomyceles	Pyronemataceae	Scutellinia					1/1
fungi	Pezizomycetes	Sarcoscyphaceae	Cookeina			6		1/1
fungi	sordariomycetes	Cordycipitaceae	Cordyceps hawkesii			C		1/1
plants	land plants	Acanthaceae	Rostellularia adscendens			G		1/1
plants	land plants	Agavaceae	Agave americana		Y	(2)		1
plants	land plants	Amaranthaceae	Deeringia amaranthoides	redberry		C		1/1
plants	land plants	Aplaceae	Apium prostratum var. prostratum	F_2440-#050118A040-050-#101	0.00	C		1/1
plants	land plants	Apiaceae	Berula erecta	water parsnip	Y			1/1
plants	land plants	Apiaceae	Cyclospermum leptophyllum	52974 10272 CARDON	Y	22		1/1
plants	land plants	Apiaceae	Daucus glochidiatus	Australian carrot		C		1/1

Kingdom	Class	Family	Scientific Name	Common Name	Ţ.	Q	Α	Records
plants	land plants	Apocynaceae	Alstonia constricta	bitterbark		C		1/1
plants	land plants	Apocynaceae	Alyxia ruscifolia			0000000		2/2
plants	land plants	Apocynaceae	Carissa ovata	currantibush		Ċ		1
plants	land plants	Apocynaceae	Gymnema pleiadenium			C		1/1
plants	land plants	Araceae	Landoltia punctata			C		1/1
plants	land plants	Araliaceae	Hydrocotyle acutiloba			C		1/1
plants	land plants	Araliaceae	Hydrocotyle laxiflora	stinking pennywort		C		1/1
plants	land plants	Araliaceae	Hydrocotyle peduncularis			C		1/1
plants	land plants	Asteraceae	Acanthospermum hispidum	star burr	Y			1/1
plants	land plants	Asteraceae	Brachyscome microcarpa subsp. microcarpa	SECTION AND ADDRESS OF THE PARTY OF THE PART		c		1/1
plants	land plants	Asteraceae	Carduus thoermeri	nodding thistle	Y	8		1/1
plants	land plants	Asteraceae	Carthamus lanatus	saffron thistle	¥			1/1
plants	land plants	Asteraceae	Coreopsis lanceolata	SERVICE CONTRACTOR	Ý			1/1
plants	land plants	Asteraceae	Glossocardia bidens	native cobbler's pegs	5.7	c		1/1
plants	land plants	Asteraceae	Oleana canescens subsp. discolor			Č		1/1
plants	land plants	Asteraceae	Picris angustifolia subsp. carolorum-henricorum			õ		1/1
plants	land plants	Asteraceae	Senecio esieri			C		1/1
plants	land plants	Asteraceae	Senecio quadridentatus	cotton fireweed		č		1/1
plants	land plants	Asteraceae	Zinnia peruviana	wild zinnia	Y	_		3/3
plants	land plants	Bignoniaceae	Pandorea pandorana	wonga vine	107	e		1/1
plants	land plants	Boraginaceae	Cyrioglossum australe	arongustii, c		č		1/1
plants	land plants	Boraginaceae	Heliofropium amplexicaule	blue heliotrope	Y	~		2/2
plants	land plants	Brassicaceae	Lepidium africanum	common peppercress	Y			1/1
plants	land plants	Brassicaceae	Rorippa nasturtium-aquaticum	watercress	Y			1/1
plants	land plants	Cactaceae	Opuntia	water trass	35			27
plants	land plants	Cactaceae	Opuntia tomentosa	velvety tree pear	Y			27 2
plants	land plants	Campanulaceae	Wahlenbergia capillaris	ververy nee pear	1.7	SL		2/2
plants	land plants	Capparaceae	Capparis sarmentosa	scrambling caper		č		2/2
plants	land plants	Caryophyllaceae	Petrorhagia dubia	Scrambing caper	V			1/1
plants	land plants	Caryophyllaceae	Polycarpon tetraphyllum		¥			1/1
plants	land plants	Casuarinaceae	Allocasuarina littoralis		1.5	C		1/1
plants	land plants	Casuarinaceae	Allocasuarina luehmannii	bull oak		č		1/1
plants	land plants	Celastraceae	Celastrus subspicata	large-leaved staffvine		Č		1/1
plants	land plants	Celastraceae	Denhamia bilocularis	lorge-leaved stativine		ĕ		1/1
plants	land plants	Celastraceae	Denhamia disperma			0000		1/1
plants	land plants	Celastraceae	Elaeodendron australe var integrifolium			ĕ		2/2
plants	land plants	Commelinaceae	Commelina diffusa			ĕ		1/1
plants	land plants	Commelinaceae		murdannia		č		1/1
plants	land plants	Convolvulaceae	Murdannia graminea	maraanna		č		1/1
plants	land plants	Convolvulaceae	Convolvulus angustissimus subsp. angustissimus Convolvulus erubescens	Australian bindweed		č		1/1
plants	land plants	Convolvulaceae	Dichondra repens	kidney weed		C		1/1
	and the second s	Convolvulaceae	Evolvulus alsinoides var. decumbens	Mulley weed		č		1/1
plants	land plants land plants	Crassulaceae			Y	14		12.1
plants plants		Crassulaceae	Bryophyllum delagoerise		Ý			4
	land plants		Bryophyllum x houghfonii	Dailanda auresas	A.c.	AST		10.0
plants	land plants	Cupressaceae	Callitris baileyi	Bailey's cypress		NT		4/4
plants	land plants	Cupressaceae	Callitris columellaris			C		1/1

Kingdom	Class	Family	Scientific Name	Common Name	Ţ.	Q	Α	Records
plants	land plants	Cyperaceae	Bolboschoenus fluviatilis			C		1/1
plants	land plants	Cyperaceae	Cyperus fulvus			C		1/1
plants	land plants	Cyperaceae	Cyperus involucratus		Y			1/1
plants	land plants	Cyperaceae	Cyperus vaginatus			C		1/1
plants	land plants	Cyperaceae	Eleocharis cylindrostachys			C		1/1
plants	land plants	Cyperaceae	Fimbristylis dichotoma	common fringe-rush		C		1/1
plants	land plants	Cyperaceae	Schoenoplectus tabernaemontani	, they produce the could be considered to the considered to		SL		1/1
plants	land plants	Droseraceae	Drosera lunata			SL		1/1
plants	land plants	Ebenaceae	Diospyros geminata	scaly ebony				1/1
plants	land plants	Ericaceae	Styphelia trichostyla	Section and the section and th		000		1/1
plants	land plants	Erythroxylaceae	Erythroxylum sp. (Splityard Creek L. Pedley 5360)			C		1/1
plants	land plants	Euphorbiaceae	Acalypha eremorum	soft acalypha		C		1/1
plants	land plants	Euphorbiaceae	Croton acronychioides	thick-leaved croton		000		1/1
plants	land plants	Euphorbiaceae	Croton insularis	Queensland cascarilla		Ĉ		1/1
plants	land plants	Euphorbiaceae	Croton pheballoides	narrow-leaved croton		C		1/1
plants	land plants	Euphorbiaceae	Euphorbia dallachyana	Charles of the Control of the Contro		Č		1/1
plants	land plants	Euphorbiaceae	Euphorbia davidil		Y	~		2/2
plants	land plants	Gentianaceae	Centaunum		3.7			1/1
plants	land plants	Gentianaceae	Centaurium tenuifiorum		Y			1/1
plants	land plants	Geraniaceae	Geranium solanderi var. solanderi	native geranium	117	¢		1/1
plants	land plants	Goodeniaceae	Goodenia paradoxa	J. Carlotte		õ		1/1
plants	land plants	Haloragaceae	Gonocarpus			~		1/1
plants	land plants	Haloragaceae	Haloragis heterophylla	rough raspweed		Ĉ		1/1
plants	land plants	Hypericaceae	Hypericum gramineum	Index (Control of the Control of the		õ		1/1
plants	land plants	Hypoxidaceae	Hypoxis pratensis var. tuberculata			č		1/1
plants	land plants	Lamiaceae	Ajuga australis	Australian bugle		č		1/1
plants	land plants	Lamiaceae	Coleus australis	risalianon orgio		ĕ		1/1
plants	land plants	Lamiaceae	Mentha satureloides	native pennyroyal		000000000		2/2
plants	land plants	Lamiaceae	Teucrium argutum	mante permittoja:		ĕ		1/1
plants	land plants	Lamiaceae	Teucrium Junceum			ĕ		1/1
plants	land plants	Laxmanniaceae	Eustrephus letifolius	wombat berry		õ		1
plants	land plants	Laxmanniaceae	Lomandra filiformis subsp. coriacea	Wolling Delity		č		1/1
plants	land plants	Leguminosae	Acacia			~		1
plants	land plants	Leguminosae	Acacia disparrima subsp. disparrima			85		1/1
plants	land plants	Leguminosae	Acacia leiocalyx subsp. leiocalyx			0000		1/1
plants	land plants	Leguminosae	Acacia leucoclada subsp. leiocaryx Acacia leucoclada subsp. argentifolia			ĕ		1/1
plants	land plants	Leguminosae	Acacia loroloba	Ma Ma Creek wattle		ĕ		1/1
plants	land plants	TO COMPLETE STORY	Acacia penninervis var. penninervis	Mid Mid Oreen Wattie		č		1/1
plants	land plants	Leguminosae Leguminosae	Bossieea scortechinii					1/1
	land plants		Charizema parviflorum	eactore flome nea		č		1/1
plants plants	land plants	Leguminosae Leguminosae	Desmodium brachypodum	eastern flame pea large ticktrefoil		000		1/1
plants	land plants	Leguminosae	Galactia tenuiflora var. lucida	large nontreson		č		1/1
plants	land plants	Leguminosae	Glycine			54		3/2
plants plants	land plants		Glycine clandestina			C		1/1
		Leguminosae		nhysina nan		č		1/1
plants	land plants	Leguminosae	Glycine fabacina	glycine pea				
plants	land plants	Leguminosae	Hardenbergia violacea			C		1/1

Kingdom	Class	Family	Scientific Name	Common Name		Q	Α	Records
plants	land plants	Leguminosae	Hovea parvicalyx			C		1/1
plants	land plants	Leguminosae	Indigofera baileyi			C		1/1
plants	land plants	Leguminosae	Melilotus indicus	hexham scent	Y			1/1
plants	land plants	Leguminosae	Mirbelia pungens			C		1/1
plants	land plants	Leguminosae	Pultenaea bracteaminor			C		1/1
plants	land plants	Leguminosae	Senna barclayana			0000		1/1
plants	land plants	Leguminosae	Senna surattensis			C		1/1
plants	land plants	Leguminosae	Tephrosia bidwillii			C		1/1
plants	land plants	Leguminosae	Trifolium repens var. repens	white clover	Y			1/1
plants	land plants	Leguminosae	Zomia muriculata subsp. angustata	ACT (1104 TO STATE OF TO)		C		1/1
plants	land plants	Linderniaceae	Lindernia prolata			C		1/1
plants	land plants	Loranthaceae	Amyema lucasii			G		1/1
plants	land plants	Loranthaceae	Amyema quandang var. bancrottii	broad-leaved grey mistletoe		Č		1/1
plants	land plants	Loranthaceae	Dendrophthoe glabrescens			000		1/1
plants	land plants	Malvaceae	Anoda cristata	anoda weed	Y	3		1/1
plants	land plants	Maivaceae	Malvastrum coromandelianum subsp. coromandelian		Ŷ			1/1
plants	land plants	Malvaceae	Sida hackettiana	R-17h	1.5	C		1/1
plants	land plants	Malvaceae	Side rhombifolia		Y	Z.		1/1
plants	land plants	Meliaceae	Owenia venosa	crow's apple		C		2/2
plants	land plants	Menyanthaceae	Nymphoides Indica	water snowflake		C SL		1/1
plants	land plants	Myrtaceae	Angophora floribunda	rough-barked apple				1/1
plants	land plants	Myrtaceae	Corymbia citriodora	spotted gum		ĕ		1
plants	land plants	Myrtaceae	Corymbia trachyphloia subsp. trachyphloia	sponed goin		000		1/1
plants	land plants	Myrtaceae				8		1
			Eucalyptus Eucalyptus apothalassica			6		1/1
plants	land plants	Myrtaceae				0000000000		2/1
plants	land plants	Myrtaceae	Eucalyptus crebra	narrow-leaved red ironbark		Ħ		2/2
plants	land plants	Myrtaceae	Eucalyptus dura	and the second second		2		
plants	land plants	Myrtaceae	Eucalyptus major	mountain grey gum		9		1/1
plants	land plants	Myrtaceae	Sannantha collina			5		1/1
plants	land plants	Oleaceae	Jasminum simplicifolium subsp. australiense			8		1/1
plants	land plants	Oleaceae	Notelaea microcarpa			Ö		1/1
plants	land plants	Oxalidaceae	Oxalis chnoodes			Č		1/1
plants	land plants	Phyllanthaceae	Bridelia leichhardtii			Ę.		1/1
plants	land plants	Phyllanthaceae	Phyllanthus subcrenulatus			U		1/1
plants	land plants	Pittosporaceae	Pittosporum			30		1
plants	land plants	Pittosporaceae	Pittosporum angustifolium	The control of the co		000		1/1
plants	land plants	Pittosporaceae	Pittosporum viscidum	black-fruited thornbush		C		1/1
plants	land plants	Plantaginaceae	Callitriche sorideri					1/1
plants	land plants	Plantaginaceae	Gratiola pedunculata	1.00 C. 1.00 C		C		1/1
plants	land plants	Plumbaginaceae	Plumbago zeylanica	native plumbago		000		1/1
plants	land plants	Poaceae	Aristida calycina var. filifolia	(6)		C		1/1
plants	land plants	Poaceae	Arundinella nepalensis	reedgrass		C		1/1
plants	land plants	Poaceae	Bothnochloa bladhii subsp. bladhii			C		1/1
plants	land plants	Poaceae	Bothriochloa decipiens var. decipiens			C		1/1
plants	land plants	Poaceae	Cenchrus purpurascens			00000		1/1
plants	land plants	Poaceae	Chions divaricata var. cynodontoides			C		1/1

Kingdom	Class	Family	Scientific Name	Common Name	Ĭ.	Q	Α	Records
plants	land plants	Poaceae	Chloris ventricosa	tall chloris		C		1/1
plants	land plants	Poaceae	Chrysopogon filipes			C		1/1
plants	land plants	Poaceae	Chrysopogon sylvaticus			000000		1/1
plants	land plants	Poaceae	Cleistochioa subjuncea			Ĉ		1/1
plants	land plants	Poaceae	Cymbopogon refractus	barbed-wire grass		Ĉ		1/1
plants	land plants	Poaceae	Dichanthium sericeum subsp. sericeum	Control of the contro		C		1/1
plants	land plants	Poaceae	Dichelachne montana			Ĉ		2/2
plants	land plants	Poaceae	Digitaria minima			č		1/1
plants	land plants	Poaceae	Eragrostis curvula		Y	_		2/2
plants	land plants	Poaceae	Eragrostis longipedicellata		117	C		1/1
plants	land plants	Poaceae	Eragrostis sororia			č		1/1
plants	land plants	Poaceae	Imperate cylindrica	blady grass				1/1
plants	land plants	Poaceae	Microlaena stipoides var. stipoides	widely gross		ĕ		1/1
plants	land plants	Poaceae	Oplismenus aemulus	creeping shade grass		000		1/1
plants	land plants	Poaceae	Pespalidium distans	shotgrass				1/1
plants	land plants	Poaceae	Sarga leiocladum	5/10/19/835		000		1/1
plants	land plants	Poaceae	Sporobolus creber			ĕ		3/3
plants	land plants	Poaceae	Sporobolus elongatus			6		1/1
plants	land plants	Poaceae	Themeda thandra	kangaroo grass		0000		1/1
plants	land plants	Poaceae	Tripogon Iolliformis	five minute grass		ĕ		2/2
		Poaceae		ave minute grass		ĕ		1/1
plants	land plants		Urochica whiteana			ĕ		1/1
plants	land plants	Polygalaceae	Polygala japonica			C		
plants	land plants	Polygalaceae	Polygala triflora	Provide Administration and Administration (All Provider Administration (Al		2		1/1
plants	land plants	Polygonaceae	Persicaria decipiens	slender knotweed	Y	C		1/1
plants	land plants	Polygonaceae	Rumex crispus	curled dock	- 1	84		1/1
plants	land plants	Polypodiaceae	Pyrrosia rupestris	rock felt fern		SL		1/1
plants	land plants	Portulacaceae	Portulace bicolor			C		1/1
plants	land plants	Pteridaceae	Adiantum atroviride			SL		1/1
plants	land plants	Pteridaceae	Cheilenthes distans	bristly cloak fern		C C SL		1/1
plants	land plants	Pteridaceae	Chellanthes sieberi subsp. sieberi			8		1/1
plants	land plants	Pteridaceae	Pellaea nana	STORY.		SL		1/1
plants	land plants	Ranunculaceae	Ranunculus lappaceus	common buttercup		C		1/1
plants	land plants	Ranunculaceae	Ranunculus meristus			C		1/1
plants	land plants	Ranunculaceae	Ranuriculus sessiliflorus var. sessiliflorus			0000		1/1
plants	land plants	Rhamnaceae	Cryptandra longistaminea	Constitution of the Artistan State of the Constitution of the Cons		C		1/1
plants	land plants	Rosaceae	Rubus parvifolius	pink-flowered native raspberry		•		1/1
plants	land plants	Rubiaceae	Everistia vacciniifolia var. vacciniifolia	22 85 000 E				1/1
plants	land plants	Rubiaceae	Opercularia hispida	hairy stinkweed		C		1/1
plants	land plants	Rubiaceae	Psydrax odorata forma subnitida	CONTRACTOR CONTRACTOR AND CONTRACTOR		C		1/1
plants	land plants	Rutaceae	Acronychia laevis	glossy acronychia		C		1/1
plants	land plants	Rutaceae	Coatesia paniculata	V 200 200 VO		C		1/.1
plants	land plants	Rutaceae	Flindersia collina	broad-leaved leopard free		C		2/2
plants	land plants	Rutaceae	Ziena aspalathoides subsp. aspalathoides	- 05		000		1/1
plants	land plants	Salicaceae	Casearia multinervosa	casearia				1/1
plants	land plants	Samolaceae	Samolus valerandi	brookweed		C		17.1
plants	land plants	Santalaceae	Exocarpos cupressiformis	native cherry		C		1/1

Kingdom	Class	Family	Scientific Name	Common Name	Ĭ.	Q	Α	Records
plants	land plants	Santalaceae	Thesium australe	toadflax		V	V	3/3
plants	land plants	Sapindaceae	Dodonaea					1
plants	land plants	Sapindaceae	Elattostachys xylocarpa	white tamarind		C		1/1
plants	land plants	Sapotaceae	Planchonella cotinifolia var. cotinifolia			C		
plants	land plants	Scrophulariaceae	Eremophila debilis	winter apple		C		1/1
plants	land plants	Solanaceae	Solanum					1
plants	land plants	Solanaceae	Solanum confolium	straggling nightshade		C		1/1
plants	land plants	Solanaceae	Solanum nemophilum	SWANTSWIT INSULANCE		C		1/1
plants	land plants	Solanaceae	Solanum seaforthianum	Brazilian nightshade	Y			1
plants	land plants	Thymelaeaceae	Pimelea curvifiora subsp. divergens	U E		C		1/1
plants	land plants	Verbenaceae	Lantana camara	lantana	Y	200		4
plants	land plants	Violaceae	Pigea stellarioides			C		1/1
plants	land plants	Viscaceae	Korthalsella breviarticulata			c		1/1
plants	THE TOTAL PERSON NAMED IN COLUMN	Papilionoideae	Crotalana mitchellii subsp. mitchellii			C		2/2
plants		Papilionoideae	Indigatera hirsuta	hairy indigo		C		17.1

CODES

- I Y indicates that the taxon is introduced to Queensland and has naturalised.
- Q Indicates the Queensland conservation status of each taxon under the Nature Conservation Act 1992.
 The codes are Extinct (EX), Extinct in the Wild (PE), Critically Endangered (CR), Endangered (E), Vulnerable (V), Near Threatened (NT), Special Least Concern (SL) and Least Concern (C).
- A Indicates the Australian conservation status of each taxon under the Environment Protection and Biodiversity Conservation Act 1999.
 The values of EPBC are Extinct (EX), Extinct in the Wild (XW), Critically Endangered (CE), Endangered (E), Vulnerable (V) and Conservation Dependent (CD).

Records - The first number indicates the total number of records of the taxon (wildlife records and species listings for selected areas).

This number is output as 99999 if it equals or exceeds this value. A second number located after a / indicates the number of specimen records for the taxon. This number is output as 999 if it equals or exceeds this value.



WildNet species list

Search Criteria: Species List for a Specified Point

Species: All Type: All

Queensland status: All

Records: All

Date: Since 1980 Latitude: -26.5941 Longitude: 151.5207

Distance: 30

Email: mcastelli@ecosure.com.au

Date submitted: Thursday 23 Feb 2023 13:45:57 Date extracted: Thursday 23 Feb 2023 13:50:03

The number of records retrieved = 1423

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products approved for publication. Feedback about WildNet species lists should be emailed to wildlife online@des.gld.gov.au.

Kingdom	Class	Family	Scientific Name	Common Name	ı ı	Q	Α	Records
animals	amphibians	Bufonidae	Rhinella marina	cane toad	Y			12
animals	amphibians	Hylidae	Cyclorana alboguttata	greenstripe frog		C		1
animals	amphibians	Hylidae	Cyclorana brevipes	superb collared frog		0000000000		1
animals	amphibians	Hylidae	Litoria belatus	slender bleating treefrog		C		5/2
animais	amphibians	Hylidae	Litoria caerulea	common green treefrog		6		5/2 5
animals	amphibians	Hylidae	Litoria chloris	orange eyed treefrog		C		1
animals	amphibians	Hylidae	Litoria fallex	eastern sedgefrog		6		
animals	amphibians	Hylidae	Litoria gracilenta	graceful treefrog		Č		38 1
animals	amphibians	Hylidae	Litoria latopalmata	broad palmed rocketfrog		C		15
animals	amphibians	Hylidae	Litoria peronii	emerald spotted treefrog		è		15 11
animals	amphibians	Hylidae	Litoria rubella	ruddy treefrog		ĕ		4
animals	amphibians	Hylidae	Litoria verreauxii	whistling treefrog		ě		10
animals	amphibians	Hylidae	Litoria wilcoxii	eastern stony creek frog		ĕ		28
animals	amphibians	Limnodynastidae	Limnodynastes peronii	striped marshfrog		00000000000000000000000000000		10 28 14
animals	amphibians	Limnodynastidae	Limnodynastes sp.	Shiped marshing		č		- 7
animals	amphibians	Limnodynastidae	Limnodynastes tasmaniensis	spotted grassfrog		č		10/1
animals	amphibians	Limnodynastidae	Limnodynastes terraereginae	scarlet sided pobblebonk		ĕ		3
and the second second second						0		3
animals	amphibians	Limnodynastidae	Platyplectrum ornatum	ornate burrowing frog		6		4
animals	amphibians	Myobatrachidae	Crinia parinsignifera	beeping froglet		7		
animals	amphibians	Myobatrachidae	Crinia signifera	clicking froglet		8		8 25 2
animals	amphibians	Myobatrachidae	Mixophyes fasciolatus	great barred frog		õ		25
animals	amphibians	Myobatrachidae	Mixophyes sp	0696M (\$195500 PC \$1950 C) \$2000.		ē		*
animals	amphibians	Myobatrachidae	Pseudophryne major	great brown broodfrog		- 5		3
animals	amphibians	Myobatrachidae	Pseudophryne sp	27 - 27		C		3
animals	amphibians	Myobatrachidae	Uperaleia fusca	dusky gungan		C		1
animals	amphibians	Myobatrachidae	Uperoleia rugosa	chubby gungan		C		_1
animals	birds	Acanthizidae	Acanthiza chrysormoa	yellow-rumped thornbill		C		76 6 24 37
animals	birds	Acanthizidae	Acanthiza lineata	striated thornbill		C		6
animals	birds	Acanthizidae	Acanthiza nana	yellow thornbill		C		24
animals	birds	Acanthizidae	Acanthiza pusilla	brown thornbill		C		37
animals	birds	Acanthizidae	Acanthiza reguloides	buff-rumped thornbill		C		13
animals	birds	Acanthizidae	Gerygone fusca	western gerygone		C		19
animals	birds	Acanthizidae	Gerygone mouki	brown gerygone		C		42
animals	birds	Acanthizidae	Gerygone olivacea	white-throated gerygone		C		60
animals	birds	Acanthizidae	Pyrrholaemus sagittatus	speckled warbler		C		83
animals	birds	Acanthizidae	Sericornis citreogularis	yellow-throated scrubwren		C		26
animals	birds	Acanthizidae	Sericornis frontalis	white-browed scrubwren		C		108
animals	birds	Acanthizidae	Sericarnis magnirostra	large-billed scrubwren		C		14
animals	birds	Acanthizidae	Smicrornis brevirostris	weebill				118
animals	birds	Accipitridae	Accipiter fasciatus	brown goshawk		c		
animals	birds	Accipitridae	Accipiter novaehollandiae	grey goshawk		č		82 78 78 8 6 15
animals	birds	Accipitridae	Aquila audax	wedge-tailed eagle				78
animals	birds	Accipitridae	Aviceda subcristata	Pacific baza		0000		Q
animals	birds	Accipitridae	Circus approximans	swamp harrier		ĕ		6
animals	birds	Accipitridae	Elanus axiliaris	black-shouldered kite		6		15
animals	birds	Accipitridae	Haliaeetus leucogaster	white-bellied sea-eagle		C		4

Kingdom	Class	Family	Scientific Name	Common Name	<u> </u>	Q	Α	Records
animals	birds	Accipitridae	Hallastur sphenurus	whistling kite		C		5
animals	birds	Accipitridae	Hamirostra melanosternon	black-breasted buzzard		00000000000000		2
animals	birds	Accipitridae	Hieraaetus morphnoides	little eagle		C		1
animals	birds	Accipitridae	Lophoictinia isura	square-tailed kite		C		1.
animals	birds	Accipitridae	Milvus migrens	black kite		C		1
animals	birds	Acrocephalidae	Acrocephalus australis	Australian reed-warbler		C		1
animals	birds	Aegothelidae	Aegotheles cristatus	Australian owlet-nightian		C		28 4
animals	birds	Alaudidae	Mirafra javanica	Horsfield's bushlark		C		4
animals	birds	Alcedinidae	Dacelo novaeguineae	laughing kookaburra		C		205
animals	birds	Alcedinidae	Todiramphus macleayii	forest kingfisher		Ċ		6
animals	birds	Alcedinidae	Todiramphus pyrrhopygius	red-backed kingfisher		Ĉ		9
animals	birds	Alcedinidae	Todiramphus sanctus	sacred kingfisher		6		86
animals	birds	Anatidae	Anas castanea	chestnut teal		ē		2
animals	birds	Anatidae	Anas gracilis	grey teal		õ		19
animals	birds	Anatidae	Anas superciliosa	Pacific black duck		Č		86 2 19 67 12 67
animals	birds	Anatidae	Aythya australis	hardhead		ĕ		12
animals	birds	Anatidae	Chenonetta jubata	Australian wood duck		0000000000000		67
animals	birds	Anatidae	Cygnus stratus	black swan		ĕ		8
animals	birds	Anatidae	Dendrocygna arcuata	wandering whistling-duck		č		1
animals	birds	Anatidae	Dendrocygna arcsala Dendrocygna eytoni	plumed whistling-duck		ĕ		Ė
	birds	Anatidae		pink-eared duck		š		9
animals	birds		Malacorhynchus membranaceus Nettapus coromandellanus			8		9
animals	112000	Anatidae		cotton pygmy-goose		Š		
animals	birds	Anatidae	Oxyura australis	blue-billed duck		8		5
animals	birds	Anatidae	Radjah radjah	radjah shelduck		č		1
animals	birds	Anatidae	Spatula rhynchotis	Australasian shoveler		8		ō
animals	birds	Anhingidae	Anhinga novaehollandiae	Australasian darter		뚩		
animals	birds	Anseranatidae	Anseranas semipalmata	magpie goose		0		2
animals	birds	Apodidae	Apus pacificus	fork-tailed swift			500	4
animals	birds	Apodidae	Hirundapus caudacutus	white-throated needletail		V	V.	
animals	birds	Ardeidae	Ardea alba modesta	eastern great egret		8		11
animals	birds	Ardeidae	Ardea intermedia	intermediate egret		C		4
animals	birds	Ardeidae	Ardea pacifica	white-necked heron		000000000	15.245	16
animals	birds	Ardeidae	Botaurus poiciloptilus	Australasian bittern		E	E	1
animals	birds	Ardeidae	Bubulcus ibis	cattle egret		C		8 5 54
animals	birds	Ardeidae	Egretta garzetta	little egret		C		.5
animals	birds	Ardeidae	Egretta novaehollandiae	white-faced heron		C		54
animals	birds	Artamidae	Artamus cinereus	black-faced woodswallow		C		4
animals	birds	Artamidae	Artamus cyanopterus	dusky woodswallow		C		2
animals	birds	Artamidae	Artamus leucorynchus	white-breasted woodswallow		C		3
animals	birds	Artamidae	Artamus minor	little woodswallow		000		1
animals	birds	Artamidae	Artemus personatus	masked woodswallow				80 3
animals	birds	Artamidae	Artamus superciliosus	white-browed woodswallow				3
animals	birds	Artamidae	Cracticus nigrogularis	pled butcherbird		000		198
animals	birds	Artamidae	Cracticus torquatus	grey butcherbird		C		180
animals	birds	Arlamidae	Gymnorhina tibicen	Australian magpie		C		249
animals	birds	Artamidae	Strepera graculina	pied currawong		C		257

Kingdom	Class	Family	Scientific Name	Common Name	Î	Q	Α	Records
animals	birds	Cacatuidae	Cacatua galerita	sulphur-crested cockatoo		C		176
animals	birds	Cacatuldae	Cacatua sanguinea	little corella		000		4
animals	birds	Cacatuidae	Calyptorhynchus banksii	red-tailed black-cockatoo		C		13
animals	birds	Cacatuidae	Calyptorhynchus lathami lathami	glossy black-cockatoo (eastern)		V	\mathbf{v}	4
animais	birds	Cacatuidae	Eolophus roseicapilla	galah		C		238
animals	birds	Cacatuidae	Nymphicus hollandicus	cockatiel		C		66
animals	birds	Cacatuidae	Zanda funerea	vellow-tailed black-cockatoo		C		21
animals	birds	Campephagidae	Coracina maxima	ground cuckoo-shrike		C		6
animals	birds	Campephagidae	Coracina novaehollandlae	black-faced cuckoo-shrike		C		192
animals	birds	Campephagidae	Coracina papuensis	white-bellied cuckgo-shrike		000		7
animals	birds	Campephagidae	Edolisoma tenuirostre	common cicadabird		C		30
animals	birds	Campephagidae	Lalage leucometa	varied triller		C		36
animals	birds	Campephagidae	Lalage tricolor	white-winged triller		c		28
animals	birds	Casuariidae	Dromaius novaehollandiae	emu		C		1
animals	birds	Charadriidae	Elseyornis melanops	black-fronted dotterel		C		7
animals	birds	Charadriidae	Erythrogonys cinctus	red-kneed dotterel		C		2
animals	birds	Charadriidae	Vanellus miles	masked lapwing		Ĉ		23
animals	birds	Charadriidae	Vanellus miles novaehollandiae	masked lapwing (southern subspecies)				7 2 23 19
animals	birds	Charadriidae	Vanellus tricolor	banded lapwing		00000		3
animals	birds	Ciconiidae	Ephippiorhynchus asiaticus	black-necked stork		ĕ		2
animals	birds	Cisticolidae	Cisticola exilis	golden-headed cisticola		õ		8
animais	birds	Climacteridae	Climecteris picumnus	brown treecreeper		ĕ		80
animals	birds	Climacleridae	Cormobates leucophaea	white-throated treecreeper		č		52
animals	birds	Climacteridae	Cormobates leucophaea metastasis	white-throated treecreeper (southern)		č		2 8 80 52 45
animals	birds	Columbidae	Chalcophaps longirostris	Pacific emerald dove		č		79
animals	birds	Columbidae	Columba leucomela	white-headed pigeon		č		6
animals	birds	Columbidae	Columba livia	rock dove	Y	155		3
animals	birds	Columbidae	Geopelia cuneata	diamond dove	72	C		ž.
animals	birds	Columbidae	Geopelia humeralis	bar-shouldered dove		ĕ		174
animals	birds	Columbidae	Geopelia placida	peaceful dove		ĕ		168
animals	birds	Columbidae	Geophaps plumifera	spinifex pigeon		ĕ		
animals	birds	Columbidae	Leucosarcia melanoleuca	wonga pigeon		ĕ		1 20
animals	birds	Columbidae	Lopholaimus antarcticus	topknot pigeon		č		14
animals	birds	Columbidae	Macropygia phasianella	brown cuckoo-dove		ĕ		27
animals	birds	Columbidae	Ocyphaps lophotes	crested pigeon		ĕ		210
animals	birds	Columbidae	Phaps chalcoptera	common bronzewing		ĕ		13
animals	birds	Columbidae	Ptilinopus magnificus	wompoo fruit-dove		c		2
animals	birds	Columbidae	Ptilinopus regina	rose-crowned fruit-dove		č		7
animals	birds	Columbidae	Spilopelia chinensis	spotted dove	Υ			7
A STATE OF THE PARTY OF THE PAR		Coraciidae		dollarbird	7.8	0		64
animals animals	birds birds	Corcoracidae	Eurystomus orientalis Corcorax melanorhamphos	white-winged chough		C		40
	birds	Corcoracidae	Struthidea cinerea					168
animals				apostlebird		C		
animals	birds	Corvidae	Corvus coronaides	Australian raven		C		114 219
animals	birds	Corvidae	Corvus arru	Torresian crow				
animals	birds	Corvidae	Corvus sp.	The contracts of the same		C		5
animals	birds	Cuculidae	Cacomantis fiabelliformis	fan-tailed cuckoo		C		55

Kingdom	Class	Family	Scientific Name	Common Name	Î	Q	Α	Records
animals	birds	Cuculidae	Cecomantis pallidus	pallid cuckoo		C		11
animals	birds	Cuculidae	Cacomantis variolosus	brush cuckoo		00000000		23
animals	birds	Cuculidae	Centropus phasianinus	pheasant coucal		C		128
animals	birds	Cuculidae	Chalcites basalis	Horsfield's bronze-cuckoo		C		7
animais	birds	Cuculidae	Chalcites lucidus	shining bronze-cuckoo		C		13
animals	birds	Cuculidae	Chalcites minutillus barnardi	Eastern little bronze-cuckoo		C		1
animals	birds	Cuculidae	Chalcites osculans	black-eared cuckoo		C		1
animals	birds	Cuculidae	Eudynamys orientalis	eastern koel		C		43
animals	birds	Cuculidae	Scythrops novaehollandiae	channel-billed cuckoo		C		43 32
	birds	Dicaeidae	Dicaeum hirundinaceum	mistletoebird		000		143
	birds	Dicruridae	Dicrurus bracteatus	spangled drongo		č		51
animals	birds	Estrildidae	Lonchura castaneothorax	chestnut-breasted mannikin				11
	birds	Estriididae	Neochmia modesta	plum-headed finch		000		14
	birds	Estrildidae	Neochmia temporalis	red-browed finch		õ		94
animals	birds	Estrildidae	Taeniopygia bichenovii	double-barred finch				189
	birds	Estrildidae	Taeniopygia puttata	zebra finch		000		17
animals	birds	Eurostopodidae	Eurostopodus mystacalis	white-throated nightiar		ĕ		17.5
animals	birds	Falconidae	Falco berigora	brown falcon		ĕ		6 3 33
animals	birds	Falconidae	Falco pengora Falco cenchroides	nankeen kestrel		8		22
	birds	Falconidae	Falco longipennis	Australian hobby		ĕ		3
	birds	Falconidae				8		
			Falco peregrinus macropus Falcunculus frontatus	Australian peregrine falcon		6		9
Control of the Control	birds	Falcunculidae		crested shrike-tit		6		6 6
animals	birds	Hirundinidae	Cheramoeca leucosterna	white-backed swallow		8		
animals	birds	Hirundinidae	Hirundo neoxena	welcome swallow		č		35 7
animals	birds	Hirundinidae	Petrochelidon ariel	fairy martin		5		- 2
animals	birds	Hirundinidae	Petrochelidon nigricans	tree martin		質		16
animals	birds	Jacanidae	Irediparra gallinacea	comb-crested Jacana		0		3
	birds	Laridae	Chlidonias hybrida	whiskered tern		C		3
12 PM2/MED 55 55	birds	Laridae	Hydroprogne caspia	Caspian tern		000000000000000000000000000000000000000		1
animals	birds	Locustellidae	Cincloramphus cruralis	brown songlark		6		2
animals	birds	Locustellidae	Cincloramphus mathewsi	rufous songlark		C		3
animals	birds	Locustellidae	Cincloramphus timoriensis	tawny grassbird		Č		. 3
animals	birds	Maluridae	Malurus cyaneus	superb fairy-wren		C		180
and the second s	birds	Maluridae	Malurus lamberti	variegated fairy-wren		0000		117
Section 1 and 1 an	birds	Maluridae	Malurus lamberti sensu lato	variegated fairy-wren		C		44 82
animals	birds	Maluridae	Malurus melanocephalus	red-backed fairy-wren		C		82
animals	birds	Megapodiidae	Alectura lathami	Australian brush-turkey				38
animals	birds	Meliphagidae	Acanthagenys rufogularis	spiny-cheeked honeyeater		C		23
animals	birds	Meliphagidae	Acanthomynchus tenuirostris	eastern spinebill		C		34
animals	birds	Meliphagidae	Anthochaera carunculata	red wattlebird		0000000		1
	birds	Meliphagidae	Caligavis chrysops	yellow-faced honeyeater		C		58
animals	birds	Meliphagidae	Entomyzon cyanotis	blue-faced honeyeater		C		58 153
animals	birds	Meliphagidae	Grantiella picta	painted honeyeater		V	V	1
animals	birds	Meliphagidae	Lichenostomus melanops	yellow-fufted honeyeater		C		. 3
	birds	Meliphagidae	Lichmera indistincta	brown honeyeater		C		153
	birds	Meliphagidae	Menorina fleviquia	yellow-throated miner		G		4

Kingdom	Class	Family	Scientific Name	Common Name	Ī	Q	Α	Records
animals	birds	Meliphagidae	Manorina melanocephala	noisy miner		C		220
animals	birds	Meliphagidae	Manorina melanophrys	bell miner		00000000000000		1
animals	birds	Meliphagidae	Meliphaga lewinii	Lewin's honeyeater		C		236
animals	birds	Meliphagidae	Melithreptus albogularis	white-throated honeyeater		C		75
animais	birds	Meliphagidae	Melithreptus brevirostris	brown-headed honeyeater		C		75 12
animals	birds	Meliphagidae	Melithreptus gularis	black-chinned honeyeater		C		6 5 25
animals	birds	Meliphagidae	Melithreptus lunatus	white-naped honeyeater		C		5
animals	birds	Meliphagidae	Myzomela sanguinolenta	scarlet honeyeater		C		25
animals	birds	Meliphagidae	Nesoptilotis leucotis	white-eared honeyeater		C		10
animals	birds	Meliphagidae	Philemon citreogularis	little friarbird		ē		105
animals	birds	Meliphagidae	Philemon corniculatus	noisy friarbird		č		125
animals	birds	Meliphagidae	Plectorhyncha lanceolata	striped honeyeater		6		119
animals	birds	Meliphagidae	Ptilotula fusca	fuscous honeyeater		ĕ		6
animals	birds	Meliphagidae	Ptilotula penicillata	white-plumed honeyeater		õ		3
animals	birds	Meropidae	Merops ornatus	rainbow bee-eater		č		3 77
animals	birds	Monarchidae	Grallina cyanoleuca	magpie-lark		C		233
animals	birds	Monarchidae	Monarcha melanopsis	black-faced monarch		ŠL		83
animals	birds	Monarchidae	Mylagra cyanoleuca	satin flycatcher		SL		27
animals	birds	Monarchidae	Mylagra Lyanoledca Mylagra inquieta	restless flycatcher		00		36
THE PARTY OF THE	birds	Monarchidae				ĕ		76
animals			Mylagra rubecula	leaden flycatcher				70
animals	birds	Monarchidae	Symposiachrus trivirgatus Anthus novaeseelandiae	spectacled monarch		SL		7
animais	birds	Motacillidae		Australasian pipit		Š		400
animals	birds	Neosiffidae	Daphoenositta chrysoptera	varied sittella		0000000		102 72
animals	birds	Oriolidae	Oriolus sagittatus	olive-backed oriole		č		22
animals	birds	Oriolidae	Sphecotheres vieilloti	Australasian figbird		Ċ.		51
animals	birds	Otididae	Ardeatis australis	Australian bustard		5		8
animals	birds	Pachycephalidae	Colluricincia harmonica	grey shrike-thrush		U		151
animals	birds	Pachycephalidae	Colluncincia megarhyncha	little shrike-thrush		C		4
animals	birds	Pachycephalidae	Pachycephala pectoralis	golden whistler		80000		130
animals	birds	Pachycephalidae	Pachycephala rufiventris	rufous whistler		C		137
animals	birds	Pandionidae	Pandion haliaetus cristatus	eastern osprey				. 1
animals	birds	Paradisaeidae	Ptiloris paradiseus	paradise riflebird		000		19
animals	birds	Pardalolidae	Pardalotus punctatus	spotted pardalote		C		47
animals	birds	Pardalotidae	Pardalotus striatus	striated pardalote		C		207
animals	birds	Passeridae	Passer domesticus	house sparrow	Y			5
animals	birds	Pelecanidae	Pelecanus conspicillatus	Australian pelican		c		8
animals	birds	Petroicidae	Eopsaltria australis	eastern yellow robin				190
animals	birds	Petroicidae	Microeca fascinans	jacky winter		C		25
animals	birds	Petroicidae	Petroica goodenovii	red-capped robin		C		4
animals	birds	Petroicidae	Petroica rosea	rose robin		C		22
animals	birds	Petroicidae	Tregellasia capito	pale-yellow robin		000		22 1
animals	birds	Phalacrocoracidae	Microcarbo melanoleucos	little pied cormorant		C		15
animals	birds	Phalacrocoracidae	Phalacrocorax carbo	great cormorant		000		15 3
animals	birds	Phalacrocoracidae	Phalacrocorax sulcirostris	little black cormorant		C		7
animals	birds	Phalacrocoracidae	Phalacrocorex varius	pied cormorant		C		5
animals	birds	Phasianidae	Coturnix pectoralis	stubble quail		C		2

Kingdom	Class	Family	Scientific Name	Common Name	<u> </u>	Q	Α	Records
animals	birds	Phasianidae	Pavo cristatus	Indian peafowl	Y			, Ï
animals	birds	Phasianidae	Synoicus ypsilophorus	brown quail		C		77 12
animals	birds	Pittidae	Pitta versicolor	noisy pitta		00000000000000		12
animals	birds	Podargidae	Podargus strigoides	tawny frogmouth		C		99
animals	birds	Podicipedidae	Podiceps cristatus	great crested grebe		C		4
animals	birds	Podicipedidae	Tachybaptus novaehollandiae	Australasian grebe		C		34
animals	birds	Pomatostomidae	Pomatostomus temporalis	grey-crowned babbler		C		4 34 81
animals	birds	Psittaculidae	Alisterus scapularis	Australian king-parrot		C		177
animals	birds	Psittaculidae	Aprosmictus erythropterus	red-winged parrot		C		116
animals	birds	Psittaculidae	Glossopsitta concinna	musk lorikeet		C		1
animals	birds	Psittaculidae	Melopsittacus undulatus	budgerigar		C		3
animals	birds	Psittaculidae	Northiella haematogaster	blue bonnet		C		2 15
animals	birds	Psittaculidae	Parvipsitta pusilla	little lorikeet		C		15
animals	birds	Psittaculidae	Platycercus adscitus	pale-headed rosella		C		206
animals	birds	Psittaculidae	Platycercus elegans	crimson rosella		C		32 2 26
animals	birds	Psittaculidae	Platycercus eximius	eastern rosella		õ		2
animals	birds	Psittaculidae	Psephotus haematonotus	red-rumped parrot		Ĉ		26
animals	birds	Psittaculidae	Trichoglossus chlorolepidotus	scaly-breasted lorikeet		000000000000000000		78
animals	birds	Psittaculidae	Trichaglossus maluccanus	rainbow lorikeet		č		181
animals	birds	Psophodidae	Psophodes olivaceus	eastern whipbird		Ĉ		106
animals	birds	Ptilonorhynchidae	Alluroedus crassirostris	green catbird		õ		17
animals	birds	Ptilonorhynchidae	Chiamydera maculata	spotted bowerbird		ĕ		17 2
animals	birds	Ptilonorhynchidae	Ptilonorhynchus violaceus	satin bowerbird		č		174
animals	birds	Ptilonorhynchidae	Sericulus chrysocephalus	regent bowerbird		ĕ		46
animals	birds	Rallidae	Fulica atra	Eurasian coot		č		18
animals	birds	Rallidae	Gallinula tenebrosa	dusky moorhen		ĕ		7
animals	birds	Rallidae	Gallirallus philippensis	buff-banded rail		ĕ		
animals	birds	Rallidae	Porphyrio melanotus	purple swamphen		ĕ		2 5
animals	birds	Rallidae	Tribonyx ventralis	black-tailed native-hen		ĕ		1
animals	birds	Recurvirostridae	Himantopus leucocephalus	pled stilt		ĕ		12
animals	birds	Rhipiduridae	Rhipidura albiscapa	grey fantail		õ		178
animals	birds	Rhipiduridae	Rhipidura leucophrys	willie wagtail		č		217
animals	birds	Rhipiduridae	Rhipidura rufifrons	rufous fantail		Č.		65
animals	birds	Scolopacidae	Calidris acuminata	sharp-tailed sandpiper		SL		3
animals	birds	Scolopacidae				SL		3
animals	birds	Strigidae	Tringa stagnatilis Ninox boobook	marsh sandpiper southern boobook		e e		126
LIPARIAN DECEM	birds	Strigidae	STATE STATE OF THE			c		120
animals animals	birds	Strigidae	Ninox connivens Ninox strenua	barking owl powerful owl		ŭ		16
	and the same				V	v		
animals	birds	Sturnidae Sturnidae	Acridotheres tristis	common myna	Ý			6
animals	birds	A STATE OF THE STA	Sturnus vulgaris	common starling	i			17 12
animals	birds	Threskiornithidae	Platalea flavipes	yellow-billed spoonbill		C		12
animals	birds	Threskiornithidae	Platalea regia	royal spoonbill		6		3 3 15 35
animals	birds	Threskiornithidae	Plegadis falcinellus	glossy ibis		SL		3
animals	birds	Threskiornithidae	Threskiornis molucca	Australian white ibis		0		15
animals	birds	Thresklornithidae	Threskiornis spiricollis	straw-necked ibis		C SC C C		35
animals	birds	Turdidae	Zoothera heinei	russet-tailed thrush		C		6

Kingdom	Class	Family	Scientific Name	Common Name	Ĩ	Q	Α	Records
animals	birds	Turdidae	Zoothera lunulata	Bassian thrush		C		6
animals	birds	Turdidae	Zoothera sp.			C		2/2
animals	birds	Turnicidae	Turnix melanogaster	black-breasted button-quail		V	V	21
animals	birds	Tytonidae	Tyto javanica	eastern barn owl		C		13 2 2 178
animals	birds	Tytonidae	Tyto navaehollandiae	masked owl		C		2
animals	birds	Tytonidae	Tyto tenebricosa tenebricosa	souty awl		C		2
animals	birds	Zosteropidae	Zosterops lateralis	silvereye		0000		178
animals	insects	Coenagrionidae	Ischnura heterosticta heterosticta	common bluetail		3		1
animals	insects	Coenagrionidae	Pseudagrion aureofrons	gold-fronted riverdamsel				1
animals	insects	Coenagrionidae	Xanthagrion erythroneurum	red & blue damsel				1
animals	insects	Hesperiidae	Anisynta tillyardi	chequered grass-skipper				î
animals	insects	Hesperiidae	Dispar compacta	barred skipper				1
animals	insects	Hesperiidae	Ocybadistes walkeri sothis	green grass-dart				1
animals	insects	Hesperiidae	Suniana lascivia lascivia	dark grass-dart				3
animals:	insects	Libellulidae	Diplacodes bipunctata	wandering percher				ş.
animals	insects	Lycaenidae	Acrodipsas cuprea variabilis	copper ant-blue				
animals	Insects	Lycaenidae	Nacaduba biocellata biocellata	two-spotted line-blue				
animals	insects	Lycaenidae	Prosotas felderi	short-tailed line-blue				÷
animals	insects	Lycaenidae	Theclinestnes serpentatus serpentatus	sall-bush blue				2
animals	insects	Lycaenidae	Zizina otis labradus	common grass-blue (Australian				2
allillidis	misecia	Lycaeilidae	Ziziria dua lauradda					2
animale	insects	Nymphalidae	Acraea endromacha endromacha	subspecies)				
animals	Control of the Contro			glasswing				-
animals	insects	Nymphalidae	Charaxes sempronius sempronius	tailed emperor				2
animals	Insects	Nymphalidae	Denaus petilia	lesser wanderer	Y			3
animals.	insects	Nymphalidae	Danaus plexippus	monarch	- 100			
animals	insects	Nymphalidae	Euploea corinna	common crow				1
animals	Insects	Nymphalidae	Geitoneura acantha	ringed xenica				5
animals	insects	Nymphalidae	Hypocysta adiante adiante	orange ringlet				3
animals	insects	Nymphalidae	Hypocysta metinus	brown ringlet				2
animals	insects	Nymphalidae	Junonia villida villida	meadow argus				2
animals	insects	Nymphalidae	Melanitis leda bankia	evening brown				3
animals	insects	Papilionidae	Graphium choredon	blue triangle				1
animals	insects	Papilionidae	Graphium eurypylus	pale triangle				1
animals	Insects	Papilionidae	Papilio aegeus aegeus	orchard swallowtall (Australian				1
Net Zert BASSES	Ultra Especia	a to the control of t		subspecies)				+21
animals	insects	Papilionidae	Papilio demoleus sthenelus	chequered swallowtall				2
animals	insects	Pieridae	Belenois java teutonia	caper white				1
animals	insects	Pieridae	Catopailia pyranthe crokera	white migrant				1
animals	insects	Pieridae	Cepora perimale	=				1
animals	insects	Pieridae	Cepora perimale scyllara	caper gull (Australian subspecies)				1
animals	insects	Pieridae	Delias argenthona argenthona	scarlet jezebel				2
animals	insects	Pieridae	Delias nysa nysa	yellow-spotted jezebel (Australian subspecies)				1
animals	Insects	Pieridae	Elodina angulipennis	southern pearl-white				2
animals	insects	Pieridae	Elodina parthia	striated pearl-white				2
animals	insects	Pieridae	Eurema hecabe	large grass-yellow				1
OTHILIBITE:	HIDGETTO.	LIGHTAGE	Chicillo (Ipoppe	large grass-yellow				

Kingdom	Class	Family	Scientific Name	Common Name	Î	Q	Α	Records
animals	insects	Pieridae	Eurema smilax	small grass-yellow				2
animals	insects	Pleridae	Pieris rapae	cabbage white	Y			1
animals	mammals	Canidae	Canis familiaris	dog	Y			7
animals	mammals	Dasyuridae	Antechinus flavipes flavipes	yellow-footed antechinus (south-east Queensland)		C		5
animals	mammals	Dasyuridae	Dasyurus hallucatus	nortnern quall		C	E	1
animals	mammals	Dasyuridae	Desyurus meculatus maculatus	spotted-tailed quall (southern subspecies)		E	Ē	2
animals	mammals	Dasyuridae	Sminthopsis murina	common dunnart		c		2
animals	mammals	Emballonuridae	Saccolaimus flaviventris	yellow-bellied sheathtail bat.		c		4
animals	mammals	Felidae	Felis catus	cat	Y	255		7
animals	mammals	Leporidae	Lepus europaeus	European brown hare	Y			3
animals	mammals	Leporidae	Oryctolagus cuniculus	rabbit	Y			4
animals	mammals	Macropodidae	Macropus giganteus	eastern grey kangaroo		C		6
animals	mammals	Macropodidae	Notamacropus dorsalis	black-striped wallaby		C		6
animals	mammals	Macropodidae	Notamacropus parryi	whiptall wallaby		õ		4
animals	mammals	Macropodidae	Notamacropus rufogriseus	red-necked wallaby		Ĉ		6
animals	mammals	Macropodidae	Thylogale stigmatica	red-legged pademelon		C		î
animals	mammals	Macropodidae	Wallabia bicolor	swamp wallaby		C		8
animals	mammals	Miniopteridae	Miniopterus australis	little bent-wing bat		Ĉ		4
animals	mammals	Miniopteridae	Miniopterus schreibersii oceanensis	eastern bent-wing bat		000000000000		7
animais	mammals	Molossidae	Austronomus australis	white-striped freetall bat		õ		î
animals	mammals	Molossidae	Mormopterus lumsdenae	northern free-tailed bat		õ		1
animals	mammals	Molossidae	Mormopterus ridei	eastern free-tailed bat		õ		1
animals	mammals	Molossidae	Mormopterus sp			č		2
animals	mammals	Mundae	Melomys cervinipes	fawn-footed melomys		C		6
animals	mammals	Muridae	Mus musculus	house mouse	Y	100		11
animals	mammals	Muridae	Pseudomys gracilicaudatus	eastern chestnut mouse	3.7	C		- Ti
animals	mammals	Mundae	Rattus fuscipes	bush rat				7
animals	mammals	Muridae	Rattus lutreolus	swamp rat		ĕ		9
animals	mammals	Muridae	Rattus sp.			õ		2
animals	mammals	Mundae	Rattus tunneyi	pale field-rat		Č		Ť
animals	mammais	Peramelidae	Isoodon macrourus	northern brown bandicoot		Č		14
animals	mammals	Peramelidae	Perameles nesuta	long-nosed bandicoot		õ		3
animals	mammals	Petauridae	Petaurus australis australis	yellow-bellied glider (southern subspecies)		0000000	V	14 3 2
animals	mammals	Pelauridae	Petaurus norfolcensis	squirrel glider		C		2
animals	mammals	Phalangeridae	Trichosurus caninus	short-eared possum		č		8
animals	mammals	Phalangeridae	Trichosurus vulpecula	common brushtall possum				23
animals	mammals	Phascolarctidae	Phascolarctos cinereus	koala		ошошоо	E	32
animals	mammals	Potoroidae	Aepyprymnus rufescens	rufous bettong		Ĉ		12
animals	mammals	Pseudocheiridae	Petauroides armillatus	central greater glider		E	E	10
animals	mammals	Pseudocheiridae	Pseudocheirus peregrinus	common ringtall possum		C	_	2
animals	mammals	Pteropodidae	Pteropus alecto	black flying-fox		Ĉ		5
animals	mammals	Pteropodidae	Pteropus poliocephalus	grey-headed flying-fox		č	V	32 12 10 2 5 8
animals	mammals	Pteropodidae	Pteropus scapulatus	little red flying-fox		C		12

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Kingdom	Class	Family	Scientific Name	Common Name	<u> </u>	Q	Α	Records
animals	reptiles	Scincidae	Carila vivax	tussock rainbow-skink		000000		2
animals	reptiles	Scincidae	Concinnia tenuis	bar-sided skink		C		1
animals	reptiles	Scincidae	Cryptoblepharus pannosus	ragged snake-eyed skink		c		1
animals	reptiles	Scincidae	Cryptoblepharus pulcher pulcher	elegant snake-eyed skink		C		10 2 2/1 8
animals	reptiles	Scincidae	Ctenotus spaldingi	straight-browed ctenotus		C		2
animals	reptiles	Scincidae	Egernia striolata	tree skink				2/1
animals	reptiles	Scincidae	Lamprophalis calossus	Bunya sunskink		NT	-	8
animals	reptiles	Scincidae	Lampropholis delicata	dark-flecked garden sunskink		00000000000000		1
animals	reptiles	Scincidae	Lampropholis guichenoti	pale-flecked garden sunskink		C		1
animals	reptiles	Scincidae	Lerista fragilis	eastern mulch slider		c		2/1
animals	reptiles	Scincidae	Lerista sp.	Valleton Vetas		C		1,
animals	reptiles	Scincidae	Lerista timida	timid slider		C		4/2
animals	reptiles	Scincidae	Lygisaurus foliorum	tree-base litter-skink		c		12
animals	reptiles	Scincidae	Morethia boulengeri	south-eastern morethia skink		C		3 2 3 3 2
animals.	reptiles	Scincidae	Saiphos equalis	three-toed skink		C		3
animals	reptiles	Scincidae	Tiliqua scincoides scincoides	eastern bluetongue		C		2
animals	reptiles	Typhlopidae	Anilios sp			C		3
animals	reptiles	Varanidae	Varanus gouldii	sand monitor		C		3
animals	reptiles	Varanidae	Varanus panoptes	yellow-spotted monitor		C		2
animals	reptiles	Varanidae	Varanus tristis	black-tailed monitor		c		1
animals	reptiles	Varanidae	Varanus varius	lace monitor		C		19 5
animals	uncertain	Indeterminate	Indeterminate	Unknown or Code Pending				5
fungi	Agaricomycetes	Agaricaceae	Agaricus					1/1
fungi	Agaricomycetes	Agaricaceae	Calvatia Illacina			C		2/1
fungi	Agaricomycetes	Agaricaceae	Chlorophyllum					1/1
fungi	Agaricomycetes	Agaricaceae	Chlorophyllum molybdites	green-spored parasol		C		1/1
fungi	Agaricomycetes	Agaricaceae	Coprinus truncorum			C		1/1
fungi	Agaricomycetes	Agaricaceae	Lepiola					10/10
fungi	Agaricomycetes	Agaricaceae	Macrolepiota cielandii			C		1/1
fungi	Agaricomycetes	Agaricaceae	Macrolepiota konradii			000		1/1
fungi	Agaricomyceles	Amanitaceae	Amenite			C		3/3
fungi	Agaricomycetes	Amanitaceae	Amanita pyramidifera			C		1/1
fungi	Agaricomycetes	Amanitaceae	Amanita subvaginata			C		1/1
fungi	Agaricomycetes	Amanitaceae	Amenita xenthocephala			0000		1/1
fungi	Agaricomycetes	Aphelariaceae	Aphelaria complanata			C		1/1
fungi	Agaricomycetes	Auriculariaceae	Auricularia					1/1
fungi	Agaricomycetes	Auriculariaceae	Auricularia auricula-judae			C		2/2
fungi	Agaricomycetes	Auriculariaceae	Auricularia cornea			C		1/1
fungi	Agaricomycetes	Auriscalpiaceae	Lentinellus					2/2
fungi	Agaricomycetes	Auriscalpiaceae	Lentinellus ursinus			C		2/2
fungi	Agaricomyceles	Bolbitiaceae	Descolea recedens			C		3/3
fungi	Agaricomycetes	Bolbitiaceae	Setchelliogaster					1/1
fungi	Agaricomycetes	Boletaceae	Boletus					3/3
fungi	Agaricomycetes	Boletaceae	Phylloporus					1/1
fungi	Agaricomycetes	Cantharellaceae	Cantharellus					1/1
fungi	Agaricomycetes	Clavariaceae	Clavana					2/2

Kingdom	Class	Family	Scientific Name	Common Name	Ĩ	Q A	Records
fungi	Agaricomycetes	Clavulinaceae	Clavulina			Ċ	1/1
fungi	Agaricomycetes	Coniophoraceae	Gyrodontium sacchari			000	2/2
fungi	Agaricomycetes	Corticiaceae	Corticium			e	1/1
fungi	Agaricomyceles	Cortinariaceae	Cortinarius				12/12
fungi	Agaricomycetes	Cortinariaceae	Crepidotus nephrodes			G	3/3
fungi	Agaricomycetes	Cortinariaceae	Gymnopilus				1/1
fungi	Agaricomycetes	Crepidotaceae	Crepidotus				12/12
fungi	Agaricomycetes	Crepidotaceae	Crepidotus applanatus			C	1/1
fungi	Agaricomycetes	Entolomataceae	Clitopilus				1/1
fungi	Agaricomycetes	Entolomataceae	Entoloma				9/9
fungi	Agaricomycetes	Entolomataceae	Rhodocybe				1/1
fungi	Agaricomycetes	Fomitopsidaceae	Postie				1/1
fungi	Agaricomycetes	Ganodermataceae	Amauroderma rude			ë	2/2
fungi	Agaricomycetes	Ganodermataceae	Ganoderma australe			000000	1/1
fungi	Agaricomycetes	Geastraceae	Geastrum australe			C	2/2
fungi	Agaricomycetes	Geastraceae	Geastrum pectinatum			õ	2/2
fungi	Agaricomycetes	Gloeophyllaceae	Veluticeps			ĉ	1/1
fungi	Agaricomycetes	Hericiaceae	Hericium corelloides			ĕ	1/1
fungi	Agaricomycetes	Hydnodontaceae	Trechispora			-	13/13
fungi	Agaricomycetes	Hygrophoraceae	Hygrocybe kula			c	2/2
fungi	Agaricomyceles	Hymenochaetaceae	Hymenochaete			8	5/5
fungi	Agaricomycetes	Hymenochaetaceae	Inonotus				2/2
fungi	Agaricomycetes	Hymenochaetaceae	[875] [875] [875] [875] [875] [875]				4/4
fungi	Agaricomycetes	Hyphodermataceae	Hyphoderma setigerum			in .	2/2
fungi	Agaricomycetes	Inocybaceae	Inacybe			č	5/5
fungi	Agaricomycetes	Inocybaceae	Inocybe nobilissima			0	2/2
fungi	Agaricomycetes	Lachnocladiaceae	Scytinostroma				1/1
fungi	Agaricomycetes	Marasmiaceae	Armiliaria novaezelandiae			C	2/2
fungi	Agaricomycetes	Marasmiaceae	Crinipellis				3/3
fungi	Agaricomycetes	Marasmiaceae	Favolaschia calocera		Y		3/3
fungi	Agaricomyceles	Marasmiaceae	Gerroneme		1.5		1/1
fungi	Agaricomycetes	Marasmiaceae	Marasmius				12/12
fungi	Agaricomycetes	Marasmiaceae	Marasmius cohortalis			C	1/1
fungi	Agaricomycetes	Marasmiaceae	Marasmius crinisequi			ĕ	2/2
fungi	Agaricomycetes	Marasmiaceae	Marasmius elegans			0	2/2
fungi	Agaricomycetes	Mycenaceae	Mycena			C	29/29
		Mycenaceae	A STATE OF STATE OF THE STATE O			¢	4/4
fungi fungi	Agaricomycetes Agaricomycetes	Omphalotaceae	Mycena leaiana var. australis Anthracophyllum			8	17.1
fungi fungi	Agaricomycetes	Omphalotaceae	Anthrecophyllum archeri			6	1/1
						C	7/6
fungi fungi	Agaricomyceles	Omphalotaceae Omphalotaceae	Lentinula lateritia Marasmiellus			8	9/9
fungi fungi	Agaricomycetes		Omphalotus nidiformis			8	
fungi	Agaricomycetes	Omphalotaceae				0000	1/1
fungi	Agaricomycetes	Panaeolaceae	Panaeolus antillarum			ğ	1/1 2/2
fungi	Agaricomycetes	Panaeolaceae	Panaeolus bernicis			č	
fungi	Agaricomycetes	Panaeolaceae	Panaeolus sphinctrinus			G	2/2
fungi	Agaricomycetes	Peniophoraceae	Peniophora				1/1

Kingdom	Class	Family	Scientific Name	Common Name	Ï	Q A	Records
fungi	Agaricomycetes	Physalacriaceae	Armiliaria				2/2
fungi	Agaricomycetes	Physalacriaceae	Armillaria hinnulea			6	3/3
fungi	Agaricomycetes	Physalacriaceae	Armillaria luteobubalina			c	1/1
fungi	Agaricomyceles	Physalacriaceae	Oudemansiella exannulata			C	4/4
fungi	Agaricomycetes	Pleurotaceae	Hohenbuehelia				9/9
fungi	Agaricomycetes	Pleurotaceae	Pleurotus				3/3
fungi	Agaricomycetes	Pluteaceae	Chamaeota				1/1
fungi	Agaricomycetes	Pluteaceae	Pluteus				19/19
fungi	Agaricomycetes	Pluteaceae	Pluteus cervinus var. cervinus			c c	1/1
fungi	Agaricomycetes	Pluteaceae	Pluteus nanus			e	1/1
fungi	Agaricomycetes	Polyporaceae	Coriolus			8	1/1
fungi	Agaricomycetes	Polyporaceae	Hexagonia				1/1
fungi	Agaricomycetes	Polyporaceae	Laetiporus sulphureus			c	1/1
fungi	Agaricomyceles	Polyporaceae	Lenzites			8	2/2
fungi	Agaricomycetes	Polyporaceae	Panus				3/3
fungi	Agaricomycetes	Polyporaceae	Polyporus				8/8
fungi	Agaricomycetes	Polyporaceae	Polyporus grammocephalus			C	1/1
fungi	Agaricomycetes	Polyporaceae	Trametes				5/5
fungi	Agaricomycetes	Polyporaceae	Trametes hirsuta			c c	2/2
fungi	Agaricomycetes	Polyporaceae	Trametes versicolor			ē	2/2
fungi	Agaricomycetes	Psathyrellaceae	Lacrymaria			8	1/1
fungi	Agaricomycetes	Psathyrellaceae	Psathyrella				5/5
fungi	Agaricomycetes	Psathyrellaceae	Psathyrella asperospora			C.	1/1
fungi	Agaricomycetes	Russulaceae	Russula			ĕ	1/1
fungi	Agaricomycetes	Russulaceae	Russula erumpens			č	3/3
fungi	Agaricomycetes	Russulaceae	Russula lenkunya			ĕ	2/2
fungi	Agaricomycetes	Russulaceae	Zelleromyces			ĕ	1/1
fungi	Agaricomycetes	Schizophyllaceae	Schizophyllum commune			000000	1/1
	Agaricomycetes	Schizoporaceae	Hyphodontia australis			č	4/4
fungi fungi	Agaricomycetes	Schizoporaceae	Schizopora			15	2/2
	Agaricomycetes	Scierodermataceae	Pisolithus albus			c	1/1
fungi			Aleurodiscus				1/1
fungi fungi	Agaricomycetes	Stereaceae Stereaceae	Stereum hirsutum			ě.	1/1
	Agaricomycetes Agaricomycetes	Stereaceae	Stereum illudens			0000	1/1
fungi						2	2/2
fungi	Agaricomycetes	Stereaceae	Stereum ostrea			č	
fungi	Agaricomycetes	Strophariaceae	Galerina marginata			er e	1/1
fungi	Agaricomycetes	Strophanaceae	Hypholoma			6	2/2
tungi	Agaricomycetes	Strophanaceae	Hypholoma fasciculare			c	1/1
fungi	Agaricomycetes	Strophanaceae	Pholiota				4/4
fungi	Agaricomycetes	Strophanaceae	Pholiota adiposa			C	1/1
fungi	Agaricomyceles	Strophariaceae	Stropharia aurantiaca			0	5/5
fungi	Agaricomycetes	Tricholomataceae	Collybia				8/8
fungi	Agaricomycetes	Tricholomataceae	Conchomyces				1/1
fungi	Agaricomycetes	Tricholomataceae	Conchamyces bursiformis			C	1/1
fungi	Agaricomycetes	Tricholomataceae	Filoboletus manipularis			C	2/2
fungi	Agaricomycetes	Tricholomataceae	Melanoleuca				1/1

Kingdom	Class	Family	Scientific Name	Common Name	I Q	A Records
fungi	Agaricomycetes	Tricholomataceae	Mycena pura		c	2/2
fungi	Agaricomycetes	Tricholomataceae	Panellus stipticus		0	2/2
fungi	Agaricomycetes	Tricholomataceae	Tricholoma			3/3
fungi	Leotiomycetes	Chlorociboriaceae	Chlorociboria aeruginascens		<u>c</u>	1/1
fungi	Leotiomycetes	Helotiaceae	Helotium			1/1
fungi	Pezizomycetes	Pezizaceae	Peziza repanda		C	2/2
fungi	Pezizomycetes	Pyronemataceae	Aleuria			1/1
fungi	Pezizomycetes	Pyronemataceae	Scutellinia			1/1
fungi	Pezizomycetes	Pyronemataceae	Scutellinia scutellata		C	1/1
fungi	Pezizomyceles	Sarcoscyphaceae	Cookeina		1.1	1/1
fungi	arthoniomycetes	Arthoniaceae	Arthonia			3/3
fungi	arthoniomycetes	Arthoniaceae	Cryptothecia scripta		c	1/1
fungi	arthoniomycetes	Chrysothricaceae	Chrysothrix xanthina		Č	1/1
fungi	arthoniomycetes	Opegraphaceae	Cresponea plurilocularis		6	1/1
fungi	lecanoromycetes		Acarospora novae-hollandiae		Ĉ	1/1
fungi	lecanoromycetes	Caliciaceae	Buellia		~	1/1
fungi	lecanoromycetes		Calicium glaucellum		E.	1/1
fungi	lecanoromycetes		Dirinaria applanata		c	1/1
fungi	lecanoromycetes		Dirinaria confluens		ĕ	1/1
fungi	lecanoromycetes		Dirinaria picta		ĕ	1/1
fungi	lecanoromycetes		Pyxine petricola		õ	1/1
fungi	lecanoromycetes		Cladia aggregata		š	1/1
fungi	lecanoromycetes	A CONTRACTOR OF THE PROPERTY O	Cladia muelleri		00000	1/1
fungi	lecanoromycetes		Cladonia cervicornis subsp. verticillata		č	1/1
fungi	lecanoromycetes		Cladonia floerkeana		č	1/1
fungi	lecanoromycetes		Coenogonium		Q	1/1
fungi	lecanoromycetes		Collema			2/2
fungi	lecanoromycetes	The state of the s	Diorygma circumfusum		è	2/2
						2/2
fungi	lecanoromycetes	Graphidaceae	Diorygma pruinosum		0000	3/3
fungi	lecanoromycetes	the state of the s	Graphis virescens		ĕ	1/1
fungi	lecanoromycetes		Sarcographa labyrinthica		Ş	
fungi	lecanoromycetes	Graphidaceae	Thelotrema Haematomma collatum		C	1/1
fungi	lecanoromycetes				ž	
fungi	lecanoromycetes	Lecanoraceae	Lecanora achroa		c	1/1
fungi	lecanoromycetes		Lecidella			1/1
fungi	lecanoromycetes		Crocodia aureta		c	2/2
fungi	lecanoromycetes	Lobariaceae	Pseudocyphellaria haywardiorum		6	1/1
fungi		Megalosporaceae	Megalospora tuberculosa		ç	1/1
fungi	lecanoromycetes		Pannana microphyllizans		C	1/1
fungi	lecanoromycetes		Physma			1/1
fungi	lecanoromycetes		Austroparmetina subarida		Ç	1/1
fungi	lecanoromycetes		Austroparmelina subtiliacea		c	1/1
fungi	lecanoromycetes		Flavoparmelia euplecta		ç	2/2
fungi	lecanoromycetes		Flavoparmelia rutidota		C	2/2
fungi	lecanoromycetes		Hypotrachyna heterochroa		c	1/1
fungi	lecanoromycetes	Parmeliaceae	Notoparmelia cunninghamii		C	1/1

Kingdom	Class	Family	Scientific Name	Common Name	I Q A	Records
fungi	lecanoromycetes	Parmeliaceae	Parmelia			1/1
fungi	lecanoromycetes	Parmeliaceae	Parmotrema austrosinense		c	1/1
fungi	lecanoromycetes	Parmeliaceae	Parmotrema cristiferum		0.0000000000000000000000000000000000000	1/1
fungi	lecanoromycetes	Parmeliaceae	Parmotrema perlatum		C	2/2
fungi		Parmeliaceae	Parmotrema reticulatum		ē	1/1
fungi	lecanoromycetes		Parmotrema tinctorum		C	3/3
fungi			Punctella pseudocoralloidea		c	1/1
fungi	lecanoromycetes	Parmeliaceae	Punctelia subflava		C	1/1
fungi	lecanoromycetes	Parmeliaceae	Usnea angulata		C	1/1
fungi	lecanoromycetes	Parmeliaceae	Usnea baileyi		e	1/1
fungi	lecanoromycetes	Parmeliaceae	Usnea bismolliuscula		Č	1/1
fungi	lecanoromycetes	Parmeliaceae	Usnea dasaea		C	3/3
fungi	lecanoromycetes	Parmeliaceae	Xanthoparmelia australasica		č	1/1
fungi	lecanoromycetes	Parmeliaceae	Xanthoparmelia spargenosa		õ	1/1
fungi	lecanoromycetes	Pertusariaceae	Pertusaria patellifera		č	1/1
fungi		Pertusariaceae	Pertusaria scaberula		õ	5/5
fungi		Physciaceae	Heterodermia japonica		00000	2/2
fungi	lecanoromycetes		Heterodermia leucomela		ē	2/2
fungi	lecanoromycetes	Physciaceae	Heterodermia obscurata		ă	1/1
fungi	lecanoromycetes	Physciaceae	Hyperphyscia		Ħ	1/1
fungi	lecanoromycetes	Physciaceae	Hyperphyscia pandani		e	1/1
fungi	lecanoromycetes	Physciaceae	Physcia jackii		ĕ	2/2
fungi	lecanoromycetes		Physicia undulata		6 6	1/1
fungi	lecanoromycetes		Micarea		9	1/1
fungi	lecanoromycetes	Porinaceae	Porina			1/1
fungi	The second of th	Porinaceae	Porina internigrans		c	1/1
fungi	TO SECURE OF THE PROPERTY OF T	Ramalinaceae	Bacidia		H	2/2
fungi	lecanoromycetes	Ramalinaceae	Ramalina			3/3
	lecanoromycetes	Ramalinaceae	Ramalina celestri			1/1
fungi fungi	lecanoromycetes	Ramalinaceae	Ramalina celastri subsp. celastri		6	1/1
fungi fungi		Ramalinaceae	Ramalina inflata subsp. perpusilla		ĕ	1/1
fungi fungi	lecanoromycetes				č	1/1
fungi fungi	lecanoromycetes lecanoromycetes	Ramalinaceae Teloschistaceae	Ramalina peruviana Caloplaca norfolkensis		000	1/1
	A DATE OF THE PROPERTY OF THE	Teloschistaceae	Caloplaca rextilisonii		č	1/1
fungi	Committee of the commit	The second secon			č	
fungi	lecanoromycetes	Teleschistaceae	Teleschistes flavicans		C C	3/3 2/2
fungi	lecanoromycetes	Teloschistaceae	Teloschistes sieberianus		ĭ	
fungi	lecanoromycetes	Teloschistaceae	Teloschistes xanthoroides		č	1/1 2/2
tungi	lecanoromycetes	Tephromelataceae	Tephromeia atra		C	
fungi	sordariomycetes	Cordycipitaceae	Cordyceps		ž.	2/2
fungi	sordariomyceles	Cordycipitaceae	Cordyceps hewkesii		C	1/1
fungi	sordariomycetes	Nectriaceae	Nectria pseudotrichia		<u>e</u>	2/2
fungi	sordariomycetes	Xylariaceae	Biscogniauxia			7/7
fungi	sordariomycetes	Xylariaceae	Daldinia eschscholzii		c	3/3
fungi	sordariomycetes	Xylariaceae	Hypoxylan		Č	6/6
fungi	sordariomycetes	Xylariaceae	Hypoxylon rubiginosum var rubiginosum		C	3/3
fungi	uncertain	Incertae sedis Fungi	Chlorospienium			1/1

Kingdom	Class	Family	Scientific Name	Common Name	Ï	Q	Α	Records
plants	land plants	Acanthaceae	Brunoniella australis	blue trumpet		C		1/1
plants	land plants	Acanthaceae	Pseuderanthemum variabile	pastel flower		c		5/5
plants	land plants	Acanthaceae	Rostellularia adscendens			C		5/4
plants	land plants	Agavaceae	Agave americana	5-645-1-65-0-743-0-0-0-5-5-0-0-1	Y			1
plants	land plants	Aizoaceae	Tetragonia tetragonoides:	New Zealand spinach		C		1/1
plants	land plants	Amaranthaceae	Alternanthera denticulata	lesser joyweed		C		1/1
plants	land plants	Amaranthaceae	Alternanthera nana	hairy joyweed		C		2/2
plants	land plants	Amaranthaceae	Alternanthera pungens	khaki weed	Y	-		1/1
plants	land plants	Amaranthaceae	Deeringia amaranthoides	redberry		C		2/2
plants	land plants	Amaranthaceae	Gomphrena celosioides	gomphrena weed	Y	122		1/1
plants	land plants	Amaranthaceae	Nyssanthes diffusa	barbed-wire weed		C		3/2
plants	land plants	Amaranthaceae	Nyssanthes erecta					5/4
plants	land plants	Anacardiaceae	Rhodosphaera rhodanthema	tulip satinwood		ē		1/1
plants	land plants	Annonaceae	Melodorum leichhardtii	Month of the Manager		0000		1
plants	land plants	Apiaceae	Apium prostratum var. prostratum			Ö		1/1
plants	land plants	Apiaceae	Berula erecta	water parsnip	Y	~		1/1
plants	land plants	Apiaceae	Cyclospermum leptophyllum	mater paramp	Y			1/1
plants	land plants	Apiaceae	Daucus glochidiatus	Australian carrot	12	c		3/3
plants	land plants	Aplaceae	Platysace ericoides	heath platysace		0000		1/1
plants	land plants		Alstonia constricta	bitterbark		ĕ		4/4
		Apocynaceae	The state of the s	Ditterban		ĕ		8/6
plants	land plants	Apocynaceae	Alyxia ruscifolia	white moth vine	Y	0		1/1
plants	land plants	Apocynaceae	Araujia sericifera	St. 20 St.		ě		
plants	land plants	Apocynaceae	Carissa ovata	currantbush		C		6/2
plants	land plants	Apocynaceae	Cynanchum viminale subsp. brunonianum	74.04	Y	C		1/1
plants	land plants	Apocynaceae	Gomphocarpus physocarpus	balloon cottonbush	- X	22		1/1
plants	land plants	Apocynaceae	Gymnema pleiadenium			C		2/2
plants	land plants	Apocynaceae	Leichhardtia lloydii			U		1/1
plants	land plants	Apocynaceae	Leichhardtia micradenia			C		1/1
plants	land plants	Apocynaceae	Leichhardtia viridiflora subsp. viridiflora	Standard Windows Prob		C		1/1
plants	land plants	Apocynaceae	Parsonsia eucalyptophylla	gargaloo		c		1/1
plants	land plants	Apocynaceae	Parsonsia lanceolata	northern silkpod		C		2/2
plants	land plants	Apocynaceae	Parsonsia lilacina	crisped silkpod		C		1/1
plants	land plants	Apocynaceae	Parsonsia longipetiolata			0		2/2
plants	land plants	Apocynaceae	Secamone elliptica			C		1/1
plants	land plants	Apocynaceae	Vincetoxicum grandiflorum			000000000		1/1
plants	land plants	Аросупасеае	Vincetoxicum ovatum			C		1/1
plants	land plants	Apocynaceae	Vincetoxicum paniculatum			C		1/1
plants	land plants	Araceae	Landoltia punctata			C		1/1
plants	land plants	Araliaceae	Astrotricha biddulphiana			C		2/1
plants	land plants	Araliaceae	Hydrocotyle acutiloba			0		1/1
plants	land plants	Araliaceae	Hydrocotyle laxiflora	stinking pennywort		0000000		4/4
plants	land plants	Araliaceae	Hydrocotyle peduncularis			C		2/2
plants	land plants	Araliaceae	Polyscias elegans	celery wood		č		1/1
plants	land plants	Araliaceae	Trachymene incisa subsp. incisa	Medial A. Mana		ĕ		1/1
plants	land plants	Araucariaceae	Areucaria cunninghamii	hoop pine		č		1
plants	land plants				Y	-		17
Maints:	land hights	Asparagaceae	Asparagus africanus	ornamental asparagus	7,0			1.0

Kingdom	Class	Family	Scientific Name	Common Name	Ţ_	Q	Α	Records
plants	land plants	Asphodelaceae	Aloe maculata		Y			ä
plants	land plants	Asphodelaceae	Bulbine alata	native leek		C		1/1
plants	land plants	Asphodelaceae	Bulbine bulbosa	golden lily		Ċ		2/2
plants	land plants	Aspleniaceae	Asplenium australasicum			ô		1/1
plants	land plants	Aspleniaceae	Aspienium flabellifolium	necklace fern		ē		1/1
plants	land plants	Aspleniaceae	Asplenium flaccidum subsp. flaccidum	The state of the s		00000		1/1
plants	land plants	Aspleniaceae	Asplenium polyodon	mare's tail fern		õ		1/1
plants	land plants	Aspleniaceae	Asplenium subglandulosum subsp. subglandulosum	11100.9.5.3001.2011		č		1/1
plants	land plants	Asteraceae	Acanthospermum hispidum	star burr	Y	~		1/1
plants	land plants	Asteraceae	Apowollastonia spilanthoides	SSST	107	C		1/1
plants	land plants	Asteraceae	Brachyscome basaltica			č		1/1
plants	land plants	Asteraceae	Brachyscome microcarpa supsp microcarpa					3/3
plants	land plants	Asteraceae	Brachyscome multifida			000000		1
plants	land plants	Asteraceae	Calotis cuneata			õ		1/1
plants	land plants	Asteraceae	Calotis dentex	white burr daisy		ĕ		3/3
plants	land plants	Asteraceae	Calotis lappulacea	yellow burr daisy		č		2/2
plants	land plants		Camptacra barbata	yellow bull daisy		ĕ		1/1
		Asteraceae	Carduus thoermen	andding thickle	V	2		2/2
plants	land plants	Asteraceae		nodding thistle	Y			
plants	land plants	Asteraceae	Carthamus lanatus	saffron thistle	1.5	ö		1/1
plants	land plants	Asteraceae	Cassinia laevis subsp. rosmarinifolia			C		
plants	land plants	Asteraceae	Cassinia quinquefaria	V. (120) E. (1122)		c		1/1
plants	land plants	Asteraceae	Chrysocephalum apiculatum	yellow buttons	320	G		3/2
piants	land plants	Asteraceae	Cirsium vulgare	spear thistle	Y			1/1
plants	land plants	Asteraceae	Coreopsis lanceolata		4	Č		1/1
plants	land plants	Asteraceae	Cyanthillium cinereum		220	C.		3/1
plants	land plants	Asteraceae	Engeron bonariensis		Y			1/1
plants	land plants	Asteraceae	Engeron pusillus		4	2		1/1
plants	land plants	Asteraceae	Euchiton japonicus			C		2/2
plants	land plants	Asteraceae	Euchiton sphaericus	10/15/4/2018/10/55/6/	***	C		1/1
plants	land plants	Asteraceae	Galinsoga parvillora	yellow weed	Y	_		1/1
plants	land plants	Asteraceae	Glossocardia bidens	native cobbler's pegs		C		4/4
plants	land plants	Asteraceae	Gynura drymophila var. drymophila		220	C		1/1
plants	land plants	Asteraceae	Hypochaeris albifiora		Y	h14	1-141	1/1
plants	land plants	Asteraceae	Leuzea australis			V	V	1/1
plants	land plants	Asteraceae	Olearia canescens subsp. discolor	attendanted except extrema		C		2/2
plants	land plants	Asteraceae	Ozothamnus bidwillii	climbing daisy		c		1/1
plants	land plants	Asteraceae	Ozothamnus cassinioides					1/1
plants	land plants	Asteraceae	Peripleura hispidula			C		1
plants	land plants	Asteraceae	Picris angustifolia subsp. carolorum-henricorum	NAMES AN ADDRESS OF A STATE OF A		C		2/2
plants	land plants	Asteraceae	Podolepis arachnoidea	clustered copper-wire daisy		C		2/2
plants	land plants	Asteraceae	Podolepis neglecta			C		17.1
plants	land plants	Asteraceae	Pterocaulon redolens	L. Corporation of the Control of the		C		1/1
plants	land plants	Asteraceae	Rhodanthe anthemoides	white paper daisy		C		3/3
plants	land plants	Asteraceae	Schkuhria pinnata	and the second s	Y	545		2/2
plants	land plants	Asteraceae	Senecio diaschides			C		2/2
plants	land plants	Asteraceae	Senecio esleri			C		1/1

Kingdom	Class	Family	Scientific Name	Common Name	Ī	Q	Α	Records
plants	land plants	Asteraceae	Senecio quadridentatus	cotton fireweed		C		1/1
	land plants	Asteraceae	Sigesbeckia orientalis	Indian weed		000		3/3
plants	land plants	Asteraceae	Solenogyne belliaides			c		1/1
	land plants	Asteraceae	Sanchus aleraceus	common sowthistle	Y	255		1/1
	land plants	Asteraceae	Sphaeromorphaea australis			C		3/1
	land plants	Asteraceae	Vittadinia dissecta var. hirta			C		1/1
	land plants	Asteraceae	Vittadinia pustulata			C		1/1
	land plants	Asteraceae	Vittadinia sulcata	native daisy		00000		2/2
	land plants	Asteraceae	Vittedinia tenuissima	western New Holland daisy		C		1/1
	land plants	Asteraceae	Xerochrysum bracteatum	golden everlasting daisy		c		1/1
	land plants	Asteraceae	Xerochrysum viscosum			C		1/1
	land plants	Asteraceae	Zinnia peruviana	wild zinnia	Y			7/7
	land plants	Bignoniaceae	Dalichandra unguis-cati	cat's claw creeper	Y			5
	land plants	Bignoniaceae	Pandorea pandorana	wonga vine		C		3/2
	land plants	Blechnaceae	Blechnum neohollandicum	3177273337		C		2/2
	land plants	Boraginaceae	Cynoglossum australe			č		1/1
	land plants	Boraginaceae	Heliotropium amplexicaule	blue heliotrope	Y	~		2/2
	land plants	Brassicaceae	Lepidium africanum	common peppercress	Y			3/3
	land plants	Brassicaceae	Raphanus raphanistrum	wild radish	Y			1/1
	land plants	Brassicaceae	Rapistrum rugosum	LITTER ASSESSED.	Y			1/1
plants	land plants	Brassicaceae	Rorippa dietrichiana			C		1/1
	land plants	Brassicaceae	Rorippa nasturtium-aquaticum	watercress	Y	~		2/2
	land plants	Brassicaceae	Sisymbrium orientale	Indian hedge mustard				1/1
	land plants	Brassicaceae	Sisymbrium thellungii	African turnip-weed	Y			1/1
	land plants	Bryaceae	Bryum argenteum	rinical tamp noou	127	C		1/1
	land plants	Bryaceae	Imbribryum clavatum			č		1/1
	land plants	Byttneriaceae	Seringia corollata			č		3/3
	land plants	Caclaceae	Harrisia pomanensis		Y	Œ		2/2
	land plants	Cactaceae	Opuntia					
	land plants	Cactaceae	Opuntia stricta		Y			38 2
The Control of the Control	land plants	Cactaceae	Opuntia tomentosa	velvety tree pear	Y			19
	land plants	Campanulaceae	Lobelia purpurascens	white root	68	SL		1/1
	land plants	Campanulaceae	Wahlenbergia	White Took		(J)L		2/1
	land plants	Campanulaceae	Wahlenbergia capillaris			SL		2/2
	land plants	Campanulaceae	Wahlenbergia gracilis	sprawling bluebell		SL		1/1
	land plants	Campanulaceae	Wahlenbergia graniticola	granite bluebell		SL		1/1
plants	land plants	Capparaceae	Capparis Ioranthifolia	ground alderen		c		4
	land plants	Capparaceae	Capparis mitchellii			č		î
plants	land plants	Capparaceae	Capparis sarmentosa	scrambling caper		ĕ		3/2
	land plants	Caryophyllaceae	Paronychia brasiliana	Brazilian whitlow	Y			1/1
	land plants	Caryophyllaceae	Petrorhagia dubia	Diazinan window	· ·			1/1
	land plants	Caryophyllaceae	Petrorhagia nanteuilii	proliferous pink	Y			1/1
	land plants	Caryophyllaceae	Polycarpon tetraphyllum	promotous pinn.	V			2/2
	land plants	Caryophyllaceae	Stellaria angustifolia subsp. angustifolia		1.5	65		1/1
	land plants	Caryophyllaceae	Stellaria media	chickweed	Y	C		2/2
	land plants	Casuarinaceae	Allocasuarina inophloia	LINDRINGEO:	11-	C		9

Kingdom	Class	Family	Scientific Name	Common Name	Ţ.	Q	Α	Records
plants	land plants	Casuarinaceae	Allocasuarina littoralis			C		1/1
plants	land plants	Casuarinaceae	Allocasuarina luehmannii	bull oak		00000000		4/3
plants	land plants	Casuarinaceae	Casuarina cristata	belah		C		3/1
plants	land plants	Casuarinaceae	Casuarina cunninghamiana subsp. cunninghamiana	New York Control of the Control of t		C		1/1
plants	land plants	Celastraceae	Celastrus australis	staff climber		C		1/1
plants	land plants	Celastraceae	Celastrus subspicata	large-leaved staffvine		C		2/1
plants	land plants	Celastraceae	Denhamia bilocularis	LOGIC COLUMN TO THE COLUMN TO		C		9/8
plants	land plants	Celastraceae	Denhamia disperma			C		3/3
plants	land plants	Celastraceae	Denhamia parvifolia			٧	V	12/11
plants	land plants	Celastraceae	Denhamia silvestris			c		1/1
plants	land plants	Celastraceae	Elaeodendron australe var. integrifolium			C		4/4
plants	land plants	Celastraceae	Siphonodon australis	ivorywood		C		1
plants	land plants	Chenopodiaceae	Dysphania ambrosioides		Y			2/2
plants	land plants	Chenopodiaceae	Dysphania carinata			C		2/2
plants	land plants	Chenopodiaceae	Einadia hastata			C		17.1
plants	land plants	Chenopodiaceae	Einadia nutans			C		1
plants	land plants	Chenopodiaceae	Enchylaena tomentosa var. glabra			000000000000		1/1
plants	land plants	Chenopodiaceae	Maireana microphylla			C		1/1
plants	land plants	Chenopodiaceae	Salsola australis			C		1/1
plants	land plants	Chenopodiaceae	Scierolaena birchii	galvanised burr		c		1/1
plants	land plants	Commelinaceae	Commelina diffusa			Ĉ		4/4
plants	land plants	Commelinaceae	Murdannia graminea	murdannia		C		6/5
plants	land plants	Convolvulaceae	Convolvulus angustissimus subsp. angustissimus	1478 1111.2 2474-400		C		1/1
plants	land plants	Convolvulaceae	Convolvulus erubescens	Australian bindweed		C		1/1
plants	land plants	Convolvulaceae	Dichondra repens	kidney weed		C		1/1
plants	land plants	Convolvulaceae	Dichondra sp. (Inglewood J.M.Dalby 86/93)	10		C		1/1
plants	land plants	Convolvulaceae	Evolvulus alsinoides			C		2
plants	land plants	Convolvulaceae	Evolvulus alsinoides var. decumbens			C		2/2
plants	land plants	Convolvulaceae	Ipomoea lonchophylla			C		1/1
plants	land plants	Crassulaceae	Bryophyllum delagoense		Y			3
plants	land plants	Crassulaceae	Bryophyllum x houghtonii		Y			1
plants	land plants	Cucurbitaceae	Sicyos australis	star cucumber	th	C		17.1
plants	land plants	Cupressaceae	Callitris baileyi	Bailey's cypress		NT		10/8
plants	land plants	Cupressaceae	Callitris columellaris	THE COLUMN TO THE COLUMN TWO IS NOT THE COLU		C		1/1
plants	land plants	Cupressaceae	Callitris endlicheri	black cypress pine		C		1/1
plants	land plants	Cyperaceae	Abildgaardia oxystachya	350		c		1/1
plants	land plants	Cyperaceae	Bolboschoenus fluviatilis			C		2/2
plants	land plants	Cyperaceae	Carex appressa			C		1/1
plants	land plants	Cyperaceae	Carex declinata			C		4/4
plants	land plants	Cyperaceae	Carex gaudichaudiana			C		1/1
plants	land plants	Cyperaceae	Carex inversa	knob sedge		C		3/3
plants	land plants	Cyperaceae	Cyperus bowmanni	M-1/5845-555		C		1/1
plants	land plants	Cyperaceae	Cyperus clarus			000>		1/1
plants	land plants	Cyperaceae	Cyperus concinnus			Ĉ		1/1
plants	land plants	Cyperaceae	Cyperus curvistylis			C		1/1
plants	land plants	Cyperaceae	Cyperus dietrichiae var. brevibracteatus			C		1/1

Kingdom	Class	Family	Scientific Name	Common Name	Ţ.	Q	Α	Records
plants	land plants	Cyperaceae	Cyperus dietrichiae var. dietrichiae			С		1/1
plants	land plants	Cyperaceae	Cyperus fulvus			000		6/6
piants	land plants	Cyperaceae	Cyperus gracilis			C		3/3
plants	land plants	Cyperaceae	Cyperus involucratus		Y			1/1
plants	land plants	Cyperaceae	Cyperus mirus			C		1/1
plants	land plants	Cyperaceae	Cyperus sanguinolentus			C		1/1
plants	land plants	Cyperaceae	Cyperus squerrosus	bearded flatsedge		000000000		1/1
plants	land plants	Cyperaceae	Cyperus vaginatus			C		2/2
plants	land plants	Cyperaceae	Eleocharis cylindrostachys			C		2/2
plants	land plants	Cyperaceae	Eleocharis dietrichiana			C		1/1
plants	land plants	Cyperaceae	Fimbristylis aestivalis			C		1/1
plants	land plants	Cyperaceae	Fimbristylis dichotoma	common fringe-rush		C		6/5
plants	land plants	Cyperaceae	Fimbristylis tristachya			c		1/1
plants	land plants	Cyperaceae	Gahnia aspera			C		2/1
plants	land plants	Cyperaceae	Lepidosperma laterale			C		2/1
plants	land plants	Cyperaceae	Schoenoplectus tabernaemontani			C		2/2
plants	land plants	Cyperaceae	Schoenus kennyi			Ĉ		1
plants	land plants	Cyperaceae	Scleria mackeviensis			ē		2/2
plants	land plants	Cyperaceae	Scieria sphacelata			č		1
plants	land plants	Dilleniaceae	Hibbertia linearis var. obtusifolia			ĕ		1/1
plants	land plants	Dilleniaceae	Hibbertia patens			õ		1/1
plants	land plants	Dilleniaceae	Hibbertia stricta			ã		2
plants	land plants	Ditrichaceae	Ceratodon purpureus			0000000000		1/1
plants	land plants	Droseraceae	Drosera lunata			ŠL		1/1
plants	land plants	Dryopteridaceae	Lastreopsis decomposita	trim shield fern		SL		1/1
plants	land plants	Dryopteridaceae	Parapolystichum microsorum	HILO CHISTO TOTAL		21		1/1
plants	land plants	Ebenaceae	Diospyros geminata	scaly ebony		6		2/2
plants	land plants	Ebenaceae	Diospyros humilis	small-leaved ebony		ĕ		1/1
plants	land plants	Elaeocarpaceae	Eleeocarpus obovatus subsp. obovatus	Small leaved coomy		ĕ		2/2
plants	land plants	Entodontaceae	Entodon mackaviensis			ĕ		1/1
plants	land plants	Ericaceae	Brachyloma daphnoides subsp. daphnoides			ĕ		1/1
plants	land plants	Ericaceae	Lissanthe pluriloculate			č		1
plants	land plants	Ericaceae	Melichrus urceolatus	honey gorse		20000000000000		2/2
		Ericaceae	A Martin Control of Co	noney gorse		ž		1
plants	land plants		Styphelia biflora			2		1/1
plants	land plants	Ericaceae	Styphelia trichostyla	eserino tros		9		1/1
plants	land plants	Erythroxylaceae	Erythroxylum australe	cocaine tree		7		200
plants	land plants	Erythroxylaceae	Erythroxylum sp. (Splityard Creek L Pedley 5360)	amolt language analysis		Š		3/3
plants	land plants	Euphorbiaceae	Acalypha capillipes	small-leaved acalypha				17.1
plants	land plants	Euphorbiaceae	Acalypha eremorum	soft acalypha		č		1/1
plants	land plants	Euphorbiaceae	Alchomea ilicifolia	native holly		000		[8]
plants	land plants	Euphorbiaceae	Claoxylon australe	brittlewood				1/1
plants	land plants	Euphorbiaceae	Croton acronychioides	thick-leaved croton		ç		2/1
plants	land plants	Euphorblaceae	Croton insularis	Queensland cascarilla		000		8/6
plants	land plants	Euphorbiaceae	Croton phebalioides	narrow-leaved croton		C		3/3
plants	land plants	Euphorbiaceae	Euphorbia dallachyana		220	C		1/1
plants	land plants	Euphorbiaceae	Euphorbia davidii		Υ			2/2

Kingdom	Class	Family	Scientific Name	Common Name		Q	Α	Records
plants	land plants	Euphorbiaceae	Euphorbia drummondii			C		1/1
plants	land plants	Euphorbiaceae	Euphorbia hirta		Y	_		1/1
plants	land plants	Euphorbiaceae	Excoecana dallachyana	scrub poison tree		C		3/3
plants	land plants	Euphorbiaceae	Homalanthus populifolius	e-Rostream Marchael All Dated		c		1/1
plants	land plants	Euphorbiaceae	Mallotus philippensis	red kamala		C		1/1
plants	land plants	Euphorbiaceae	Manihot grahamii	14.24 2-2.11/2-12-2.20/2-11	Y			1/1
plants	land plants	Fabroniaceae	Febronia australis			C		1/1
plants	land plants	Frullaniaceae	Frullania monocera var. subhampeana			C		1/1
plants	land plants	Gentianaceae	Centaurium					1/1
plants	land plants	Gentianaceae	Centaurium tenuiflorum		Y			1/1
plants	land plants	Geraniaceae	Geranium solanderi var. solanderi	native geranium		C		3/3
plants	land plants	Goodeniaceae	Dampiera adpressa	Ē.		C		1/1
plants	land plants	Goodeniaceae	Goodenia			~		2
plants	land plants	Goodeniaceae	Goodenia delicata			C		4/3
plants	land plants	Goodeniaceae	Goodenia glabra			č		2/2
plants	land plants	Goodeniaceae	Goodenia grandiflora			ĕ		2/2
plants	land plants	Goodeniaceae	Goodenia paniculata			ĕ		1/1
plants	land plants	Goodeniaceae	Goodenia paradoxa			000000		3/3
plants	land plants	Goodeniaceae	Goodenia rosulata			ĕ		1/1
plants	land plants	Goodeniaceae	Goodenia rotundifolia			ĕ		1
plants	land plants	Grimmiaceae	#1.54.54.45.74 H.D. (19.10.15.16.71 P.O.) & S.O. (19.10.15.			ĕ		1/1
plants	land plants	Haloragaceae	Grimmia laevigata Gonocarpus			8		1/1
		Thought in the engine in the party of the				V	V	4/4
plants	land plants	Haloragaceae	Haloragis exalata subsp. velutina	shoot samurand				
plants	land plants	Haloragaceae	Haloragis heterophylla	rough raspweed		Č		2/2 1/1
plants	land plants	Haloragaceae	Myriophyllum crispatum			8		12.1
plants	land plants	Hemerocallidaceae	Dianella brevipedunculata			ğ		
plants	land plants	Hemerocallidaceae	Dianella caerulea var. assera			0		1/1
plants	land plants	Hemerocallidaceae	Dianella longifolia			9		1
plants	land plants	Hemerocallidaceae	Dianella longifolia var. stenophylla			g		1/1
plants	land plants	Hemerocallidaceae	Dianella longifolia var. stupata			8		1/1
plants	land plants	Hemerocallidaceae	Dianella revoluta	5022E VOC		Ğ		3
plants	land plants	Hemerocallidaceae	Geitorioplesium cymosum	scrambling lily		0000000000		3/3
plants	land plants	Hypericaceae	Hypericum gramineum			8		3/3
plants	land plants	Hypopterygiaceae	Hypopterygium tamarisci			C		1/1
plants	land plants	Hypoxidaceae	Hypoxis pratensis var. tuberculata			0		1/1
plants	land plants	Johnsoniaceae	Caesia parvifiora			C		2/2
plants	land plants	Johnsoniaceae	Caesia parviflora var. vittata	5 9 2				1/1
plants	land plants	Johnsoniaceae	Tricoryne elatior	yellow autumn lily		C		2/1
plants	land plants	Juncaceae	Juncus aridicola	tussock rush		C		1/1
plants	land plants	Juncaceae	Juncus polyanthemus			000000		1/1
plants	land plants	Juncaceae	Juncus prismatocarpus	branching rush		C		2/2
plants	land plants	Juncaceae	Juncus subsecundus			C		17.1
plants	land plants	Juncaceae	Juncus usitatus			C		4/3
plants	land plants	Juncaceae	Juncus vaginatus			C		1/1
plants	land plants	Juncaceae	Luzula flaccida	Control for the second to the second				1/1
plants	land plants	Lamiaceae	Ajuga australis	Australian bugle		C		1/1

Kingdom	Class	Family	Scientific Name	Common Name	Ī	Q	Α	Records
plants	land plants	Lamiaceae	Clerodendrum tomentosum			C		1/1
plants	land plants	Lamiaceae	Coleus australis			00000000		5/5
plants	land plants	Lamiaceae	Coleus graveolens			C		2/2
plants	land plants	Lamiaceae	Mentha satureioides	native pennyroyal		C		5/5
plants	land plants	Lamiaceae	Prostanthera cryptandroides subsp. euphrasioides	HATTICES STORY OF THE		C		2/2
plants	land plants	Lamiaceae	Scufellaria humilis	dwarf skullcap		C		1/1
plants	land plants	Lamiaceae	Teucrium argutum	Secretary Mean Seeks		C		3/3
plants	land plants	Lamiaceae	Teucrium junceum			C		3/2
plants	land plants	Lamiaceae	Vitex lignum-vitae			C		2/2
plants	land plants	Lauraceae	Cinnamomum camphora	camphor laurel	Y	122		1/1
plants	land plants	Lauraceae	Cryptocarya bidwillii	yellow laurel	125	C		1/1
plants	land plants	Lauraceae	Cryptocarya floydii	gorge laurel		NT		1/1
plants	land plants	Lauraceae	Lifsea reticulata	3-13-1-1-1		C		1/1
plants	land plants	Lauracese	Neolitsea australiensis	green bolly gum		c		2/2
plants	land plants	Laxmanniaceae	Eustrephus latifolius	wombat berry		C		2/1
plants	land plants	Laxmanniaceae	Laxmannia gracilis	slender wire lily		č		6/3
plants	land plants	Laxmanniaceae	Lomandra filiformis	SECTION OF THE PROPERTY OF THE		Ĉ		3
plants	land plants	Laxmanniaceae	Lomandra filiformis subsp. coriacea			ĕ		1/1
plants	land plants	Laxmanniaceae	Lornandra laxa	broad-leaved matrush		č		1/1
plants	land plants	Laxmanniaceae	Lomandra leucocephala subsp. leucocephala	and a series of the series of		ĕ		1/1
plants	land plants	Laxmanniaceae	Lomandra longifolia			99999999		3/1
plants	land plants	Laxmanniaceae	Lomandra multiflora subsp. multiflora			č		2
plants	land plants	Leguminosae	Acacia					3/1 2 2
plants	land plants	Leguminosae	Acacia bancroftiorum			875		2/2
plants	land plants	Leguminosae	Acacia blakei subsp. blakei			č		2/2
plants	land plants	Leguminosae	Acacia buxifolia subsp. pubiflora			ĕ		1/1
plants	land plants	Leguminosae	Acacia caroleae			ĕ		1/1
plants	land plants	Leguminosae	Acacia complanata	flatstem wattle		ĕ		2
plants	land plants	Leguminosae	Acacia conferta	nation water		č		1/1
plants	land plants	Leguminosae	Acacia crassa subsp. crassa			ĕ		4
plants	land plants	Leguminosae	Acacia disparrima subsp. disparrima			ĕ		1/1
plants	land plants	Leguminosae	Acacia excelsa			č		1
plants	land plants	Leguminosae	Acacia glaucocarpa	hickory wattle		č		2/2
plants	land plants	Leguminosae	Acacia harpophylia	brigalow		ž		1/1
	land plants			lightwood		00000000000000		2/2
plants plants	land plants	Leguminosae	Acacia implexa Acacia irrorata subsp. irrorata	iiginwood		8		2/2
SEC. 20. 20. 20. 20. 20. 20. 20. 20. 20. 20		Leguminosae				ĕ		3/1
plants plants	land plants	Leguminosae	Acacia leichhardtii Acacia leiocalyx			č		4
	land plants	Leguminosae						4/4
plants	land plants	Leguminosae	Acacia leiocalyx subsp. leiocalyx			c		
plants	land plants	Leguminosae	Acacia leucociada subsp. argentifolia			00000		1/1
plants	land plants	Leguminosae	Acecia longispicata	Ma Ma Crack wells		0		1
plants	land plants	Leguminosae	Acacia loroloba	Ma Ma Creek wattle		2		3/2
plants	land plants	Leguminosae	Acacia maidenii	Maiden's wattle		5		1/1
plants	land plants	Leguminosae	Acacia melvillei					1/1
plants	land plants	Leguminosae	Acacia muelleriana			c		4/4
plants	land plants	Leguminosae	Acacia neriffolia	pechey wattle		C		1

Kingdom	Class	Family	Scientific Name	Common Name		Q	Α	Records
plants	land plants	Leguminosae	Acacia penninervis var. penninervis			C		3/1
plants	land plants	Leguminosae	Acacia pustula			000		3/3
plants	land plants	Leguminosae	Acacia salicina	doolan		C		2/1
plants	land plants	Leguminosae	Acacia tingoorensis					10/10
plants	land plants	Leguminosae	Aeschynomene brevifolia			C		1/1
plants	land plants	Leguminosae	Bossiaea scortechinii			C		1/1
plants	land plants	Leguminosae	Chamaecrista rotundifolia var. rotundifolia		Υ-	200		1/1
plants	land plants	Leguminosae	Chorizema parviflorum	eastern flame pea		C		2/2
plants	land plants	Leguminosae	Crotalaria incana subsp. Incana	9.	Y			1/1
plants	land plants	Leguminosae	Crotalana juncea	sunhemp	Y			1/1
plants	land plants	Leguminosae	Crotalaria mitchellii subsp. laevis	ACCUMANTA SALAR		C		1/1
plants	land plants	Leguminosae	Daviesia wyattiana	long-leaved bitter pea				1/1
plants	land plants	Leguminosae	Desmodium brachypodum	large ticktrefoil		000		5/5
plants	land plants	Leguminosae	Desmodium macrocarpum			Ĉ		1/1
plants	land plants	Leguminosae	Desmodium rhytidophyllum					3/2
plants	land plants	Leguminosae	Desmodium varians	slender tick trefoil		č		2/1
plants	land plants	Leguminosae	Dillwynia sieberi			99999999		1
plants	land plants	Leguminosae	Erythrina numerosa			ĕ		1/1
plants	land plants	Leguminosae	Erythrina vespertilio			ĕ		1/1
plants	land plants	Leguminosae	Erythrina vespertilio subsp. vespertilio			ĕ		1/1
plants	land plants	Leguminosae	Galactia tenuifiora var lucida			õ		1/1
plants	land plants	Leguminosae	Gleditsia triacanthos	honey locust	Υ	~		1/1
plants	land plants		Glycine	fibiley locusi				3/2
	land plants	Leguminosae	Glycine clandestina			200		1/1
plants		Leguminosae	Glycine clandestina var. sericea			č		1/1
plants	land plants	Leguminosae				8		
plants	land plants	Leguminosae	Glycine latifolia			Ħ		1/1
plants	land plants	Leguminosae	Glycine stenophita	advetter man		20		
plants	land plants	Leguminosae	Glycine tabacina	glycine pea		9		4/3
plants	land plants	Leguminosae	Glycine tomentella	woolly glycine		5		1/1
plants	land plants	Leguminosae	Gompholobium faliolosum	fern-leaved burtonia		8		1/1
plants	land plants	Leguminosae	Hardenbergia violacea			Ğ		2/1
plants	land plants	Leguminosae	Hovea lanceolata			000000000000000		1
plants	land plants	Leguminosae	Hovea larata			8		2/1
plants	land plants	Leguminosae	Hovea parvicalyx			C		2/2
plants	land plants	Leguminosae	Indigofera australis subsp. australis			C		1/1
plants	land plants	Leguminosae	Indigofera baileyi			e.		1/1
plants	land plants	Leguminosae	Indigofera brevidens			C		1/1
plants	land plants	Leguminosae	Jacksonia scoparia	estend (notati i instanti no sen		100		5/3
plants	land plants	Leguminosae	Lespedeza juncea subsp. sericea	perennial lespedeza		C		1/1
plants	land plants	Leguminosae	Meillatus indicus	hexham scent	Y			1/1
plants	land plants	Leguminosae	Mirbelia autoides			C		1/1
plants	land plants	Leguminosae	Mirbelia pungens			C		1/1
plants	land plants	Leguminosae	Mirbella speciosa subsp. ringrosei			C		2/1
plants	land plants	Leguminosae	Neptunia gracilis			C		1/1
plants	land plants	Leguminosae	Pultensea bracteaminor			C		1/1
plants	land plants	Leguminosae	Pultenaea cunninghamii	prickly pea		C		1/1

Kingdom	Class	Family	Scientific Name	Common Name	Ţ_	Q	Α	Records
plants	land plants	Leguminosae	Pultensea petiolaris			C		1/1
plants	land plants	Leguminosae	Pultenaea spinosa			000000000		1
plants	land plants	Leguminosae	Rhynchosia minima var. minima			Ċ		2/2
plants	land plants	Leguminosae	Senna barciayana			Ĉ		1/1
plants	land plants	Leguminosae	Senna coronilloides			C		1/1
plants	land plants	Leguminosae	Senna surattensis			0		1/1
plants	land plants	Leguminosae	Tephrosia bidwillii			C		1/1
plants	land plants	Leguminosae	Tephrosia brachyodon var, longipes			C		1/1
plants	land plants	Leguminosae	Tephrosia filipes subsp. filipes			C		1/1
plants	land plants	Leguminosae	Tephrosia rufula			Ĉ		1/1
plants	land plants	Leguminosae	Trifolium repens var. repens	white clover	Y	8		2/2
plants	land plants	Leguminosae	Zornia dyctiocarpa var. dyctiocarpa			C		1/1
plants	land plants	Leguminosae	Zornia muriculata subsp. angustata			ĕ		5/5
plants	land plants	Lejeuneaceae	Lejeunes drummondil			c		1/1
plants	land plants	Lembophyllaceae	Camptochaete excavata			Č		1/1
plants	land plants	Lembophyliaceae	Fallaciella gracilis			õ		2/2
plants	land plants	Lentibulariaceae	Utricularia dichotoma	fairy aprons		C C SL		2/2
plants	land plants	Leptodontaceae	Forsstroemia trichomitria subsp. australis	min' Julianie		č		1/1
plants	land plants	Leptodontaceae	Leptodon smithii			000		1/1
plants	land plants	Leptostomataceae	Leptostomum macrocarpon			ĕ		1/1
plants	land plants	Liliaceae	Lllium formosanum		Y	8		1/1
plants	land plants	Linderniaceae	Lindernia prolata		- 15	C		1/1
plants	land plants	Loganiaceae	Strychnos psilosperma	strychnine tree		ĕ		1/1
plants	land plants	Lophocoleaceae	Chiloscyphus semiteres	Suyconine nee		ĕ		1/1
plants	land plants	Loranthaceae	Amyema cambagei:			č		1/1
plants	land plants	Loranthacese				00000		2/2
plants	land plants	Loranthaceae	Amyema congener subsp. rotundifolia Amyema lucasii			ĕ		1/1
plants	land plants	Loranthaceae	Amyema quandang var. bancroftii	broad-leaved grey mistletoe		ĕ		3/3
plants	land plants	Loranthaceae	Amyema quandang var quandang	broad-leaved grey mistietie		0000		1/1
plants	land plants	Loranthaceae	Dendrophthoe glabrescens			ě		1/1
plants	land plants	Loranthaceae	Lysiana subfaicata			ĕ		1/1
plants	and the second s	Malvaceae				č		3/3
plants	land plants land plants	Maivaceae	Abutilon oxycarpum var. oxycarpum Anoda cristata	anoda weed	Y	14		1/1
plants	land plants	Malvaceae	Hibiscus sturtii	diloud weeu	1.	C		1/1
		Malvaceae	Hibiscus sturtii var. sturtii			č		1/1
plants plants	land plants land plants	Malvaceae	Hibiscus verdcourfii			ĕ		1/1
Sec. 20, 20, 20, 20, 20, 20, 21, 21		A CONTRACT C	2 N. M.		Y			20.1
plants plants	land plants	Malvaceae Malvaceae	Malvastrum americanum Malvastrum coromandelianum subsp. coromandelian	4 VORT	Y			2/2
	land plants				Y			1/1
plants	land plants	Malvaceae	Pavonia hastata	pink pavonia	//			2/2
plants	land plants	Malvaceae	Sida atharanhara			0		1/1
plants	land plants	Malvaceae	Sida atherophora			C		
plants	land plants	Malvaceae	Sida hackettiana		Y	64		3/1
plants	land plants	Malvaceae	Side rhombifolia	INVESTOR SERVICE	¥	200		1/1
plants	land plants	Meliaceae	Anthocarapa nitidula	incense cedar		C		1/1
plants	land plants	Meliaceae	Owenia venosa	crow's apple		C		7/5
plants	land plants	Meliaceae	Owenia x reliqua			C		1/1

Kingdom	Class	Family	Scientific Name	Common Name	I Q	Α	Records
plants	land plants	Menispermaceae	Legnephore moorel		C		1/1
plants	land plants	Menyanthaceae	Nympholdes Indica	water snowflake	SL		1/1
plants	land plants	Meteoriaceae	Papillaria crocea	Plant Terrorial articles for the Service	e		1/1
plants	land plants	Meteoriaceae	Papillaria flexicaulis		000000000		1/1
plants	land plants	Meteoriaceae	Papillaria leuconeura		6		2/2
plants	land plants	Metzgeriaceae	Metzgeria furcata		C		1/1
plants	land plants	Moraceae	Ficus coronata	creek sandpaper fig	C		1/1
plants	land plants	Moraceae	Trophis scandens subsp. scandens		C		1/1
plants	land plants	Myrtaceae	Acmena smithii	lillypilly satinash	C		1/1
plants	land plants	Myrtaceae	Angophora floribunda	rough-barked apple	e		1/1
plants	land plants	Myrtaceae	Angophora leiocarpa	rusty gum	Ĉ		40/1
plants	land plants	Myrtaceae	Angophore subvelutine	10 To	G		1/1
plants	land plants	Myrtaceae	Backhousia angustifolia	narrow-leaved backhousia	6.0		3/2
plants	land plants	Myrtaceae	Corymbia citriodora	spotted gum	ã		1
plants	land plants	Myrtaceae	Corymbia citriodora subsp. variegata		Č		59
plants	land plants	Myrtaceae	Corymbia gummifera	red bloodwood	õ		1
plants	land plants	Myrtaceae	Corymbia intermedia	pink bloodwood	õ		1
plants	land plants	Myrtaceae	Corymbia tessellaris	Moreton Bay ash	000000		ŝ
plants	land plants	Myrtaceae	Corymbia trachyphloia subsp. trachyphloia	Morcion bay and	ĕ		1/1
plants	land plants	Myrtaceae	Corymbia watsoniana subsp. watsoniana		ĕ		10
plants	land plants	Myrtaceae	Eucalyptus		8		- 4
plants	land plants	Myrtaceae	Eucalyptus acmenoides		e e		3
plants	land plants	Myrtaceae	Eucalyptus acmenduss Eucalyptus apothalassica		000000000000		2/1
	land plants	Myrtaceae		Baker's mallee	ž		1/1
plants plants	land plants		Eucalyptus bakeri Eucalyptus blakelyi	Blakely's red gum	č		16.0
		Myrtaceae			č		17/2
plants plants	land plants land plants	Myrtaceae Myrtaceae	Eucalyptus crebra	narrow-leaved red ironbark	Ħ		39
The state of the s			Eucalyptus decorticans		Č		3/3
plants	land plants	Myrtaceae	Eucelyptus dure	Overestand assessment	9		3/3
plants	land plants	Myrtaceae	Eucalyptus exserta	Queensland peppermint	ě		
plants	land plants	Myrtaceae	Eucalyptus fibrosa		Š		****
plants	land plants	Myrtaceae	Eucalyptus fibrosa subsp. fibrosa		ė,		1/1
plants	land plants	Myrtaceae	Eucalyptus longirostrata	90271911444410000001951160	č		1/1
plants	land plants	Myrtaceae	Eucalyptus major	mountain grey gurn	Š		1/1
plants	land plants	Myrtaceae	Eucalyptus melanophloia subsp. melanophloia	26 E E	0000		1/1
plants	land plants	Myrtaceae	Eucelyptus orgadophila	mountain coolibah	C		1/1
plants	land plants	Myrtaceae	Eucalyptus populnea	poplar box	9		1
plants	land plants	Myrtaceae	Eucalyptus tereticornis subsp. basaltica				1/1
plants	land plants	Myrtaceae	Eucelyptus tereticornis subsp. tereticornis		C		1/1
plants	land plants	Myrtaceae	Gossia bidwillii	NATIONAL HORSES	C		2
plants	land plants	Myrtaceae	Lysicarpus angustifolius	budgeroo	C		4
plants	land plants	Myrtaceae	Melaleuca decora		C		1/.1
plants	land plants	Myrtaceae	Melaleuca formosa		NT		3/2
plants	land plants	Myrtaceae	Melaleuca squarnophiola		C		1/1
plants	land plants	Myrtaceae	Melaleuca trichostachya		C		1/1
plants	land plants	Myrtaceae	Rhodamnia dumicola	rib-fruited malletwood	NT C C E		1/1
plants	land plants	Myrtaceae	Sannantha collina		C		1/1

Kingdom	Class	Family	Scientific Name	Common Name		Q	Α	Records
plants	land plants	Nyctaginaceae	Boerhavia dominii			C		2/2
plants	land plants	Nyctaginaceae	Boerhavia sp. (St George A Hill AQ399299)			C		1/1
plants	land plants	Nyctaginaceae	Bougainvillea glabra		Y			1
plants	land plants	Oleaceae	Jasminum dianthifolium			C		1/1
plants	land plants	Oleaceae	Jasminum didymum subsp. racemosum			C		4/4
plants	land plants	Oleaceae	Jasminum simplicifolium subsp. australiense			C		5/4
plants	land plants	Oleaceae	Ligustrum lucidum	large-leaved privet	Y	-		1/1
plants	land plants	Cleaceae	Notelaea longifolia	7.41 #48.00 (#12.00 #12.00 #13.41 #24.00)		C		3
plants	land plants	Oleaceae	Notelaea microcarpa			000		4/4
plants	land plants	Oleaceae	Notelaea pungens			C		3/2
plants	land plants	Onagraceae	Epilobium billardierianum subsp. cinereum			C		1/1
plants	land plants	Onagraceae	Epilobium billerdierianum subsp. hydrophilum			C		1/1
plants	land plants	Onagraceae	Oenothera affinis	long-flowered evening primrose	Y	111		1/1
plants	land plants	Ophioglossaceae	Ophioglossum lusitanicum	adder's tongue		C		1/1
plants	land plants	Ophioglossaceae	Ophioglossum reticulatum					1/1
plants	land plants	Ophioglossaceae	Sceptridium australe			C		1/1
plants	land plants	Orchidaceae	Calanthe triplicata	christmas orchid		SL		1/1
plants	land plants	Orchidaceae	Cyanicula caerulea	THIS PARTY OF THE		SL		1
plants	land plants	Orchidaceae	Dendrobium manophyllum			SL		1/1
plants	land plants	Orchidaceae	Dipodium punctatum			SL		1/1
plants	land plants	Orchidaceae	Dipodium variegatum			SL		1/1
plants	land plants	Orchidaceae	Diuris abbreviata	lemon doubletail		SL		1/1
plants	land plants	Orchidaceae	Diuris parvipetala	(cition double lan		V		1/1
plants	land plants	Orchidaceae	Dockrillia pugioniformis	dagger orchid		SL		1/1
plants	land plants	Orthotrichaceae	Macromitrium	dagger oromu		O.L		1/1
plants	land plants	Oxalidaceae	Oxalis chroodes			0		1/1
plants	land plants	Oxalidaceae	Oxalis radicosa			C		2/2
plants	land plants	Passifloraceae	Passiflore aurantia var. pubescens			č		2/2
		Passifloraceae		white passion flower	Y			1/1
plants	land plants		Passifiora subpeltata	white passion flower	- 7	ë		2/2
plants	land plants	Phrymaceae	Mimulus gracilis	slender monkey flower		ĕ		4/3
plants	land plants	Phyllanthaceae	Breynia oblongifolia			0		
plants	land plants	Phyllanthaceae	Bridelia leichhardtii			č		1/1
plants	land plants	Phyllanthaceae	Phyllanthus microcladus			8		1/1
plants	land plants	Phyllanthaceae	Phyllanthus occidentalis			00000000		1
plants	land plants	Phyllanthaceae	Phyllanthus similis			õ		1/1
plants	land plants	Phyllanthaceae	Phyllanthus subcrenulatus			5		1/1
plants	land plants	Phyllanthaceae	Phyllanthus virgatus	WA 8	34	6		4/2
plants	land plants	Phytolaccaceae	Phytolecca octandra	inkweed	Y	2		1/1
plants	land plants	Picrodendraceae	Petalostigma pubescens	quinine tree		C		3/1
plants	land plants	Pittosporaceae	Auranticarpa rhombifolia			000		2/2
plants	land plants	Pittosporaceae	Bursaria incana					3/1
plants	land plants	Pittosporaceae	Bursaria spinosa subsp. spinosa			C		4/2
plants	land plants	Pittosporaceae	Pittosporum			-		1
plants	land plants	Pittosporaceae	Pittosporum angustifolium	80.00		C		6/5
plants	land plants	Pittosporaceae	Pittosporum undulatum	sweet pittosporum		C		2/2
plants	land plants	Pittosporaceae	Pittosporum viscidum	black-fruited thornbush		C		4/4

Kingdom	Class	Family	Scientific Name	Common Name	Ţ_	Q	Α	Records
plants	land plants	Plantaginaceae	Callitriche sonderi			C		1/1
plants	land plants	Plantaginaceae	Gratiola pedunculata			C		1/1
plants	land plants	Plantaginaceae	Plantago debilis	shade plantain		C		2/2
plants	land plants	Plantaginaceae	Veronica plebeia	trailing speedwell		C		1/1
plants	land plants	Plumbaginaceae	Plumbago zeylanica	native plumbago		C		1/1
plants	land plants	Poaceae	Alloteropsis semialata	cockatoo grass		000000000000000		1/1
plants	land plants	Poaceae	Ancistrachne uncinulata	hooky grass		Ĉ		2/2
plants	land plants	Poaceae	Aristida benthamii var. benthamii	1/2/2//4/15/2023		Č		7
plants	land plants	Poaceae	Aristida calycina var. calycina			C		2/1
plants	land plants	Poaceae	Aristida calycina var. filifolia			Ĉ		1/1
plants	land plants	Poaceae	Aristida calycina var. praealta			č		1/1
plants	land plants	Poaceae	Aristida caput-medusae			ē		5/3
plants	land plants	Poaceae	Aristida echinata			ĕ		1/1
plants	land plants	Poaceae	Aristida jerichoensis var. Jerichoensis			õ		1
plants	land plants	Poaceae	Aristida lazaridis			ĕ		2/2
plants	land plants	Poaceae	Aristida leptopoda	white speargrass		ĕ		1/1
plants	land plants	Poaceae	Aristida lignosa	willia speargross		ĕ		1/1
plants	land plants	Poaceae	Aristida personata			<0000000000000		1/1
plants	land plants	Poaceae	Aristida queenslandica var. dissimilis			ĕ		1
plants		Poaceae	The state of the s	numble suitements		ĕ		2
	land plants		Aristida ramosa	purple wiregrass		ĕ		3/1
plants	land plants	Poaceae	Aristida vagans	roodgrags		8		2/1
plants	land plants	Poaceae	Arundinella nepalensis	reedgrass		6		1/1
plants	land plants	Poaceae	Austrostipa scabra subsp. scabra	Personal Participation (Control Control Contro		8		
plants	land plants	Poaceae	Austroatipa verticillata	slender bamboo grass		Č		1/1
plants	land plants	Poaceae	Bothriochloa bladhii subsp. bladhii			Ħ	CAR	1/1
plants	land plants	Poaceae	Bothnochloa bunyensis	Bunya Mountains bluegrass			V	3/3
plants	land plants	Poaceae	Bothriochloa decipiens			Ö		1
plants	land plants	Poaceae	Bothriochloa decipiens var. decipiens	SECTION OF SECTION AND ADDRESS OF SECTION ADDRESS OF SECTION AND ADDRESS OF SECTION ADDRESS O		C		2/2
plants	land plants	Poaceae	Bothnochloa macra	redleg grass	100	C		1/1
plants	land plants	Poaceae	Bromus catharticus	prairie grass	Y	_		1/1
plants	land plants	Poaceae	Calyptochloa gracillima subsp. gracillima	120720		C		3/2
plants	land plants	Poaceae	Capillipedium parviflorum	scented top		C		1/1
plants	land plants	Poaceae	Capillipedium spicigerum	spicytop		C		1/1
plants	land plants	Poaceae	Cenchrus caliculatus	hillside burrgrass	2.00	C		1/1
plants	land plants	Poaceae	Cenchrus ciliaris		Y	33		1/1
plants	land plants	Poaceae	Cenchrus purpurascens			C		2/2
plants	land plants	Poaceae	Chloris divaricata var. cynodontoides	R 2565 8		C		1/1
plants	land plants	Poaceae	Chloris ventricosa	tall chloris		C		3/3
plants	land plants	Poaceae	Chrysopogon filipes			C		1/1
plants	land plants	Poaceae	Chrysopogon sylvaticus			0000		1/1
plants	land plants	Poaceae	Cleistochioa subjuncea			С		5/3
plants	land plants	Poaceae	Cymbopogon obtectus	FOR SAMEWOOD FROM THE SAMEWOOD A		C		1/1
plants	land plants	Poaceae	Cymbopogon refractus	barbed-wire grass		C		6/4
plants	land plants	Poaceae	Dactyloctenium radulans	button grass		C		1/1
plants	land plants	Poaceae	Dichanthium annulatum	sheda grass	Y			17.1
plants	land plants	Poaceae	Dichanthium sericeum subsp. sericeum			C		5/5

Kingdom	Class	Family	Scientific Name	Common Name	Ĭ.	Q	Α	Records
plants	land plants	Poaceae	Dichelachne crinita	longhair plumegrass		C		1/1
plants	land plants	Poaceae	Dichelachne montana			C		2/2
plants	land plants	Poaceae	Digitaria			111		1/1
plants	land plants	Poaceae	Digitaria ammophila	silky umbrella grass		0		1/1
plants	land plants	Poaceae	Digitaria breviglumis			00000000		1
plants	land plants	Poaceae	Digitaria brownii			C		1/1
plants	land plants	Poaceae	Digitaria diminuta			C		1/1
plants	land plants	Poaceae	Digitaria divaricatissima	spreading umbrella grass		C		2/2
plants	land plants	Poaceae	Digitaria minima	3/		C		1/1
plants	land plants	Poaceae	Digitaria ramularis			Ĉ		2/1
plants	land plants	Poaceae	Dinebra decipiens var. peacockii			č		2/2
plants	land plants	Poaceae	Echinopogon caespitosus var caespitosus	hedgehog grass		C		1/1
plants	land plants	Poaceae	Echinopogon ovatus	TOTAL TITLE STATE.		č		1/1
plants	land plants	Poaceae	Eleusine tristachya	goose grass	Y			1/1
plants	land plants	Poaceae	Enneapogon gracilis	slender nineawn	175	C		3/3
plants	land plants	Poaceae	Enneapogon lindleyanus	Section 1111 and 1111		Č		2/2
plants	land plants	Poaceae	Entolasia stricta	wiry panic		Ĉ		4/1
plants	land plants	Poaceae	Eregrostis curvule	CONTRACTOR OF THE PARTY OF THE	Y	Œ		5/2
plants	land plants	Poaceae	Eragrostis elongata			C		3/1
plants	land plants	Poaceae	Eragrostis leptostachya			0		3
plants	land plants	Poaceae	Eragrostis longipedicellata			õ		1/1
plants	land plants	Poaceae	Eragrostis megalosperma			ĕ		1/1
plants	land plants	Poaceae	Eragrostis sororia			C		2/2
plants	land plants	Poaceae	Eragrostis tenuifolia	elastic grass	Y	~		1/1
plants	land plants	Poaceae	Eremochioa bimaculata	poverty grass	38	0		3/1
plants	land plants	Poaceae	Eriochida crebra	spring grass		ĕ		2/2
plants	land plants	Poaceae	Eulalia aurea	silky browntop		ĕ		4/2
plants	land plants	Poaceae	Heteropogon contortus	black speargrass		ĕ		3/3
plants	land plants	Poaceae	Homapholis belsonii	Belson's panic		опоопо	V	1
plants	land plants	Poaceae	Imperata cylindrica	blady grass		ĕ	(, w)	2/2
plants	land plants	Poaceae	Megathyrsus maximus	biddy gidso	×	~		₩.
plants	land plants	Poaceae	Megathyrsus maximus var. pubiglumis					1/1
plants	land plants	Poaceae	Melinis repens	red natal grass	Y			2/2
plants	land plants	Poaceae	Microlaena stipoides var. stipoides	red flotal grass	1.0	C		2/2
plants	land plants	Poaceae	Oplismenus aemulus	creeping shade grass				1/1
plants	land plants	Poaceae	Panicum effusum	creeping snaue grass		ĕ		6/3
plants	land plants	Poaceae	Panicum queenslandicum var. queenslandicum			0		2/2
plants	land plants	Poaceae	Paspalidium caespitosum	brigalow grass		č		1/1
plants	land plants	Poaceae	Paspalidium criniforme	brigatori grass		Ğ		1
plants	land plants	Poaceae	Paspalidium distans	shotgrass		č		3/3
plants	land plants	Poaceae	Paspalidium gracile	slender panic		00000		1/1
plants	land plants	Poaceae	Poa labillardierei var, labillardierei	tussock grass		č		5/5
plants	land plants	Poaceae	Rytidosperma bipartitum	master grass		š		1
plants	land plants	Poaceae	Rytidosperma indutum			ĭ		1/1
plants	land plants	Poaceae	Rytidosperma longifolium			č		2/2
						G		
plants	land plants	Poaceae	Rytidosperma racemosum var. obtusatum			10		1/1

Kingdom	Class	Family	Scientific Name	Common Name	Ĭ.	Q	Α	Records
plants	land plants	Poaceae	Rytidosperme tenuius			C		1/1
plants	land plants	Poaceae	Sarga leiocladum			0000		3/3
plants	land plants	Poaceae	Setana surgens			C		1/1
plants	land plants	Poaceae	Sporobolus creber			C		4/4
plants	land plants	Poaceae	Sporobolus elongatus			C		3/3
plants	land plants	Poaceae	Sporobolus fertilis	giant Parramatta grass	Y			1/1
plants	land plants	Poaceae	Themeda triandra	kangaroo grass		C		5/4
plants	land plants	Poaceae	Tragus australianus	small burr grass		C		17.1
plants	land plants	Poaceae	Tripogan lolliformis	five minute grass				3/3
plants	land plants	Poaceae	Urochloa foliosa	To the contract of the con		C		2/2
plants	land plants	Poaceae	Urochioa whiteana			C		1/1
plants	land plants	Poaceae	Walwhalleya proluta			000000		1/1
plants	land plants	Polygalaceae	Polygala japonica			Ĉ		2/2
plants	land plants	Polygalaceae	Polygala triflora			õ		1/1
plants	land plants	Polygalaceae	Polygala virgata		Y	3		1/1
plants	land plants	Polygonaceae	Muehlenbeckia gracillima			C		1/1
plants	land plants	Polygonaceae	Persicaria barbata			Ĉ		1/1
plants	land plants	Polygonaceae	Persicaria decipiens	slender knotweed				2/2
plants	land plants	Polygonaceae	Persicana lapathifolia	pale knotweed		0000		3/3
plants	land plants	Polygonaceae	Persicaria orientalis	princes feathers		ĕ		1/1
plants	land plants	Polygonaceae	Persicaria prostrata	creeping knotweed		ĕ		1/1
plants	land plants	Polygonaceae	Polygonum plebeium	small knotweed		ĕ		1/1
plants	land plants	Polygonaceae	Rumex brownii	swamp dock		C		1/1
	land plants	the second section of the section of the section of the second section of the section of t		Exercise H. Uniform Description Co.	Y:	9		1/1
plants		Polygonaceae Polypodiaceae	Rumex crispus	curled dock strap fern	1	SL		2/2
plants	land plants		Dictymia brownii			SL		2/1
plants	land plants	Polypodiaceae	Pyrrosia rupestris	rock felt fern		SL		1/1
plants	land plants	Polypodiaceae Porellaceae	Zealandia pustulata subsp. pustulata Porella crawfordii					1/1
plants	land plants					0000		
plants	land plants	Portulacaceae	Portulaca australis			2		2/1 2/2
plants	land plants	Portulacaceae	Portulaca bicolor			ĕ		
plants	land plants	Portulacaceae	Portulaca filifolia	F 5	200	C		1/1
plants	land plants	Portulacaceae	Portulaca oleracea	pigweed	Y			2/2
plants	land plants	Pottiaceae	Barbula calycina			C		1/1
plants	land plants	Pottiaceae.	Triquetrella papillata			0000		1/1
plants	land plants	Pottiaceae	Weissia confroversa			č		1/1
plants	land plants	Proteaceae	Banksia spinulosa var. collina			5		2/2
plants	land plants	Proteaceae	Grevillea floribunda subsp. floribunda					1/1
plants	land plants	Profesceae	Grevillea robusta	74700 \$2000000		C		2/1
plants	land plants	Proteaceae	Grevillea striata	beefwood		C		3/2
plants	land plants	Proteaceae	Persoonia sericea	silky geebung		C		3/2
plants	land plants	Psilotaceae	Psilotum nudum	skeleton fork fern		SL		1/1
plants	land plants	Pteridaceae	Adiantum atroviride			SL		2/2
plants	land plants	Pteridaceae	Adlantum formosum			SL		1/1
plants	land plants	Pteridaceae	Adientum hispidulum var. hypoglaucum	W 500 001 554		SL		1/1
plants	land plants	Pteridaceae	Chellenthes distans	bristly cloak fern		C		3/3
plants	land plants	Pteridaceae	Cheilanthes sieben			C		1

Kingdom	Class	Family	Scientific Name	Common Name		Q	Α	Records
plants	land plants	Pteridaceae	Chellenthes sieberi subsp. sieberi			C		4/4
plants	land plants	Pteridaceae	Pellaea nana	DATE AND THE STREET		SL		3/2
plants	land plants	Pteridaceae	Pellaea paradoxa	heart fern		SL		2/1
plants	land plants	Ptychomitriaceae	Ptychoratrium			-2		17.1
plants	land plants	Ptychomitriaceae	Ptychomitrium australe	(\$440)(1460)(545444)		000		1/1
plants	land plants	Putranjivaceae	Drypetes deplanchel	grey boxwood		C		3
plants	land plants	Racopilaceae	Racopilum cuspidigerum			C	200	1/1
plants	land plants	Ranunculaceae	Clematis fawcettii			٧	V	5/5
plants	land plants	Ranunculaceae	Clematis glycinoides	THE EXPLICATION CONTRACT OF THE PROPERTY AND		C		1/1
plants	land plants	Ranunculaceae	Ranunculus lappaceus	common buffercup		c		1/1
plants	land plants	Ranunculaceae	Ranunculus meristus			C		1/1
plants	land plants	Ranunculaceae	Ranunculus sessiliflorus var. sessiliflorus	Free Cities (not gathers and		ē		1/1
plants	land plants	Rhamnaceae	Alphitonia excelsa	soap tree		000000		11/2
plants	land plants	Rhamnaceae	Cryptandra longistaminea			C		1/1
plants	land plants	Rhamnaceae	Polianthion minutiflorum			V	V	1/1
plants	land plants	Rhamnaceae	Pomaderris aspera			C		1/1
plants	land plants	Rhamnaceae	Pomaderns canescens			0000000		1/1
plants	land plants	Rhamnaceae	Pomaderris queenslandica			C		2/2
plants	land plants	Rhamnaceae	Pomaderris sp. (Wondul Range P. Grimshaw+ G675)			C		2/2
plants	land plants	Ripogonaceae	Ripogonum album	white supplejack		C		1
plants	land plants	Ripogonaceae	Ripoganum brevifallum	small-leaved supplejack		C		1/1
plants	land plants	Rosaceae	Acaena novae-zelandiae			C		1/1
plants	land plants	Rosaceae	Cotoneaster pannosus		Y			1/1
plants	land plants	Rosaceae	Rubus anglocandicans	blackberry	Y	200		1
plants	land plants	Rosaceae	Rubus maluccanus var trilabus	Constitution of the Consti		0000		17.1
plants	land plants	Rosaceae	Rubus parvifolius	pink-flowered native raspberry		C		1/1
plants	land plants	Rosaceae	Rubus rosifolius var. rosifolius			C		1/1
plants	land plants	Rosaceae	Rubus x novus			C		1/1
plants	land plants	Rubiacese	Asperula conferta			0000000000		1/1
plants	land plants	Rubiaceae	Cyclophyllum coprosmoides			c		1
plants	land plants	Rubiaceae	Everistia vacciniifolia var. vacciniifolia			C		1/1
plants	land plants	Rubiaceae	Galium ciliare subsp. ciliare			C		1/1
plants	land plants	Rubiaceae	Gallum leptogonium			C		2/2
plants	land plants	Rubiaceae	Opercularia hispida	hairy stinkweed		C		1/1
plants	land plants	Rubiaceae	Pomax umbeliata	V. ASTACHEST LOS VALANCES.		C		2/1
plants	land plants	Rubiaceae	Psychotria daphnoides var. daphnoides			C		1/1
plants	land plants	Rubiaceae	Psydrax lamprophylla			C		1/1
plants	land plants	Rubiaceae	Psydrax odorata forma buxifolia			C		4/3
plants	land plants	Rubiaceae	Psydrax odorata forma subnitida			C		2/2
plants	land plants	Rubiaceae	Psydrax oleifolia			C		2/1
plants	land plants	Rubiaceae	Spermacoce					1
plants	land plants	Rubiaceae	Triflorensia cameronii			C		2/2
plants	land plants	Rutaceae	Acronychia laevis	glossy acronychia		00000		5/2
plants	land plants	Rutaceae	Boronia glabra	a man and control of the control of		C		2/2
plants	land plants	Rutaceae	Coatesia paniculata			C		3/3
plants	land plants	Rutaceae	Flindersia australis	crow's ash		C		4/3

Kingdom	Class	Family	Scientific Name	Common Name	Ĩ	Q	Α	Records
plants	land plants	Rutaceae	Flindersia collina	broad-leaved leopard tree		C		5/3
plants	land plants	Rutaceae	Flindersia xarithoxyla	yellow-wood		00000000000		1/1
plants	land plants	Rutaceae	Geijera parviflora	wilga		C		2/2
plants	land plants	Rutaceae	Geljera salicifolia	brush wilga		C		8/5
plants	land plants	Rutaceae	Melicope micrococca	white evodia		C		2/2
plants	land plants	Rutaceae	Phebalium distans	Mt Berryman phebalium		E	E	3/3
plants	land plants	Rutaceae	Phebalium nottii	pink phebalium		C		1/1
plants	land plants	Rutaceae	Philotheca difformis subsp. difformis	Street Street		Č		1/1
plants	land plants	Rutaceae	Ziena aspalathoides subsp. aspalathoides			C		1/1
plants	land plants	Rutaceae	Zieria cytisoides	downy zieria		Ĉ		1/1
plants	land plants	Rutaceae	Zieria obovata			v	V	1
plants	land plants	Salicaceae	Casearia multinervosa	casearia				3/3
plants	land plants	Salviniaceae	Azolla rubra	was a second		ĕ		1/1
plants	land plants	Samolaceae	Samolus valerandi	brookweed		000		1/1
plants	land plants	Santalaceae	Exocarpos cupressiformis	native cherry		č		2/2
plants	land plants	Santalaceae	Exocarpos latifolius	india contrary		C C SL		1
plants	land plants	Santalaceae	Santalum lanceolatum			81		2/2
plants	land plants	Santalaceae	Thesium australe	toadflax		V	V	4/4
plants	land plants	Sapindaceae	Alectryon diversifolius	scrub boonaree		ě		2/2
plants	land plants	Sapindaceae	Alectryon oleifolius subsp. elongatus	SCIED DOUBLES		0000000		1/1
plants	land plants	Sapindaceae	Alectryon pubescens			ĕ		1/1
plants	land plants	Sapindaceae	Alectryon subdentatus			ĕ		1
	land plants		Arytera foveolata	pitted coogera		č		2/2
plants	A STATE OF THE STA	Sapindaceae		hitten coodeta		8		
plants	land plants	Sapindaceae	Arytera microphylla			č		2
plants	land plants	Sapindaceae	Atalaya salicifolia	12 TO SET TO SEE WALFO	Y	104		2/2 2
plants	land plants	Sapindaceae	Cardiospermum grandifiorum	heart seed vine	1.0		are.	
plants	land plants	Sapindaceae	Cossinia australiana	and the same of the same of		E	Ε	1/1
plants	land plants	Sapindaceae	Cupaniopsis parvifolia	small-leaved tuckeroo		C		2
plants	land plants	Sapindaceae	Dodonaea			-		1
plants	land plants	Sapindaceae	Dodonaea stenophylla			8		1/1
plants	land plants	Sapindaceae	Dodonaea triangularis			Ö		1/1
plants	land plants	Sapindaceae	Dodonaea viscosa subsp. angustifolia	CAMPAGES WESTER		0000		1/1
plants	land plants	Sapindaceae	Elattostachys xylocarpa	white tamarind		C.		2/1
plants	land plants	Sapotaceae	Planchonella cotinifolia var. cotinifolia			C		1/1
plants	land plants	Sapotaceae	Planchonella cotinifolia var. pubescens	C 1011 2 17 2 2 17 2 2 17 2 2 1		0		1/1
plants	land plants	Scrophulariaceae	Eremophila debilis	winter apple				3/3
plants	land plants	Scrophulariaceae	Eremophila deserti	5255 V245				1/1
plants	land plants	Scrophulariaceae	Myoporum acuminatum	coastal boobialla		C		2/2
plants	land plants	Sematophyllaceae	Sematophyllum subhumile			C		3/3
plants	land plants	Solanaceae	Duboisia leichhardtii			C		1/1
plants	land plants	Solanaceae	Lycium ferocissimum	African boxthorn	Y	(3)		2
plants	land plants	Solanaceae	Nicotiana megalosiphon		77-0	C		17.1
plants	land plants	Solanaceae	Physalis ixocarpa	annual ground cherry	Y			1/1
plants	land plants	Solanaceae	Solanum	X				1
plants	land plants	Solanaceae	Solanum corifolium	straggling nightshade		C		1/1
plants	land plants	Solanaceae	Solanum ellipticum	potato bush		C		2/2

Kingdom	Class	Family	Scientific Name	Common Name	Ī	Q	Α	Records
plants	land plants	Solanaceae	Solanum limitare			C		2/2
plants	land plants	Solanaceae	Solanum mauritianum	wild tobacco	Y			2/1
plants	land plants	Solanaceae	Solanum mitchellianum	Post Colored Gray Colored Colored Gray Color		c		1/1
plants	land plants	Solanaceae	Solanum nemophilum			C		9/7
plants	land plants	Solanaceae	Solenum rixosum			C		1/1
plants	land plants	Solanaceae	Solanum seaforthianum	Brazilian nightshade	Y			1
plants	land plants	Solanaceae	Solanum stelligerum	devil's needles		C		3/2
plants	land plants	Stackhousiaceae	Stackhousia muricata			C		1
plants	land plants	Stackhousiaceae	Stackhousia viminea	slender stackhousia		C		1/1
plants	land plants	Sterculiaceae	Brachychiton australis	broad-leaved bottle tree		SL		1
plants	land plants	Sterculiaceae	Brachychiton discolor	STANGER AT DE SANTAMENTO NASCO		SL		1/1
plants	land plants	Sterculiaceae	Brachychitan populneus subsp. populneus			SL		2/2
plants	land plants	Sterculiaceae	Brachychiton populneus subsp. trilobus			SL		1/1
plants	land plants	Stylidiaceae	Stylidium eglandulosum			SL		1/1
plants	land plants	Tectariaceae	Arthropteris tenella	climbing fern		C		1/1
plants	land plants	Thelypteridaceae	Cyclosorus interruptus	=		SL		1/1
plants	land plants	Thuidiaceae	Thuidiopsis sparsa			C		3/3
plants	land plants	Thuidiaceae	Thuidiopsis sparsa var. sparsa			Ĉ		3/3
plants	land plants	Thymelaeaceae	Pimelea curvifiora subsp. divergens			C		3/3
plants	land plants	Thymelaeaceae	Pimelea linifolia subsp. linifolia			Ċ		1/1
plants	land plants	Thymelaeaceae	Pimelea neoanglica	poison pimelea		02000000000		1/1
plants	land plants	Trachylomataceae	Trachyloma diversinerve			õ		1/1
plants	land plants	Trachylomataceae	Trachyloma planifolium			0		1/1
plants	land plants	Urticaceae	Dendrocnide photiniphylla	shiny-leaved stinging tree		õ		1
plants	land plants	Urticaceae	Parietaria debilis	native pellitory		Č		1/1
plants	land plants	Urticaceae	Urtica incisa	stinging nettle		C		3/3
plants	land plants	Verbenaceae	Glandularia aristigera		Y	177		1/1
plants	land plants	Verbenaceae	Lantana camara	lantana	Y			38
plants	land plants	Verbenaceae	Verbena incompta		Y			1/1
plants	land plants	Viburnaceae	Sambucus australasica	native elderberry		C		1/1
plants	land plants	Violaceae	Pigea enneasperma			c		1/1
plants	land plants	Violaceae	Pigea stellarioides			C		3/3
plants	land plants	Violaceae	Viola hederacea			C		1/1
plants	land plants	Viscaceae	Korthalsella breviarticulata			C		1/1
plants	land plants	Viscaceae	Viscum whitei subsp. whitei			0000		1/1
plants	land plants	Vitaceae	Causonis clematidea			C		2/2
plants	land plants	Vitaceae	Cissus antarctica			C		1
plants	land plants	Vitaceae	Clematicissus opaca			C		1/1
plants	land plants	Vitaceae	Tetrastigma nitens	shining grape		C		1
plants	land plants	Xanthorrhoeaceae	Xanthorrhoea	with the company of the company of the Co		177		1/1
plants	land plants	Xanthorrhoeaceae	Xanthorrhoea glauca			SL		1/1
plants	land plants	Xanthorrhoeaceae	Xanthorrhoea glauca subsp. glauca			SL		1/1
plants	land plants	Xanthorrhoeaceae	Xanthorrhoea johnsonii			SI		2
plants	land plants	Zygophyllaceae	Roepera apiculata			SL		1/1
	uncertain	Indet.	Indet.			č		9/9
plants		Mimosoid clade	Acacia grandifolia			Č	V	1/1

y Scientific Name	Common Name		Q	A	Records
noideae Crotalaria mitchellii subsp. mitch		Y	c		1 4/4 1/1
3	soid clade Leucaena leucocephala	soid clade Leucaena leucocephala pnoideae Crotalaria mitchellii subsp. mitchellii	soid clade Leucaena leucocephala Y pnoideae Crofalaria mitchellii subsp. mitchellii	soid clade Leucaena leucocephala Y pnoideae Crotalaria mitchellii subsp. mitchellii C	soid clade Leucaena leucocephala Y pnoideae Crotalaria mitchellii subsp. mitchellii C

CODES

- I Y indicates that the taxon is introduced to Queensland and has naturalised.
- Q- Indicates the Queensland conservation status of each taxon under the Nature Conservation Act 1992.
 The codes are Extinct (EX), Extinct in the Wild (PE), Critically Endangered (CR), Endangered (E), Vulnerable (V), Near Threatened (NT), Special Least Concern (SL) and Least Concern (C).
- A Indicates the Australian conservation status of each taxon under the Environment Protection and Biodiversity Conservation Act 1999.
 The values of EPBC are Extinct (EX), Extinct in the Wild (XW), Critically Endangered (CE), Endangered (E), Vulnerable (V) and Conservation Dependent (CD).

Records - The first number indicates the total number of records of the taxon (wildlife records and species listings for selected areas).

This number is output as 99999 if it equals or exceeds this value. A second number located after a / indicates the number of specimen records for the taxon.

This number is output as 999 if it equals or exceeds this value.



Appendix 2 Likelihood of occurrence assessment

Key to likelihood of occurrence assessment.

- EPBC Act Status
 - CE critically endangered
 - E endangered
 - V vulnerable
 - Mi migratory
- NC Act Status
 - CR critically endangered
 - E endangered
 - V vuinerable
 - NT near threatened
 - SLC special least concern
 - LC least concern
- Likelihood of occurrence
 - Confirmed the species or signs of their presence were observed during the field survey
 - Likely the site contains habitat that is suitable for the species and Wildnet has recent records of the species (i.e. since 1980) within 10 km of the site
 - Possible the site contains habitat that is suitable for the species but Wildnet has no recent records of the species within 10 km of the site; or the site contains marginal / low quality habitat for the species and Wildnet has recent records of the species within 10 km of the site
 - Unlikely the site does not contain habitat for the species and Wildnet has no recent records of the species within 10 km of the site
- Source
 - E EPBC Act protected matters search
 - W wildlife online database search.



Likelihood of occurrence of conservation significant species within project site

Scientific name	Common name	EPBC status	NC status	Habitat description/ regional ecosystems present	Likelihood of occurrence	Source
Fauna						
Actitis hypoleucos	common sandpiper	М	SLC	Around coastal wetlands and some inland wetlands on the muddy margins or rocky shores. Also inhabits estuaries, deltas of streams, lakes, pools, billabongs, reservoirs, dams and claypans.	Unlikely Limited suitable habitat onsite. No Wildnet records within 20 km.	Е
Anomalopus mackayi	five-clawed worm skink	v	E	Known to occur in both remnant and non-remnant woodlands and grasslands on alluvial cracking clays or self-mulching friable basait soils in NSW and QLD, occurring on REs 11.3.21, 11.3.25, 11.8.5, 11.8.15, 13.3.3, 13.3.4 associated non-remnants. They have also been found in areas modified by agriculture and other human activities. This species has been found sheltering under artificial materials lying flat on the ground.	Unlikely Limited suifable habitat onsite. No Wildnet records within 20 km.	E
Anthochaera phrygia	regent honeyeater	CE	CR	Commonly associated with box-ironbark eucalypt woodland and dry sclerophyll forest, may inhabit riparian vegetation and lowland coastal forest. Mainly a canopy species it is reliant on select species of eucalypt and mistletoe which provide rich nectar (Commonwealth of Australia 2016).	Possible. Moderate habitat on site and no records within 20 km. No detections during dam surveys, bird surveys, and opportunistic sightings.	É
Apus pacificus	fork-tailed swift	Mi	SLG	The fork-failed swift is a non-breeding migrant to Australia. It is widespread across Australia and territories arriving in north west Australia in October and November. Almost exclusively aerial from <1 m to 1,000 m. Most observed over inland plains in Australia, but sometimes recorded over coastal cliffs and beaches as well as urban areas.	Confirmed. Present in a wide range of habitats and may overfly the site. Two individuals sighted in fixed point surveys. No Wildnet records within 10 km but four records within 20 km.	i E
Botaurus poiciloptilus	Australasian bittern	E	E	The Australasian Bittern can be found in habitals containing reedbeds, and other vegetation in water such as cumbungi, lignum and sedges (Birdlife Australia 2017).	Possible. Some suitable habitat on site. One Wildnet record within 20 km but no records within 10 km. No detections during dam surveys, bird surveys, and opportunistic sightings.	w



Scientific name	Common name	EPBC status	NC status	Habitat description/ regional ecosystems present	Likelihood of occurrence	Source
Calidris acuminata	sharp-tailed sandpiper	N/41	SLG	Edges of shallow fresh or brackish wetlands, with inundated or emergent sedges, grass, saltmarsh or other low vegetation, lagoons, swamps, takes and pools near the coast, dams, waterholes, soaks, bore drains and bore swamps, saltpans and hypersaline salt takes, saltworks, sewage farms, flooded paddocks, sedge lands, ephemeral wetlands, but leave when they dry (Morcombe 2004)	Unlikely. Limited suitable habitat onsite. No Wildnet records within 10 km, but 3 records within 20 km. No detections during dam surveys, fixed point surveys, roaming surveys and opportunistic sightings.	E,W
Galidris ferrugines	cuilew sandpiper	ČE	SLG	Intertidal mudflats in sheltered coastal areas, such as estuaries, bays, inlets and lagoons, non-tidal swamps, lakes and lagoons, ponds in saltworks, sewage farms, ephemeral and permanent lakes, dams, waterholes and bore drains (Pizzey and Knight 2012).	Unlikely. No suitable habitat onsite. No Wildnet records within 20 km. No detections during dam surveys; bird surveys, and opportunistic sightings.	E
Calidris melanotos	pectoral sandpiper	Mi	SLG	In Australasia, the pectoral sandpiper prefers shallow fresh to saline wellands. The species is found at coastal lagoons, estuaries, bays, swamps, lakes, inundated grasslands, saltmarshes, river pools, creeks, floodplains and artificial wellands (DCCEEW 2023b)	Unlikely. No suitable habital onsite. No Wildnet records within 20 km. No detections during dam surveys, bird surveys, and opportunistic sightings.	E
Calyptorhynchus lathami lathami	glossy black- cockatoo	v	V.	The glossy black cockatoo is highly dependent on Allocasuarina species (Higgins et al 2001). It inhabits open forest and woodlands on the coastline as well as within the Great Dividing Range where stands of sheoak (especially Allocasuarina littoralis and Allocasuarina torulosa). Inland populations feed on a wide variety of sheoaks including drooping sheoak, Allocasuarina diminuta, Allocasuarina gymnanthera and belah (OEH 2022). They mostly roost in the canopy of live, leafy trees such as eucalypts but breed in a hollow stump or limb of living or dead trees as well as holes in trunks of tail trees (Higgins et al 2001).	Confirmed. Suitable foraging habitat exists in patches onsite. Two individuals observed roosting beside a dam onsite, a further two sighted during fixed point surveys, and evidence of feeding found.	E, survey
Chalinolobus dwyen	Large-eared pied bat	v	v	The species has been found roosling in caves, overhangs, abandoned mine tunnels and disused fairy martin nests (Hoye and Dwyer 1995; Schulz 1998). No evidence exists of the large-eared pied bat roosting in tree hollows (DES 2022a).	Unlikely, Limited suitable habital onsite and no Wildnet records within 20 km. No detections during surveys.	E
Cuculus optatus	oriental cuckoo	MI	SLG	Mainly inhabiting forests, the oriental cuckoo occurs in mixed, deciduous and conferous forest. It is present at all levels of the forest canopy, and can be found at a range of elevations, occasionally being recorded in mountains as high up as 1,100 metres (Higgins 1999).	Possible Present in a wide range of habitats, one record from tronput locality over 20 km from site	E



Scientific name	Common name	EPBC status	NC status	Habitat description/ regional ecosystems present	Likelihood of occurrence	Source
Cyclopsitta diophthalma coxeni	Coxen's fig- parrot	GE	CR	Habitat includes rainforests, adjacent eucalypt woodlands, coastal scrub and riparian vegetation (Pizzey and Knight 2012). Coxen's fig-parrot occurs wherever fig trees are present in lowland and upland forest types, riparian corridors, farmland and urban environments. If feeds primarily on the seeds of figs (Coxen's Fig-Parrot Recovery Team 2001).	Unlikely. No suitable habitat onsite and no confirmed records within the locality. One citizen science record exists from Kumbia (ALA 2020), however this is likely to be erroneous and has not been confirmed by other reputable sources.	Ē
Dasyurus hallucatus	northern quot	E	LC	Dasyurus hallucatus is commonly found in a wide range of eucalypt forest and woodland habitats associated with steep dissected rocky terrain, also found in rainforest patches, vegetation along creek lines, adjacent to mangroves, around human settlement and on beaches.	Unlikely Limited suitable habitat onsite and no records within 10 km. Nearest records are about 20 km south of site in very different montane habitat in the Bunya Mountains. Not detected during camera trapping and spotlighting surveys.	E, W
Dasyurus maculatus maculatus	spotted-tail quoli	E	<u>:</u> E	The southern subspecies, D. maculatus maculatus, has been recorded from a wide range of habital types including rainforest, well and dry scierophyll forest, coastal healthland, scrub and dunes, woodland, healthy woodland, swamp forest, mangroves, on beaches and sometimes in grassland or pastoral areas adjacent to forested areas (DoE 2016)	Unlikely. Limited suitable habitat onsite. One Wildnet record from 1930 within 10 km from Kumbia, but this area now extensively cleared. Nearest recent records are about 20 km south of site in very different montane habitat in the Bunya Mountains. Not detected during camera trapping and spotlighting surveys.	E, W



Scientific name	Common	EPBC status	NC status	Habitat description/ regional ecosystems present	Likelihood of occurrence	Source
Deima torquata	collared delma	v	v.	This species is endemic, recorded disjunctly from the western edges of Brisbane north-west to Blackdown Tableland and inland to the Roma area (Wilson and Swan 2014). This species habitat is associated with rocky terrain; however this species has also been recorded in woodlands with no significant rock components (Wilson and Swan 2014). Habitat includes open eucalypt forest with a sparse understorey of shrubs and tussock grasses, on rocky hillsides with flattish rocks or on deep-cracking soils. Associated with land zones 3, 9 and 10 and specifically, RE 11.3.2, 11.9.10, 11.10.1 and 11.10.4	Unlikely. Preferred REs not present on site. No rocky areas observed in land zones 3, 9 or 10. Several areas of scree slopes were identified in land zone 8 and 11, which may provide marginal habitat. No Wildnet records within 10 km. Nearest records are about 20 km south of site in very different montane habitat in the Bunya Mountains. Not detected during active searches in woodland habitats.	E, W
				Known distribution extends from the coast to the hinterland of sub-humid to semi-arid Queensland. Core habitat is within the Mulga Lands and Brigalow Belt South Bioregions. Occurs in open dry sclerophyll forests (ironbark) or low woodland and open shrub land on RE land zones 3, 4, 5, 7, 8, 9, 10 and 12 (though land zone 8 not considered core habitat and land zone 12 in Wet Tropics bioregion only). Has also been recorded in lancewood forest on coarse gritty soils in the vicinity of low ranges, foothills and undulating terrain with good drainage.	Possible.	
Egemia rugosa	yakka skink	v	v	Colonies have been found in large hollow logs, cavities or burrows under large fallen trees, tree stumps, logs; stick-raked piles; large rocks and rock piles, dense ground-covering vegetation, and deeply eroded guillies, tunnels and sinkholes.	Some potential habitat onsite but not detected during active herpetofauna searches. No Wildnet records within 20 km.	E
Elseya albagula	southern snapping turtle	CE	Ĕ	Prefers clear flowing water but can occur in non-flowing water. Known from Wide Bay Creek and Mary River.	Unlikely All records are from much further downstream, no Wildnet records within 20 km.	E



Scientific name	Common name	EPBC status	NC status	Habitat description/ regional ecosystems present	Likelihood of occurrence	Source
Erythrotnorchis radiatus	red goshawk	v	£	Typically occurs in woodland and forests in subtropical and warm temperate regions of Australia (Marchant and Higgins 1993). It prefers landscapes that contain a mix of habitats including coastal and sub-coastal tall open forest, woodland and rainforest edges (Marchant and Higgins 1993). Resident pairs of red goshawks prefer intact, extensive woodlands and forests with a mosaic of vegetation types that are open enough for fast manoeuvring flight (Marchant and Higgins 1993). These favoured areas contain permanent water, are relatively fertile and biologically rich with large populations of birds. Such areas are also preferentially selected for agricultural development (Sattler and Williams 1999). Nests are typically built at an average height of 20 m (DERM 2012).	Unlikely Marginal habitat onsite, nearest record is from the Nanango area approximately 50 km east of the project site:	E
Falco hypoleucos	grey falcon	v	v	Inhabits woodland, shrubland and grassland in the arid and semi- arid zones, especially wooded watercourses	Unlikely. Limited habital and no records within 20 km. No detections during dam surveys, tird surveys, and opportunistic sightings.	E
Furina dunmalli	Dunmall's snake	v	v	This species occurs from near the Queensland border in the brigalow belt south and Nandewar regions (DSEWPaC 2011c). Habitat for this species includes forest and woodlands on cracking clays and clay loams dominated by brigalow (Acadia harpophylla), other Wattles (A. burrowii, A. deanii, A. leiocalyx), and native Cypress (Callitris spp.). Little is known about this species ecological requirements, however it is suggested that fallen timber, ground litter, and cracks in alluvial soils provide shelter for this species (DSEWPaC 2011c).	Unlikely. Limited habitat onsile (0.26 ha patch of belah dominated woodland in north-east corner of site). Not detected during active herpetofauna searches. No Wildnet records within 20 km.	E
Gallinago hardwickii	Latham's	М	SLC	Latham's snipe is a non-breeding migrant to the south-east of Australia including Tasmania, passing through the north and New Guinea on passage. Latham's Snipe breed in Japan and on the east Asian mainland. Usually seen in small groups or singly in freshwaler wetlands on or near the coast (Pizzey and Knight 2012).	Unlikely. No suitable waterbodies onsite. No Wildnet records within 20 km.	E



Scientific name	Common name	EPBC status	NC status	Habitat description/ regional ecosystems present	Likelihood of occurrence	Source
Geophaps scripta scripta	squatter pigeon	v	V.	The squatter pigeon is regionally abundant within the Brigalow Bell (northern) and Desert Uplands Bioregions. The species occurs in a wide range of habitats wherever there is a grassy understorey. It is commonly encountered in grassy woodlands and open forests dominated by Eucalypts (DCCEEW 2023b)	Unlikely. Habitat is suitable, however no Wildnet records within 20 km. No detections during dam surveys, bird surveys, and opportunistic sightings.	E
Grantiella picta	painted honeyeater	v	v	Forests, woodlands, dry scrublands often with abundant mistletoe. Key habital is defined as brigatow and gidgee (with mistletoe), including REs 11.3.1, 11.3.1a, 11.3.1b, 11.3.1c, 11.3.16, 11.3.17, 11.3.20, 11.4.3, 11.4.3a, 11.4.3b, 11.4.3c, 11.4.7, 11.4.10, 11.9.5, 11.9.6, 11.9.6a, and 11.9.10 (DES 2022a).	Unlikely. No suitable habital exists onsite and no records within 10 km. One Wildnet record within 29 km. Many records from the wider locality (ALA 2022). No detections during dam surveys, bird surveys, and opportunistic sightings.	E
Hemiaspis damelii	grey snake	E	E	Found on the inland eastern interior to the Rockhampton coastal region. Inhabits fallen timber and soil cracks, usually near water. (Wilson and Swan 2014). Occurs from central inland NSW to coastal areas near Rockhampton. Inhabits brigatow and belah woodlands on cracking clay soils in association with water bodies, small guilles, ditches and gilgais as they prey almost exclusively on frogs (Rowland 2012).	Unlikely Limited habitat on site (0.26 ha patch of belah dominated woodland in north- east corner of site). Not detected during active herpetofauna searches. No Wildnet records within 20 km.	E:
Hirundapus caudacutus	white-throated	V, Mi	v.	The white-throated needletail is a non-breeding migrant to Australia (present October-April). It is widespread across eastern and south-eastern Australia but is considered a vagrant in central and western Australia. White-throated needletails are aerial birds, utilising the airspace above forests, woodlands, farmlands and ridge tops (Pizzey and Knight 2012).	Confirmed. Numerous individuals recorded during fixed point count surveys from 2018 - 2023. Likely to fly over the site. Four Wildnet records within 20 km.	E. W. survey results
Hydroprogne caspie	Caspian tem	Mi	SLG	Mostly found in sheltered coastal areas and may also occur on near-coastal or inland terrestrial wellands that are either fresh or saline.	Unlikely. No suitable habitat on site and no Wildnet records within 10 km. One Wildnet record within 20 km.	w
Lathamus discolor	swift parrot	CE	Ē	Dry sclerophyll eucalypt forests and woodlands. Occasionally wet sclerophyll forests. Feeds mostly on nectar, mainly from eucalypts, but also eats psyllid insects and lerps, seeds and fruit.	Unlikely. No suitable habitat onsile and no records within 20 km.	É



Scientific name	Common name	EPBC status	NC status	Habitat description/ regional ecosystems present	Likelihood of occurrence	Source
Monarcha melanopsis	black-faced monarch	Mi	ste	The black-faced monarch is a small insectivorous bird species. It breeds in eastern coastal Australia during summer and migrates to spend the non-breeding winter period in New Guinea, with a portion of the population overwintering in northern Australia. Habitat preference includes rainforests, eucalypt woodland and riparian zones (Pizzey and Knight 2012). Habitat onsite includes the SEVT and remaining riparian vegetation.	Possible. Suitable habital exists along the eastern boundary of the site. No Wildnet records within 10 km, but numerous records within 20 km. No detections during dam surveys, bird surveys, and opportunistic sightings.	E.W
Molaçilla flava	yellow wagtail	Mi	SLG	Variety of habitat types from farmland to well pastures and grasslands.	Unlikely. Habitat is suitable, but no Wildnet records within 20 km. No detections during dam surveys, bird surveys, and opportunistic sightings.	E
Myragra cyanoleuca	satin flycatcher	Mi	SLG	Occur in heavily vegetated guilles in forests, woodlands, mangroves and parks (Pizzey and Knight 2012)	Confirmed. Recorded in spring 2020, spring 2021, and autumn 2022 surveys. No Wildnet records within 10 km, but numerous records within 20 km.	E, W. survey results
Numenius madagascariensis	eastern curlew	CE	E	Primarily coastal distribution. The species is found in all states, is most commonly associated with shellered coasts, especially estuaries, bays, harbours, inlets and coastal lagoons, with large intertidal mudflats or sandflats, often with beds of seagrass. Occasionally, the species occurs on ocean baaches (often near estuaries), and coral reefs, rock platforms, or rocky islets. The birds are often recorded among sallmarsh and on mudflats fringed by mangroves.	Unlikely No suitable habital onsile and no records from within 20 km. No detections during dam surveys, bird surveys, and opportunistic sightings.	E
Nyctophilus corbeni	Corben's long-eared bat, south- eastern long- eared bat	v	v	Variety of vegetation types, including mallee, bulloak and box eucalypt dominated communities. Requires hollows for roosting and prefers large, intact and connected habitat patches.	Unlikely. No suitable habitat and no records from within 29 km. Harp trapping did not detect this species.	E
Pandion cristatus (syn. P. haliaetus)	eastern osprey	М	SLC	Occur in littoral and coastal habitats and terrestrial wetlands and occasionally travel inland along major rivers. Require extensive areas of open fresh, brackish or saline waters.	Unlikely. No rivers with permanent water occur. No Wildnet records within 10 km but one record within 20 km.	E.W



Scientific name	Common name	EPBC status	NC status	Habitat description/ regional ecosystems present	Likelihood of occurrence	Source
Pedionomus lorquatus	plains- wanderer	CE	CR	Inhabit sparse native grasslands and are often absent from areas where grass becomes too dense or too sparse.	Unlikely No habitat onsite and no records from within 20 km. No detections during dam surveys, bird surveys, and opportunistic sightings.	E
Petauroides armillatus (syn. Petauroides volans southern and central)	central greater	E	E	Tall eucalypt forests and woodlands: Silent, solitary and nocturnal. Eats gum leaves. Dependent on large tracts of undisturbed, tall forest with suitably large nesting hollows; each animal requires approximately 1.5 ha.	Confirmed. Suitable habitat exists onsite and Wildnet records within 20 km. A total of 70 individuals were detected during spotlighting surveys.	E, W, survey results
Petaurus australis australis	yellow-bellied glider	v	w.	Occurs in the Atherton Region, Queensland at altitudes of 700 m+ above sea level. Three distinct meta-populations: on Mount Windsor Tablelands, one on Mount Carbine Tableland and finally one extending from Atherton to Kirrama. Inhabits tall mature eucalypt forest and shelters in hollows. (DEWHA 2008a).	Possible. Suitable habitat exists onsite. No Wildnet records within 10 km but two records within 20 km. No detections during surveys.	E
Petrogale penicillata	brush-tailed rock-wallaby	v	v.	Prefers steep rocky habitats, with high importance on rocky outcrops and north facing aspects. Occurs in a range of vegetation types from rainforest to open forest.	Unlikely. No habital onsite and ne records from within 20 km.	E
Phascolarctos cineraus	koala	E	Ē	A range of temperate, sub-tropical and tropical forest, woodland and semi-and communities dominated by Eucalyptus species – food and shelter trees.	Confirmed. Fauna surveys have recorded numerous individual sightings as well as scats and scratches. Nine Wildriet records within 10 km.	W, E, survey results
Pteropus poliocephalus	grey-headed flying fox	v.	LG	Sub-tropical and temperate rainforest, tall open forest, swamps, heaths and urban areas. Roosting sites usually in dense forest adjacent to waterbodies. Forages within 50 km of camp in flowering trees or rainforests, eucalypts, paperbarks and banksias.	Confirmed. Observed foraging at two locations within the site during spring 2021 when food species in flower. Most flying fox camps occur closer to the coast. No camps known from within 20 km, with closest camp in The Palms National Park. Cooyar, approximately 39 km to the south-east.	E. W. survey results



Scientific name	Common name	EPBC status	NC status	Habitat description/ regional ecosystems present	Likelihood of occurrence	Source
Plegadis falcinėlius	glossy ibis	Mi	SLC	Fresh water marshes near the edges of lakes and rivers, lagoons, flood-plains, swamps, reservoirs, sewage ponds and cultivated areas under irrigation.	Possible. Suitable habitat exists on site. No Wildnet records within 10 km but three records within 20 km. No detections during dam surveys, bird surveys, and opportunistic sightings.	w
Rhipidura rulifrons	rufous fantail	Mi	SLG	Wet sclerophyll forests, often in gullies dominated by eucalypts such as tallow-wood Eucalyptus microcorys, blackbutt E. pituleris or red mahogany E. resinifers; usually with a dense shrubby understorey often including ferns.	Confirmed. Three individuals observed, one during 2018 spring survey, and two during fixed point count survey in autumn 2019. One Wildnet record within 10 km and 65 records within 20 km.	W, E, survey results
Rostratula australis	Australian painted snipe	E	v.	Shallow inland wellands, brackish or freshwater that are permanently or temporarily inundated:	Unlikely. No suitable wetland habitat and no records within 20 km.	Е
Symposiachrus trivirgātus (syn. Monarcha trivirgātus)	spectacled monarch	Mi	SLC	Speciacied monarchs are largely confined to the north east and east coastal and near coastal regions of Australia. Prefer understorey of rainforest, thickly wooded guillies and waterside vegetation (Pizzey and Knight 2012)	Possible, Limited suitable habitat. No Wildnet records within 10 km but four records within 20 km. Closest records from Murgon and Nanango areas about 20 km from site. No detections during dam surveys, bird surveys, and opportunistic sightings.	E.W
Tringa stagnatilis	marsh sandpiper	Mi	SLG	Permanent or ephemeral wetlands of varying salinity, including swamps, lagoons, billabongs, saltpans, saltmarshes, estuaries, pools on inundated floodplains, intertidal muditats, sewage farms and saltworks.	Unlikely. No suitable habitat. No Wildnet records within 10 km, but one record within 20 km.	E
Turnix melanogaster	black- breasled button-quail	v	v	Occur in forested areas where deep leaf litter layer exists in a wide variety of forest types. Fallen logs and a dense, heterogeneously distributed shrub layers are also considered to be important habitat characteristics for shelter and breeding.	Possible. Marginal habital exists in RE 11.8.3 in the south-western corner. No Wildnet records within 10 km but numerous records within 20 km. No detections during dam surveys, bird surveys, and opportunistic sightings.	E.W



Scientific name	Common name	EPBC status	NC status	Habitat description/ regional ecosystems present	Likelihood of occurrence	Source
Tympanocryptis condaminansis	Condamine earless dragon	E	E	Grassland is the preferred habitat for this species. Post European settlement this species has been recorded on cropland, remnant native grassland and exotic grassland. Known to forage in stubble fields and areas of no-till farming. Furthest eastern distribution is a broad arc from Jondaryan, Mt Tyson to Felton.		E
Flora				Till I		
Acacia grandifolia	S	v	re	Grows on hilly terrain of varying aspects and slope, on hillcrests, in gulfies on plains. Species forms open stands on sand, among large sandstone boulders and has been found on stony soils which are basalt derived.	Unlikely. Limited habitat in site and no records within 10 km. One Wildnet record within 20 km. Southern end of distribution near Wilkesdale about 20 km north of site.	E.W
Arthraxon hispidus	hairy-joint grass	v	v	Spreading grass often growing near creeks or swamps, generally in or on the edges of rainforest and wet eucalypt forest.	Unlikely, Limited habitat and no records within 20 km.	E
Bothriochlos buryensis	satin top	v	¥°	Endemic to SEQ and occurs on relatively fertile krasnozem (dark brown) soils derived from basatt on upper slopes and hill crests at altitudes of 600–1100 m. Occurs in grassland or woodland with a grassy understorey.	Unlikely. No suitable habital and no records within 10 km. Nearest records are about 20 km south of site in very different montane habital in the Bunya Mountains.	E, W
Bulbophyllum globuliforme	miniature moss-orchid	v	NE	A host-specific species, growing only on hoop pine, colonising the upper branches of mature trees (DCCEEW 2023b).	Unlikely No hoop pine on site and no Wildnet records within 20 km.	Е
Cadellis pentastylis	ooline	v	v	Semi-evergreen vine thickets and sclerophyll vegetation on undulating terrain of various geology, including sandstone, conglomerate and claystone.	Unlikely Limited habitat and no records within 20 km. Not found during surveys of suitable habitat.	E



Scientific name	Common name	EPBC status	NC status	Habitat description/ regional ecosystems present	Likelihood of occurrence	Source
Clematis fawcettii	stream clematis	v	v	Prefers canopy gaps on loam soils derived from basalf and mixed volcanic rocks usually near streams. Occurs in association with dry rainforest, subtropical rainforest, eucalypt forests with scattered vine forest species	Unlikely. Limited habitat in site and no records within 10 km. Nearest records are about 20 km south of site in very different montane habitat in the Bunya Mountains. Not found during surveys of suitable habitat.	E.W
Cossinia australiana	cossinia	E	Ē	Occurs on fertile soils from Rockhampton to Kingaroy. Associated with patches of Araucarian vine forest or vine thickets.	Unlikely. Limited habitat in site. No Wildnet records within 10 km and one record within 20 km. Not found during surveys of suitable habitat.	E, W
Denhamia parvifolia	small-leaved denhamia	v	v	Grows on soils derived from various geological substrates and is associated with semi-evergreen vine thickets and Acacia fiarpophylla (brigatow) scrub communities.	Unlikely. Limited habital in site. No records within 10 km but 12 records within 20 km. Not found during surveys of suitable habitat.	E
Dichanthium quaenstandicum	king blue- grass	E	LC	Occurs on black cracking clay in tussock grasslands mainly in association with other species of blue grass.	Unlikely. No suitable habitat and no records within 10 km.	E
Dichanthlum setosum	bluegrass	v	LC	Occurs on heavy basaltic black soils and red-brown loams with clay subsoil in grasslands and open woodlands:	Unlikely. No suitable habitat and no records within 10 km.	Ē
Haloragis exalata subsp. velutina	tall velvet sea beny	v	rc	Found in rainforest and rainforest margins and adjacent grassland and open grassy woodland and often occurs in damp places near watercourses and in woodland on steep rocky slopes.	Unlikely. Limited habitat. No records within 10 km and four records within 20 km. Not found during surveys of suitable habitat.	E, W
Lepidium monoplocaides	winged peppercress	E	LG	Tends to occur in semi-arid areas with maliee scrub which are seasonally waterlogged. Found in open woodland dominated by Allocasuarina luehmannii and/or eucalypts such as Eucalyptus largiflorens or E. populnea (DCCEEW 2023b).	Unlikely. No Wildnet records within 20 km.	E



Scientific name	Common name	EPBC status	NC status	Habitat description/ regional ecosystems present	Likelihood of occurrence	Source
Lepidium peregrinum	wandering peppercress	E	LC	This species has been found growing in riparian areas associated with open forests. It is commonly abundant in tussock grasslands fringing riparian areas	Possible. Suitable habitat but no records within 10 km. Nearest records are about 20 km south of site in very different montane habitat in the Bunya Mountains. Not found during surveys of suitable habitat.	E.W
Macadamia Integrifolia	macadamia nut	v	v	Prefers rainforest margins in remnant rainforest, on high nutrient soils with rock fragments. Occurs on a wide variety of well drained landforms and slopes.	Unlikely. Limited habital and no records within 20 km.	E
Paspalidium grandispiculatum		v	v	Mixed forest with Corymbia citriodora on sub-coastal, old loamy and sandy plains and mixed open forest often with Corymbia trachyphloia, C. citriodora, Eucalyptus crebra, E. fibrosa on quartzose sandstone. Occasionally recorded in pasture.	Possible Suitable habitat but no Wildnet records within 20 km.	E
Phebalium distans	Mt Berryman phebalium	GE	Æ	Found in semi-evergreen vine thicket on red volcanic soils, or in communities adjacent to this vegetation type.	Unlikely. Limited habitat and no Wildnet records within 10 km. Not found during surveys of suitable habitat.	E
Polisnthion minutiflorum	44.	С	c	Forest and woodland on sandstone slopes and gullies with skeletal soil, or deeper soils adjacent to deeply weathered latente (DEWHA 2008b).	Possible. Suitable habitat but no Wildnet records within 10 km. One record within 20 km.	E
Leuzea australis (synonym Rhaponticum australe)	Austral comflower, native thistle	v	V.	Grows in eucalypt open forest with grassy understory on roadsides and on road reserves with Chloris gayana, Cirsium vulgare, Eucalyptus tereticomis and Angophora floribunda on black clay soil.	Possible. Limited suitable habitat in site. No Wildnet records within 10 km and one record within 20 km. Possible on heavy clay soils that occur only in the southwestern edge of the site. Not found during surveys of suitable habitat. No suitable habitat within planning corridor.	Е
Sarcochilus weinthalii	blotched sarcochilus	v	E	Inhabits rainforest, dry rainforest and drier scrub of sub-coastal ranges, microphyll and notophyll rainforest types and in patches of isolated scrub (DoE 2014c).	Unlikely. No suitable habitat, one Wildnet record within 20 km in the Bunya Mountains.	E



Scientific name	Common name	EPBC status	NC status	Habitat description/ regional ecosystems present	Likelihood of occurrence	Source
Sophora fraseri	brush sophora	v	v	Found in moist habitats, often in hilly terrain at altitudes between 60-660 m. Occurs in shallow soils along rainforest margins in eucalypt forests or in large canopy gaps in closed forest communities.	Unlikely Limited habital and no records within 20 km.	E
Thesium australe	Austral toadflax	v	v.	Strubland, grassland or woodland, usually on damp sites Suitable vegetation types within the project site likely to be limited to woodlands and grasslands in seasonally wet riparian areas.	Possible Suitable riparian habitat in site and Wildnet records beside Jarail Rd about 1 km west of site. Not found during surveys of suitable habitat.	E.W
Zieria obovata	No.	v	v	Wet open eucalypt forest dominated by Syricarpia glomulifera, Eucalyptus abergiana, and E cloeziana, and on steep rocky slopes among granife slabs and boulders	Unlikely. Limited habitat and no Wildnet records within 10 km. One Wildnet record within 20 km.	w



Appendix 3 Flora survey sites

Site	Entitude:	Longitude	Survey type	Mapped RE	Ground-truthed RE
S1	-26,5961759	151.449076	Tertiary, threatened survey	11.11.15	11.11.4
S2 :	-26.6004646	151.451141	Qualernary	NR	NR
53	-26.6027789	151.4551464	Tertiary, threatened survey	11.11.15	11.11.4
S4	-26.6139368	151.4641696	Qualernary	11.11.15	11:11:4
S5	-26.6145141	151.4632612	Quaternary	NR	NR
S6:	-26.6043303	151.4703187	Qualernary	11.11.15	11:11:4
S7	-26.58142	151.489043	Quaternary	NR	NR
S8	-26.5839246	151.4941471	Tertiary, threatened survey	11.11.15/11.3.25	11:11:15
59	-26.5929	151.4907267	Tertiary, threatened survey	11.11.15 / 11.3.25	11.3.25
S10	-26.5866861	151.488873	Qualernary	11.11.15/11.3.25	NR
S11	-26.5881356	151.4871303	Quaternary	11.11.15/11.3.25	11.11.4
S12	-26.6527896	151.4898147	Qualernary	11.11.15/11.3.25	11:11:15
S13	-26.6527139	151.4885312	Quaternary	11.11.15/11.3.25	11.3.25
S14	-28.6724279	151.4815414	Qualernary	11.11.15/11.3.25	11:11:15
S15	-26.5788262	151 5110025	Quaternary	NR	NR? HVR 11.11.15?
S16	-26.5813127	151.5096668	Tertiary, threatened survey	11.11.15/11.3.25	11:11:15
S17	-26.579291	151.5086747	Quaternary	11.11.15/11.3.25	HVR 11.11.15
S18	-26:5718993	151.525241	Quaternary	NR	NR
S19	-26.5643469	151.5285246	Quaternary	NR	NR
S20	-26:5627959	151.527348	Quaternary	NR	NR? HVR 11.3.25?
521	-26.576551	151.4972066	Quaternary	NR	NR
S22	-26:5806719	151.5870479	Tertiary, threatened survey	11.12.3/11.7.6	11.12.3
523	-26.5858967	151.5872062	Quaternary	11,12,3/11,7.6	11.123
524	-26.5908076	151.5901239	Quaternary	12.12.24/12.12.28/ 12.3.3	12.12.24
\$25	-26.590009	151.5913337	Qualernary	12.12.24/12.12.28/ 12.3.3	12,12.8
526	-26.5892325	151.5930143	Quaternary	12.12.13	12.12.24/12.12.8



Site	Latitude	Longitude	Survey type	Mapped RE	Ground-truthed RE
\$27	-26:5881432	151.5942842	Quaternary	12.8.13/12.12.13	12.12.24/12.12.8
528	-26.5859752	151.5944624	Tertiary, threatened survey	11,12,4	11.8.3
S29	-26.6126883	151.576673	Quaternary	11.12.3/11.7.6	11,12,3
530	-26.6152246	151.5761588	Tertiary, threatened survey	11,12.6	11.12.3
S31	-26.6238091	151.5554895	Quaternary	NR	NR
532	-26.6189056	151.5539952	Quaternary	11,12,3/11,7.6	11.11.15
S33	-26.6174561	151.5534398	Tertiary, threatened survey	11.12.3/11.7.6	11,11,15
534	-26.6159089	151.5467794	Quaternary	11,12,3/11,7.6	11.12.6
S35	-26.6195085	151.5474313	Quaternary	11.12.3/11.7.6	11,12,6
536	-26.6554562	151.5340447	Quaternary	NR	NR
S37	-26.6761108	151.5616398	Quaternary	NR	NR
538	-26.669187	151.5236757	Quaternary	11.12.6	11.12.3
S39	-26.6702269	151.5383792	Quaternary	NR	NR? HVR 11.12.3?
540	-26.6743799	151.5546367	Quaternary	NR	NR
541	-26.6701292	151,5600609	Quaternary	11.3.25	11,3.25
S42	-26 657 1856	151.5713529	Terliary, threatened survey	11.12.6	11.12.6
543	-26.6562388	151,570424	Quaternary	11.12.6	11,12.6
S44	-26 6590417	151 5706684	Quaternary	NR	NR
545	-26.57824189	151.5962871	Tertiary, threatened survey	11,5.20	11,12.3
S46	-26 57128085	151 5990605	Terfiary, threatened survey	11.12.6/11.11.4	11.11.4
547	-26.57386998	151,6021109	Quaternary	11.12.6/11.11.4a	11.5.20
S48	-26 55443113	151.5757875	Quaternary	NR	NR
549	-26.55190093	151.5730164	Quaternary	NR	NR
S49.1	-26 52461263	151 5184391	Quaternary	11.12.3	11.12.3
S50	-26.51710932	151.5131081	Quaternary	11.12.3	11.12.3
S51	-26 51253641	151 5094302	Quaternary	11.3.25	11.3.25
S51.1	-26.5328953	151.5129895	Quaternary	11,11,15/11,3.25	HVR 11.11.15
S52	-26 56605142	151.4769971	Quaternary	11.11.15/11.3.25	11.11.4
S53	-26.56319403	151.4789497	Qualemary	11.11.15/11.3.25	11,11.4



Site	Latitude	Longitude	Survey type	Mapped RE	Ground-truthed RE
S54	-26:55917323	151.4781772	Quaternary	11.11.15/11.3.25	11,11.4
554.1	-26.55594515	151.479467	Quaternary	11,11,15/11,3,25	11.11.4
S55	-26:5524146	151.4791871	Tertiary, threatened survey	11.11.15/11.3.25	11,11.4
556	-26.54933985	151.4783254	Quaternary	11,11,15/11,3,25	HVR 11.11.4
S57	-26:54650591	151.4736859	Quaternary	11.11.15/11.3.25	11,11.4
558	-26.5433878	151.4676796	Quaternary	11.11.15/11.3.25	11.11.4
S59	-26:54178933	151.46452	Quaternary	11.11.15/11.3.25	HVR 11.11.15
S60	-26.56330333	151.5882901	Tertiary, threatened survey	11,12.6/11.11.4	11.7.6
S61	-26:56515963	151.5864264	Quaternary	11.12.3/11.7.6	HVR 11.12.3
562	-26.56880739	151.5875634	Quaternary	11,12,3/11,7.6	11.12.3
S63	-26:56793861	151.5896368	Tertiary, threatened survey	11.12.6/11.11.4	11,12,6
S64	-26.54056214	151.4821775	Quaternary	11.11.15/11.3.25	HVR 11.11.15
S65	-26:54097654	151.4800425	Quaternary	11.11.15/11.3.25	11,11.15
S66	-26.6836077	151.5709048	Quaternary	NR	NR
S67	-26.67505258	151,5774766	Quaternary	NR	NR or HVR 11.11.4
S68	-26 62802893	151.567478	Tertiary, threatened survey	NR	11.3.25
S69	-26.63304793	151.5746358	Quaternary	11,12.6	11,12.6
S70	-26 63342491	151.5767131	Quaternary	11.5.20	11.11.4
571	-26.63481492	151.5765687	Quaternary	11.5.20	11,12.6
S72	-26 65584093	151.5696643	Tertiary, threatened survey	11.12.6	11.12.6
573	-26.5897941	151,4880619	Quaternary	11.11.15/11.3.25	NR/11.11.4
S74	-26 5892146	151.4877632	Quaternary	11.11.15/11.3.25	NR/11.11.4
S75	-26.5882201	151,4878302	Quaternary	11.11.15/11.3.25	NR/11.11.4
S76	-26 5874506	151.4880011	Quaternary	11.11.15/11.3.25	NR/11.11.4
S 77	-26.579322	151.527114	Quaternary	NR	NR
S78	-26 5873885	151 5937403	Quaternary	12.8.13/12.12.13	12.8.13 bdry
S79	-26.5870093	151.5943576	Quaternary	12.8 13/12.12.13	12.8.13 bdry
580	-26 5871742	151.5941273	Quaternary	12.8.13/12.12.13	12.8.13 bdry
581	-26.5872657	151.5938979	Quaternary	12.8 13/12.12.13	12.8.13 bdry



Site	Latitude	Longitude	Survey type	Mapped RE	Ground-truthed RE
S82	-26:5869546	151.5937997	Quaternary	12.8.13/12.12.13	12.8.13 bdry
583	-26.5865715	151 5937498	Quaternary	11.12.4	12.8.13
S84	-26:58630307	151.5937224	Quaternary	11.12.4	12.8.13
S85	-26.5859648	151.5936009	Quaternary	11.12.4	12.8.13
S86	-26:58575109	151.5937234	Quaternary	11.12.4	12.8.13
587	-26.5839122	151 5930603	Quaternary	11.12.3/11.7.6	12.8.237
S88	-26:5838619	151.593527	Quaternary	11.12.3/11.7.6	12.8.13 bdry
589	-26.5839816	151 593886	Quaternary	11.12.3/11.7.6	12.8.13 bdry
S90	-26:584052	151.5943682	Qualernary	11.12.3/11.7.6	12.8.13 bdry
591	-26.58426125	151 5949841	Quaternary	11.12.3/11.7.6	12.8.13 bdry
S92	-26:5847757	151.5948408	Qualemary	11.12.3/11.7.6	12.8 13 bdry
593	-26.5853865	151 5947857	Quaternary	11.12.3/11.7.6	12.8.13 bdry
S94	-26:5852917	151.5954815	Qualernary	11.12.3/11.7.6	12.8 13 bdry
595	-26.5842428	151 5978637	Quaternary	11.12.3/11.7.6	12.8.13 bdry
S96	-26.5865884	151.5968601	Quaternary	11.12.4	12.8.13 bdry
S97	-26 586225	151 5965103	Quaternary	11.12.4	12.8.13 bdry
S98	-26.5863571	151,5961309	Quaternary	11.12.4	12.8.13 bdry
S99	-26 5864141	151.5957634	Quaternary	11.12.4	12.8.13 bdry
S100	-26.5865437	151.5953866	Quaternary	11.12.4	12.8.13 bdry
5101	-26 5864324	151 5948294	Quaternary	11.12.4	12.8.13 bdry
S102	-26.6202089	151,5539546	Quaternary	11,12,3/11,7,6	11,11.15
5103	-26.6187772	151.5547744	Quaternary	11.12.3/11.7.6	11.11.15
5104	-26.656618	151,5706205	Quaternary	NR	11.12.6
S105	-26 6582653	151.5697485	Quaternary	NR	11.12.6
S106	-26.57361228	151.6025757	Qualemary	11.12.6/11.11.4a	11.5.20 bdry
S107	-26 57476948	151.6019396	Quaternary	11.5 20	11.5.20 bdry
S108	-26.57354447	151.6021413	Qualernary	11.12.6/11.11.4a	11.5.20 bdry
S19	-26 562139	151,4789625	Quaternary	11.11.15/11.3.25	HVR 11.11.4
S110	-26.5493662	151.478361	Quaternary	11.11.15/11.3.25	HVR 11.11.4



Site	Latitude	Longitude	Survey type	Mapped RE	Ground-truthed RE
S111	-26:56289149	151.5902565	Quaternary	11.12.6/11.11.4	11.12.6
\$112	-26.65854036	151.5619307	Quaternary	NR	NR
S113	-26:63318238	151.5768492	Quaternary	11.5.20	11.11.4
S114	-26.63625648	151.5747156	Quaternary	11.12.6	11.12.6
S115	-26:65847464	151.5694487	Quaternary	NR	11.12.6 bdry
S116	-26.65860042	151 5691884	Quaternary	NR	11.12.6 bdry
S117	-26.6585308	151.568953	Quaternary	NR	11.12.6 bdry
S118	-26.65841199	151.5684061	Quaternary	NR	11.12.6 bdry
S119	-26.65823484	151.5685	Quaternary	NR	11.12.6 bdry
S120	-26.65816028	151 5684021	Quaternary	NR	11.12.6 bdry
S121	-26:65802785	151.5686801	Quaternary	NR	11.12.6 bdry
\$122	-26.65784977	151.5689982	Quaternary	NR	11.12.6 bdry
S123	-26:65792898	151.5691689	Quaternary	NR	11,12,6 bdry
S124	-26.65757246	151.5691265	Quaternary	NR	11.12.6 bdry
S125	-26.65726304	151,569607	Quaternary	NR	11.12.6 bdry
S126	-26 65732578	151 5698023	Quaternary	NR	11.12.6 bdry
5127	-26.65668817	151,5698891	Quaternary	NR	11.12.6 bdry
S128	-26 65661365	151 5696143	Quaternary	11.12.6	11.12.6 bdry
5129	-26.65682634	151,5690469	Quaternary	NR	11.12.6 bdry
5130	-26 65683241	151.5700151	Quaternary	NR	11.12.6 bdry
5131	-26.65704875	151,5699225	Quaternary	11.12.6	11.12.6 bdry
5132	-26 65640327	151 5691924	Quaternary	11.12.6	11.12.6 bdry
5133	-26.65607528	151.5692029	Quaternary	11.12.6	11.12.6 bdry
5134	-26 65604628	151.5688115	Quaternary	11.12.6	11.12.6 bdry
S135	-26.6559418	151,5686067	Quaternary	11.12.6	11.12.6 bdry
S136	-26 65585731	151.5683154	Quaternary	11.12.6	11.12.6 bdry
S137	-26.65568951	151,5679307	Quaternary	11.12.6	11.12.6 bdry
5138	-26 65541206	151.5682311	Quaternary	11.12.6	11.12.6 bdry
S139	-26.65539103	151.5683721	Quaternary	11.12.6	11.12.6 bdry



Site	Latitude	Longitude	Survey type	Mapped RE	Ground-truthed RE
S140	-26.65552262	151.5688703	Quaternary	11.12.6	11.12.6 bdry
S141	-26.65528395	151 5693052	Quaternary	11.12.6	11.12.6 bdry
S142	-26:65565099	151.5697235	Quaternary	11.12.6	11.12.6 bdry
S143	-26.65566352	151 5698038	Quaternary	11.12.6	11.12.6 bdry
A1	-26:645662	151.518477	Tertiary, threatened survey	NR	NR
A2	-26.640008	151.487396	Quaternary	11,11.15	11.11.15
A3	-26.64998507	151.4731964	Tertiary, threatened survey	11.8.3/12.8.16	11.8.3
Α.4	-26.64782771	151.4744225	Quaternary	11,11.15	11.11.15
A5	-26:59667161	151.5448053	Quaternary	NR	NR
A6	-26.59723473	151.5451323	Quaternary	NR	NR
A7	-26:59733628	151.5465558	Quaternary	11.11.15/11.3.25	11.11.4
A8	-26.59763377	151.5480614	Quaternary, threatened survey	NR	HVR 11.3.25
Α9	-26.59971572	151 5254061	Quaternary	NR	NR
A10	-26:59835746	151.5332941	Quaternary	11.11.15/11.3.25	11,11,15
A11	-26.59872845	151.5307757	Quaternary	NR	NR
A12	-26.5726864	151.5283566	Quaternary	NR	NR
A13	-26 58135028	151.5363983	Quaternary, threatened survey	NR	NR
A14	-26 58037101	151.5444811	Quaternary, threatened survey	NR	NR
A15	-26.56226948	151.5495355	Quaternary	NR	HVR 11.3.4
A16	-26.56308234	151.5501175	Quaternary	11.11.15/11.3.25	11.11.15
A17	-26.56325639	151,5534485	Quaternary	NR	NR
A18	-26.5649503	151.5565813	Quaternary	11.12.3/11.7.6	11.12.3
A19	-26.57922226	151.5622384	Qualernary	11.11.15/11.3.25	11.11.15
A20	-26:58658899	151.5570841	Quaternary, threatened survey	NR	NR
A21	-26.59464894	151.5768818	Quaternary, threatened survey	NR	NR
A22	-26 59095723	151,4772935	Quaternary	11.11.15/11.3.25	11.11.4
A23	-26.60077437	151.495101	Quaternary, threatened survey	NR	NR



Site	Latitude	Longitude	Survey type	Mapped RE	Ground-truthed RE
A24	-26:59969825	151.4839583	Quaternary	11.11.15	11.11.4
A25	-26.60592412	151.4776403	Quaternary	11.11.15/11.3.25	11.11.15
A26	-26.56252696	151,4743856	Quaternary, threatened survey	NR	HVR 11.3.25

NR - Non remnant vegetation Bdry - Vegetation boundary



Appendix 4 Flora species recorded in detailed vegetation survey sites

Species abundance:

- D Dominant
- A Abundant
- F Frequent
- O Occasional
- R Rare
- # Introduced species
- Q: Data from quaternary sites
- p recorded in quaternary site

Species	1 11								A	bunda	nce w	thin at	irvey :	rite						
	51	\$3	S8	\$9	\$16	\$22	S28	\$30	\$33	S42	\$45	546	\$65	\$60	\$63	\$88	572	A1	A3.	Q
Abutilon oxycarpum				N			0			0						0				p
Acacia amblygona																		10		р
Acacia bancroftiorum								F				0		F	0					p
Acacia dispartima										D				R			F			р
Acacia fimbriata																				p.
Acacia excelsa																		A		
Acacia irrorata	0	0			0								0						R	p:
Acacia lelocalyx	F	0	D	F	F	0		A	F		D	0	0		F	0			0	p
Acacia maidenii							R									IE:				p



special section in the section is a section of the	1									Ai	nunds	nce wi	thin s	urvey	site						
Species		51	\$3	58	59	\$16	522	528	\$30	\$33	542	\$45	546	\$55	560	563	568	572	A1	A3	0
Acacia pustula					R																р
Acacla salicina																			F		p
Acacia spectabilis							0	0				0				0					р
Acalypha eremorum											F							0			
Alectryon connatus								0													
Alectryon diversifolius								0			0									0	p:
Allocasuarina littoralis										R					R	0					p
Allocasuarina luehmannii			D										R	R					ĺ.		p
Allocasuarina torulosa																					р
Alphitonia excelsa		0	R	R		D	0	0	0	0	R	R	Д	0	D	D				О	р
Alstonia constricta									R		0				o						р
Alternanthers nana		R					0									R					
Alternanthera pungens	#		R																		
Alyxia ruscifolia								0			F					0		F			P
Amyema congener						F:									R						
Angophora fioribunda					F												F				p
Angophora leiocarpa							0		R	D			0		F	R					р
Aristida acuta																			0		p
Aristida caput-medusae													F		0	0					р
Anstida queenslandica		0	0	0	F	F		0	F			0		0	0	F					р
Arundinella nepalensis					[0]					0											p
Austrostipa ramosissima								0									0	0			p:
Axonopus compressus	#																R				
Bidens pilosa	#				0			0	F								E				р
Bothriochloa bladhii																					р



- Control of the Cont	1									Ai	nunds	nce wi	thin st	rvey i	ite						
Species		51	\$3	58	59	\$16	522	528	\$30	\$33	542	\$45	\$45	\$55	560	563	568	572	A1	A3	0
Baerhavia dominii		0		0																	
Bothriochloa decipiens							0														р
Brachychiton populneus				R						R						R	R			0	р
Erachychiton rupestris										R											
Breynia oblongifolia				R			0	0	R	F			0			F		0			р
Brunoniella australis		0		0					0		R	0				R	0				
Bulbostylis barbata													R								
Callitris balleyi																			i .		р
Calilitris glaucophylla																	R				
Calotis dentex									0	0											
Galotis lappulacea					0				0								0				р
Calyptochloa gracillima				0			0														
Capparis arborea											F							0			p:
Cappans canescens		0																			P
Capparis lasiantha								R										IE.			
Capparis loranthifolia																		F			
Carissa ovata											F							F			р
Cassinia laevis				R		D			R	D			R			R					p
Casuarina cunninghamiana																	0				р
Cayratia clematidea								R			R							0			
Centella asiatica																	0				
Chellanthes sieberi		0		F	0	F	F	0	F	0		0	R			0		R	R	0	p:
Chloris gayana	#				F															F	p
Chrysocephalum apiculatum		0		0	0	0	F		0		F	0									р
Commelina diffusa																	0	R			



Section (Co.										Ai	nunds	nce wi	thin s	urvey i	site						
Species		51	\$3	58	59	\$15	522	528	\$30	533	542	\$45	545	\$55	560	563	568	572	A1	A3	0
Commelina lanceolata				F:		0	0			R	0		0	0							р
Coreopsis lanceolata	#																				р
Corymbia citriodora		D	D											D							р
Corymbia clarksoniana																					р
Corymbia tessellaris					F			R													р
Crinum angustifolium.																					p:
Grotalaria mitchellii																	R				
Croton insularis								R											i i		
Cupaniopsis parvifolia																	R				
Cyanthillium cinereum		0		0		0				0				0							
Cymbidium canaliculatum							R					R									
Cymbopogon obiectus												F		R							р
Cymbopogon refractus		D		D.	F	D	A		D	F					0		0				p:
Cynodan deciylon	#				0												0				p
Cynodon niemfuensis	#																		0		р
Cyperus eragrostis	#																				p
Cyperus gracilis				0												0	R	R			
Cyperus sp.		0															0				p
Datura stramonium	#																				р
Daviesia ulicifolia																					р
Denhamia bilocularis																				R	
Denhamia disperma								0													
Desmodium brachypodum						0	0		0			0					0			0	p
Desmodium rhytidophyllum		0							0					0							р
Desmodium varians							0										0				



report Control on La										Ai	nunde	nce wi	thin s	urvey i	ite						
Species		51	\$3	58	59	\$15	522	528	\$30	\$33	542	\$45	545	\$55	560	563	568	572	At	A3	Q
Dianella brevipedunculata							0		0	0		0				R	0			0	р
Dianella caerulea		0	0	R					R		R			0		R					
Dichanthium sericeum																			0	О	p
Digitaria minima														0							
Diospyros humilis																					р
Dodonaea viscosa						0			0	0											p:
Dodonaea triquetra																				R	p
Dolichandra unguis-cati	#																		i .		p
Drypetes deplanchei								E								0		0			Р
Dyspheria carinata																					р
Einadia nutans				0	R			R	0	0	0		0	R		0	O	R			P
Elseodendron australe											R							0			р
Eleochanis cylindrostachys					0																
Enneapogon lindleyanus		0																			p
Enteropogon scicularis																				0	
Entolesia stricta			D					0		0			D	F	D	0					p
Entolasia whiteana											D.							0			
Eragrostis curvula	#			0	0	R						D					0		0	F	р
Eragrostis elongata										R											
Eremophile debilis		R					R														p.
Erythroxylum sp. Splityard Creek								R													
Eucalyptus acmenoides													0								p:
Eucalyptus crebra		0		D	F	D	D.		D	0	0	D	D		D	D.		0		D	p
Eucalyptus exserta										F:											р
Eucalyptus major																F					p



and the second										Ai	nunda	nce w	thin s	urvey	site						
Species		51	\$3	58	59	\$16	522	528	\$30	533	542	545	\$45	\$55	560	563	568	572	A1	A3	0
Eucalyptus melanophiola					0		0	0									E		Α		р
Eucalyptus moluccana																		D			p
Eucalyptus tereticomis				0	F		0					A	R			F	F			О	р
Euphorbia heterophylla	#																				P.
Eustraphus latifolius								0			0						0	0		О	р
Everistia vacciniifolia									R		0							0			
Evolvulus alsinoides		R		0			0		R												р
Exocarpos cupressiformis													R		0		0		Ĺ		р
Ficus rubiginosa																					р
Fimbristylis dichotoma					0		0	0	R		0	0							F		р
Flindersia australis																					р
Flindersia collina											R							R			
Gahnia aspera								0							0						p:
Geijera salicifolia											0							F		0	p
Geitonoplesium cymosum											R							0		0	
Glandularia aristigera	#	0		F	F												F			0	p
Glossocardia bidens		R					R		R			0	R			R					
Glycine microphylla		F		0		0	0		0	0		0						0			
Gomphocarpus physocarpus	#																				р
Gomphrena celosioides	#																			R	р
Goodenia delicata					li i							1		F							p
Grewia latifolia								R		R										R	p:
Hardenbergis violacea		0												0							p
Heliotropium amplexicaule	#.			0	D														0		р
Heteropogon contartus					0		0														р



Species										Ai	nunda	oce wi	thin s	urvey	site						
Species		51	\$3	58	59	516	\$22	528	S30	\$33	542	\$45	\$45	\$55	560	563	568	572	A1	A3	0
Hoves parvicalyx															0						
Hybanthus stellarioides							0														
Imperata cylindrica																					p
Indigatera australis		0															Ð				
Jacksonia scopana									F	D				b							р
Jagera pseudorhus									R												
Jasminum didymum								0			F							F			
Jasminum simplicifollum								0	0	R	0							R	i .	F	р
Juncus usitetus					0																
Lentana camara	#						0	D	0			0			R	0	0	R		R	р
Lantana montevidensis	#			0																	
Lepidium africanum	#																				р
Lepidium bonariense	#																				p:
Leucopagon billiarus													0								
Leucopogon trichostylus																R					
Ligustrum lucidum	#																				p
Lobelia concolor									R			0	F			R					
Lomandra confertifolia															0	0					
Lomandra fillformis													R								р
Lomandra hystrix													0								
Lomandra longifolia					10 1							0					A				P
Lomandra multiflora			0									R		0			R				
Maireana microphylla				0					R												p
Marsdenia lloydii																					р
Medicago polymorpha	#				R																



Secret Secretary										Ai	nunds	nce w	thin s	urvey	site						
Species		51	\$3	58	59	\$16	\$22	\$28	530	\$33	542	\$45	\$45	\$55	560	563	568	572	A1	A3	Q
Megathyrsus maximus	#																0				р
Melaleuca viminalis																	F				p
Melinis repens	#	0		0		F	0			R		R								F	р
Microlaena stipoides										0											
Murdannia graminea						0	F														р
Notelaea longifolia								F	R	R											p:
Nyssanthes diffusa																		R			
Olearia canescens								F											Ĺ		
Oplismenus aemulus								R										R			
Opuntia tomentosa	#	R	R	0	0	0	0		0	0		0	0	0	0	0	O	0	F	О	p
Oxalls comiculata:	#			0	0	0		R		0							0			0	
Pandores pandorana				0				0	0	0	F				R	R		0		0	p:
Panicum decampositum																					p
Panicum effusum		R		0		0	R														
Panicum queenstandicum							R		0												
Paspalum distictium																					p
Parsonsia lanceolata										R	R		R		0						
Passiflora aurantia											R										
Petalostigma pubescens										R											p:
Phragmites australis																					p
Phylianthus virgatus		R		0	0		0		0				0			R	0				
Pimales necanglica																					p
Pittosporum angustifolium							R			R										R	
Pittosporum spinescens								R	0		0		R			0		0			р



Specification.										Ai	nunds	nce w	thin s	irvey	site						
Species		51	\$3	58	59	\$15	522	S28	\$30	\$33	542	\$45	\$45	\$55	560	563	568	572	A1	A3	a
Podolepis neglecta																	R				
Polyscias elegans								R													
Pomax umbellata													R								
Portulaça oleracea										0											
Portulaca pilosa	#			0		F	R														р
Psydrax attenuata																					p:
Psydrax odorata		R				0	R	0	0	0	F		R		0	F		F		R	р
Pterocaulon sphacelatum							0					0					R		0		р
Pultenaea petiolaris																					р
Rapistrum rugosum	#																0				
Richardia brasiliensis					R																
Rostellularia adscendens				0													0				р
Rubus parvifolius																	0				
Rumex brownii					0												0			0	p
Schoenoplectus validus																					р
Schinus molle	#																				p
Scleria sphacelata												0	0		0						р
Sida cordifolia	#									R							0				
Sida mombifolis	#			0	0				R										F	0	р
Sigesbeckia orientalis										0											
Solanum nemophilum			0						0	0		1		0		R				0	p
Solanum nigrum	#																R				
Solanum seaforthianum	#										R							R			
Solanum stelligerum								0	0		0							0			p
Sonchus oleraceus	#																				p



specification in the second se										At	under	ace wi	thin st	irvey i	itte						
Species		51	\$3	58	59	\$16	522	\$28	\$30	533	542	\$45	546	\$55	560	563	568	572	At	A3	Q
Sporobolus africanus	#																				р
Sporobolus creber				R		R															
Stackhousia monogyna																					р
Теиспит јипсеит																		F			р
Themeda triandra																					р
Tragus australianus																					p:
Tricoryne elatior																					p
Triflorensia cameronii																					p
Tripogon loliiformis																			0		р
Typha domingensis																					р
Urochioa panicoides																					р
Urochloa mosambicensis	#				0																
Urtica incisa																	0				
Vachellia farnesiana	#																				p
Verbena incompta	#																				p
Wahlenbergia communis																	R				
Wahlenbergia gracilis		0		0	R																
Wahlenbergia stricta																			0		
Xanthium occidentale	#																			0	р
Xanthium spinosum																					р
Xanthorrhoea johnsonii					10																p
Zinnia peruviana	#																				p:
Zornia dyctiocarpa		R																			
Zornia muriculata							0														



Appendix 5 Fauna species recorded in surveys (2018 - summer 2023)

NC Act status - conservation status under Nature Conservation Act 1992.

V = Vulnerable, NT = Near Threatened, LC = Least Concern, SLC = Special Least Concern

EPBC Act status - conservation status under Environment Protection and Biodiversity Conservation Act 1999.

V= Vulnerable, Mi = Migratory Species

- * Exotic species
- Possible detection. Calls similar to these of the species were recorded, but were not reliably identified.
- ** Nyctophilus species cannot be reliably identified from call records alone and species can only be confirmed from sighting or capture. Given the confirmed occurrence of one Nyctophillus species in the study area (N. geoffroyi), and likely occurrence of another (N. gouldi), call records of Nyctophilus are likely to be from N. geoffrayi or N. gouldi. Both species are not listed under the EPBC Act.

AM Detected via orts during active search.



Family	Species	Common name	NC status	EPBC status
AMPHIBIANS				
Bufonidae	Rhinella marina*	cane toad	9	=
Hylidae	Litaria caerulea	common green treefrog	LC	e
Hylidae	Litoria dentata	bleating tree frog	LC	3.
Hylidae	Litoria fallax	eastern sedgefrog	LC	=
Hylidae	Litoria latopalmata	broad-paimed rocket frog	LC	*
Hylidae	Litoria nasuta	striped rocketfrog	re	2
Hylidae	Litoria peronii	emerald-spotted treefrog	LC	÷
Hylidae	Litoria rubella	ruddy treefrog	LC	±
Limnodynastidae	Limnodynastes tasmaniensis	spotted grassfrog	LC	=
Limnodynastidae	Limnodynastes ferraereginae	scarlet sided pobblebonk	LC	±
Limnodynastidae	Platyplectrum ornatum	omale burrowing frog	re	2
Myobatrachidae	Crinia signifera	eastern froglet	LC	÷
Myobatrachidae	Crinia parinsignifera	eastern sign-bearing froglet	LC	=
Myobatrachidae	Pseudophryne major	great brown broodfrog	LC	=
Myobatrachidae	Uperoleia laevigata	eastern gungan	LC	æ
Myobatrachidae	Uperoleia rugosa	chubby gungan	LC	2.
BIRDS				
Acanthizidae	Acanthiza chrysormaa	yellow-rumped thombill	LC	±
Acanthizidae	Acanthiza lineata	striated thornbill	LC	÷
Acanthizidae	Acanthiza nana	yellow thornbill	FC	·
Acanthizidae	Acanthiza pusilla	brown thornbill	LC	5.
Acanthizidae	Acanthiza reguloides	buff-rumped thornbill	LC	-
Acanthizidae	Gerygone fusca	western gerygone	LC	±
Acanthizidae	Gerygone mouki	brown gerygone	LC	2



Family	Species	Common name	NC status	EPBC status
Acanthizidae	Gerygorie alivacea	white-throated gerygone	LC	÷
Acanthizidae	Pyrrholaemus sägittatus	speckled warbler	LC	÷
Acanthizidae	Sericornis citreogularis	yellow-throated scrubwren	re	9
Acanthizidae	Sericornis frontalis	white-browed scrubwren	LC	3.
Acanthizidae	Smicrornis brevirostris	weebill	rc	=
Accipitridae	Accipiter cirrocephalus	collared sparrowhawk	LC	*
Accipitridae	Aquila audax	wedge-tailed eagle	re	2
Accipitridae	Aviceda subcristata	Pacific baza	LC	÷
Accipitridae	Elanus axillaris	black-shouldered kite	LC	±
Accipitridae	Hallastur sphenurus	whistling kite	LC	¥.
Accipitridae	Milvus migrans	black kite	LC	±
Accipitridae	Accipiter fasciatus	brown goshawk	re:	2
Accipitridae	Hamirostra melanosternon	black-breasted buzzard	EC	÷
Aegothelidae	Aegotheles cristatus	Australian owlet-nightjar	LC	=
Alaudidae	Mirafra javanica	Horsfield's bushlark	LC	=
Anatidae	Anas castanea	chestnut teal	LC	¥
Analidae	Anas gracilis	grey feal	LC	2.
Analidae	Anas superciliosa	Pacific black duck	LC	¥.
Anatidae	Aythya australis	hardhead	LC	ŧ
Anatidae	Chenonetta jubata	Australian wood duck	LC	÷
Anatidae	Dendrocygna arcuata	wandering whistling-duck	LC	¥
Analidae	Dendrocygna eyloni	plumed whistling-duck	LC	2
Anhingidae	Anhinga novaehollandiae	Australasian darter	rc	÷.
Apodidae	Apus pacificus	fork-failed swift	SLC	Mi
Apodidae	Hirundapus caudacutus	white-throated needletail	v	V, Mi



Family	Species	Common name	NC status	EPBC status
Ardeidae	Ardea intermedia	intermediate egret	LC	÷
Ardeidae	Ardes pacifica	white-necked heron	LC	÷
Ardeidae	Egretta novaehollandiae	white-faced heron	LC	e
Artamidae	Artamus cyanopterus	dusky woodswallow	LC	3.
Artamidae	Artamus leucorynchus	white-breasted woodswallow	rc	4
Artamidae	Cracticus nigrogularis	pied butcherbird	LC	ŧ
Artamidae	Cracticus torquatus	grey butcherbird	re	2
Artamidae :	Gymnorhina tibicen	Australian magpie	LC	÷
Artamidae	Strapera graculina	pied currawong	LC	±
Cacatuidae	Cacatus galerita	sulphur-crested cockatoo	LC	-
Cacatuidae	Cacatus sanguinea	little corella	LC	±.
Cacatuldae	Cacatua tenuirostris	long-billed corella	re	2
Cacatuidae	Calyptorhynchus banksli	red-tailed black-cockatoo	LC	÷
Cacatuidae	Calyptorhynchus funereus	yellow-tailed black-cockatoo	LC	=
Cacatuidae	Calyptorhynchus lathami lathami	glossy black-cockatoo (eastern)	v	V
Cacatuidae	Eolophus roseicapilla	galah	LC	÷
Cacaluidae	Nymphicus hollandicus	cockatiel	LC	a.
Campephagidae	Coracina maxima	ground cuckoo-shrike	LC	¥.
Campephagidae	Coracina novaehollandiae	black-faced cuckoo-shrike	LC	*:
Campephagidae	Coracina papuensis	white-bellied cuckoo-shrike	rc	÷.
Campephagidae	Edolisoma tenuirostra	common cicadabird	LC	÷.
Campephagidae	Lalage leucomela	varied triller	LC	3.
Campephagidae	Lalage tricolor	white-winged triller	LC	4
Casuanidae	Dromaius novaehollandiae	emu	LC	±
Charadriidae	Elseyornis melanops	black-fronted dollarel	Le	2



Family	Species	Common name	NC status	EPBC status
Charadriidae	Vanellus miles miles	masked lapving	LC	÷
Charadriidae	Vanellus tricolor	banded lapwing	LC	÷
Ciconiidae	Ephippiorhynchus asiaticus	black-necked stork	LC	æ
Cisticolidae	Cisticala exilis	golden-headed cisticola	LC	3.
Cisticolidae	Cisticola juncidis laveryl	zitting cisticola	LC	¥.
Climacteridae	Climacteria picumnus	brown treecreeper	LC	ŧ
Olmacleridae	Cormobates leucophaea	white-throated treecreeper	re	2
Columbidae	Chalcophaps indica	emerald dove	LC	÷
Columbidae	Geopetia cuneata	diamond dove	LC	±
Columbidae	Geopelia humeralis	bar-shouldered dove	LC	-
Columbidae	Geopelia striata	peaceful dove	LC	ŧ
Columbidae	Lopholaimus antarcticus	topknot pigeon	re	2
Columbidae	Macropygia amboinensis	brown cuckoo-dove	EC	÷
Columbidae	Ocyphaps lophotes	crested pigeon	LC	=
Columbidae	Phaps chalcoptera	common bronzewing	LC.	÷
Columbidae	Spilopelia chinensis*	spotted dove	F	¥
Coraciidae	Eurystomus orientalis	dollarbird	LC	2.
Corcoracidae	Corcorax melanorhamphos	white-winged chough	LC	¥.
Corcoracidae	Struthidea cinerea	apostlebird	LC	ŧ
Corvidae	Corvus bennetti	little crow	rc	÷
Corvidae	Convus coronoides	Australian rayen	LC	¥.
Corvidae	Convus orru	Torresian crow	LC	2
Cuculidae	Cacomantis flabelliformis	fan-tailed cuckoo	LC	=
Cuculidae	Cacomantis pallidus	pallid cuckoo	LC	±
Cuculidae	Cacomantis variolosus	brush cuckee	LC.	2



Family	Species	Common name	NC status	EPBC status
Cuculidae	Centropus phesianinus	pheasant coucal	LC	÷
Cuculidae	Chalcites lucidus	shining bronze-cuckoo	LC	2
Cuculidae	Chalcites minutillus	little bronze-cuckoo	LC	¥
Cuculdae	Eudynamy's orientalis	eastern koel	LC	2.
Cuculidae	Scythrops novaehollandiae	channel-billed cuckog	LC	¥.
Dicruridae	Dicrurus bracteatus	spangled drongo	LC	*
Estrildidae	Lonchura castaneothorax	chestnut-breasted mannikin	re	3
Estrildidae	Neochmia modesta	plum-headed finch	LC	÷
Estriididae	Neochmia temporalis	red-browed finch	LC	
Estriididae	Taeniopygia bichenovli	double-barred finch	LC	¥.
Eurostopodidae	Eurostopodus mystacalis	white-throated nightiar	LC	
Falconidae	Falco berigora	brown falcon	re	2
Falconidae	Falco cenchroides	nankeen kestrel	LC	÷
Falconidae	Falco longipennis	Australian hobby	LC	=
Falconidae	Falco peregrinus	peregrine falcon	LC	=
Gruidae	Antigone rubicunda	brolga	re	÷
Halcyonidae	Dacelo leachil	blue-winged kookaburra	LC	5.
Halcyonidae	Dacelo novaeguineae	laughing kookaburra	LC	¥.
Halcyonidae	Todiramphus macleayii	forest kingfisher	LC	*
Halcyonidae	Todiramphus sanctus	sacred kingfisher	LC	÷
Hirundinidae	Cheramoeca leucosterna	white-backed swallow	LG	÷
Hirundinidae	Hirundo neoxena	welcome swallow	LC	2.
Hirundinidae	Petrochelidon snel	fairy martin	LC	¥.
Hirundinidae	Petrochelidon nigricans	tree martin	LC	£
Maluridae	Malurus cyaneus	superb fairy-wren	LE	2



Family	Species	Common name	NC status	EPSC status
Maluridae	Malurus lamberti	variegated fairy-wren	LC	÷
Maluridae	Malurus melanocephalus	red-backed fairy-wren	LC	÷
Megalundae	Cincloramphus mathewsi	rufous songlark	LC	æ
Megapodiidae	Alectura lathami	Australian brush-furkey	LC	3.
Meliphagidae	Acanthagenys rufogularis	spiny-cheeked honeyeater	LC	¥.
Meliphagidae	Acanthorhynchus tenuirostris	eastern spinebill	LC	ŧ
Meliphagidae	Caligavia chrysops	yellow-faced honeyeater	re	2
Meliphagidae	Entomyzon cyanotis	blue-faced honeyeater	LC	÷
Meliphagidae	Gavicalis virescens	singing honeyeater	LC	±
Meliphagidae	Lichmera Indistincta	brown honeyeater	LC	¥.
Meliphagidae	Manorina melanocephala	noisy miner	LC	ŧ
Meliphagidae	Manorina melanophrys	ball miner	re	2
Meliphagidae	Meliphaga lewinii	Lewin's honeyeater	EC	÷
Meliphagidae	Melithreptus albogularis	white-throated honeyeater	LC	÷
Meliphagidae	Melithreplus brevirostris	brown-headed honeyeater	LC.	÷
Meliphagidae	Melithreplus lunatus	white-naped honeyeater	LG	¥
Meliphagidae	Myzomela obscura	dusky honeyealer	LC	2.
Meliphagidae	Nesoptilotis leucotis	white-eared honeyeater	LC	¥.
Meliphagidae	Philemon citreogularis	little friarbird	LC	ŧ
Meliphagidae	Philemon corniculatus	noisy friarbird	rc	÷.
Meliphagidae	Plestorhyncha lanceolata	striped honeyeater	LC	·
Meliphagidae	Ptilotula penicillata	white-plumed honeyeater	LC	2
Meropidae	Merops ornatus	rainbow bee-eater	LC	=
Monarchidae	Grallina cyanoleuca	magpie-lark	LC	±
Monarchidae	Mylagra cyanoleuca	salin flycatcher	SLC.	Mi



Family	Species	Common name	NC status	EPBC status
Monarchidae	Myisgra inquiets	restless flycatcher	LC	÷
Monarchidae	Mylagra rubecula	leaden flycalcher	LC	÷
Motacillidae	Anthus novaeseelandiae	Australasian pipit	LC	e
Nectariniidae	Dicaeum hirundinaceum	mistletoebird	LC	3.
Neosittidae	Daphoenositta chrysoptera	varied sittelia	LC	4
Oriolidae	Oriolus sagiltatus	olive-backed origle	LC	ŧ
Oriolidae	Sphecotheres vieilloti	Australasian figbird	LC	2
Otididae	Ardeotis australis	Australian bustard	LC	÷
Pachycephalidae	Colluricinals harmonics	grey shrike-thrush	LC	÷
Pachycephalidae	Colluricincia megarhyncha	little shrike-thrush	LC	¥.
Pachycephalidae	Pachycephala pectoralis pectoralis	golden whistler (central Queensland)	LC	±.
Pachycephalidae	Pachycephala rufiventris	rufous whistler	re	2
Pardalotidae	Pardalotus punctatus	spotted pardalote	LC	÷
Pardalotidae	Pardalotus striatus	striated pardalote	LC	=
Pelecanidae	Pelecanus conspicillatus	Australian pelican	LC	÷
Petroicidae	Eopsaltria australis	eastern yellow robin	LC	æ
Petroicidae	Melanodryas cuculiata	hooded robin	LC	2.
Petroicidae	Microeca fascinans	jacky winter	LC	¥.
Phalacrocoracidae	Microcarbo melanoleucos	little pied cormorant	LC	÷
Phalacrocoracidae	Phalacrocorax carbo	great cormorant	LC	÷
Phalacrocoracidae	Phalacrocorax sulcirostris	little black cormorant	LC	· ·
Phalacrocoracidae	Phalacrocorax varius	pied cormorant	LC	3.
Phasianidae	-	quail spp:	E:	4
Phasianidae	Coturnix pectoralis	stubble quail	LC	±
Phasianidae	Coturnix ypsilophora	brown quail	LE	2



Podargidae Podicipedidae Pomatostomidae Psittacidae Psittacidae Psittacidae Psittacidae	Podergus strigoides Tachybaptus novaehollandiae Pomatostomus temporalis Alisterus scapularis Aprosmictus erythropterus Giossopsitta concinna Neophema pulchella Northiella haematogaster Parvipsitta pusille	tawny frogmouth Australasian grebe grey-crowned babbler Australian king-parrot red-winged parrot musk parrot turquoise parrot blue bonnet	LC LC LC LC LC	5 2 3 3 4 4 2
Pomatostomidae Psittacidae Psittacidae Psittacidae	Pomatostomus temporalis Alisterus scapularis Aprosmictus erythropterus Giossopsitta concinna Neophema pulchella Northiella haematogaster Parvipsitta pusille	grey-crowned babbler Australian king-parrot red-winged parrot musk parrot turquoise parrot blue bonnet	LC LC LC	* * * * * * * * * * * * * * * * * * *
Psittacidae Psittacidae Psittacidae	Alisterus scapularis Aprosmictus erythropterus Giossopsitta concinna Neophema pulchella Northiella haematogaster Parvipsitta pusille	Australian king-parrot red-winged parrot musk parrot turquoise parrot blue bonnet	LC LC LC	5 2 5
Psittacidae Psittacidae	Aprosmictus erythropterus Giossopsitta concinna Neophema pulchella Northiella haematogaster Parvipsitta pusille	red-winged parrot musk parrot turquoise parrot blue bonnet	rc rc	£
Psittacidae	Giossopsitta concinna Neophema pulchella Northiella haematogaster Parvipsitta pusilla	musk parrot turquoise parrot blue bonnet	re re	*
14 200007-71.77-2.1-1	Neophema pulchella Northiella haematogaster Parvipsitta pusille	turquoise parrot blue bonnet	Le	
Psittacidae	Northiella haematogaster Parvipsitta pusille	blue bonnet	- 55.	2
	Parvipsitta pusille	Same of the same	LC	
Psittacidae	C-DANA CONCINENTATION	Title Germana		÷
Psittacidae		little forikeet	LC	±
Psittacidae	Platycercus adacitus	pale-headed rosella	LC	¥.
Psittacidae	Psephotus haematonotus	red-rumped parrot	LC	±
Psittacidae	Trichoglossus chlorolepidotus	scaly-breasted lorikeet	re	2
Psittacidae	Trichoglossus haematodus moluccanus	rainbow lorikeet	EG	÷
Psophodidae	Psophodes alivaceus	eastern whiphird	LC	÷
Rallidae	Gallinula tenebrosa	dusky moorhen	LC:	÷
Rallidae	Porphyrio melanotus	purple swamphen	LG	¥
Recurvirostridae	Himantopus himantopus	black-winged still	LC	2.
Rhipiduridae	Rhipidura albiscapa	grey fantali	LC	¥
Rhipiduridae	Rhipidura leucophrys	willie wagtali	LC	ŧ
Rhipiduridae	Rhipidurs rulifrons	rufous fantail	SLC	Mi
Strigidae	Ninox connivers	barking owl	LC	¥
Strigidae	Ninox novaeseelandiae	southern boobook	LC	2.
Sturnidae	Acridotheres tristis*	common myna	E	¥.
Sturnidae	Sturnus vulgaris*	common starling	Į.	ŧ
Threskiomithidae	Platalea flavipes	yellow-billed spoonbill	re	2



Family	Species	Common name	NC status	EPBC status
Threskiornithidae	Threskiornis spinicallis	straw-necked ibis	LC	÷
Timaliidae	Zosterops lateralis	silvereye	LC	÷
Turnicidae	Turnix varius	painted button-quail	LC	9
Tytonidae	Tyto delicatula	eastern barn owl	LC	3.
MAMMALS				
Bovidae	Bos taurus*	European cattle	E	±.
Canidae	Canis familiaris*	dog	E:	2
Canidae	Canis lupus dingo	dingo	e:	÷
Canidae	Vulpes vulpes*	European red fox		±
Dasyuridae	Sminthopsis murina	common dunnart	LC	-
Emballonuridae	Saccolaimus flaviventris	yellow-bellied sheathfall bat	LC	±.
Equidae	Equus caballus*	horse	5:	2
Felidae	Felis catus*	cat	E	÷
Leporidae	Lepus europaeus*	European hare	E	=
Leporidae	Oryctolagus cuniculus*	rabbit	Ę	÷
Macropodidae	Macropus giganteus	eastern grey kangaroo	LC	æ
Macropodidae	Macropus parryi	whiptall wallaby	LC	2
Macropodidae	Macropus robustus	common wallaroo	LC	¥.
Macropodidae	Notamacropus rufogriseus	red-necked wallaby	LC	*:
Macropodidae	Wallabia bicolor	swamp wallaby	LC	=
Miniopteridae	Miniopterus australis	little bent-wing bat	LC	æ
Miniopteridae	Miniopterus schreibersii oceanensis	northern bent-wing bat	LC	3.
Molossidae	Austronomus australis	white-striped freetail bat	LC	4
Molossidae	Mormopterus (Ozimops) lumsdenae	northern freetall bat	LC	±
Molossidae	Mormopterus (Ozimops) rider^	Ride's freetail bat	LC	2



Family	Species	Common name	NC status	EPBC status
Peramelidae	Isoodon macrourus	northern brown bandicoot	LC	÷
Petauridae	Petaurus brevicaps	sugar glider	LC	÷
Petauridae	Petaurus norfolcensis	squirrel glider	LC	e
Phalangeridae	Trichosurus vulpecula	common brushtail possum	LC	5.
Phascolarctidae	Phascolarctos cinereus	koala	V	Ε
Potoroidae	Aepyprymnus rufescens	rufous bettong	LC	±
Pseudocheindae	Petauroides volans (Petauroides armillatus)	greater glider	E	E
Pteropodidae	Pteropus alecto	black flying-fox	LC	÷
Pteropodidae	Pteropus poliocephalus	grey-headed flying-fox	LC	٧
Pteropodidae	Pteropus scapulatus	little red flying-fox	LC	¥.
Suidae	Sus scrofa*	wild pig	E:	±
Tachyglossidae	Tachyglossus aculeatus	short-beaked echidna	SLC	2
Vesperfilionidae	Chalinolobus gouldii	Gould's wattled bat	EC	÷
Vespertillonidae	Chalinolobus mono^	chocolate wattled bat	LC	\$
Vespertilionidae	Chalinolobus picatus	little pied bat	rc	-
Vespertilionidae	Nyatophilus geoffroyi	lesser long-eared bat	LC	=
Vespertillonidae	Nyctophilus sp ^^	unidentified long-eared bat species	LC	2
Vespertilionidae	Scotorepens greyli	little broad-nosed bat	LC	¥.
Vespertilionidae	Scatorepens arion	eastern broad-nosed bat	LC	÷
Vespertilionidae	Vespadelus darlingtoni	large forest bat	rc	÷
Vespertilionidae	Vespadelus pumilus	eastern forest bat	LC	¥
Vespertillonidae	Vespadelus sp.	unknown Vespadelus bat	LC	2
Vespertilionidae	Vespadelus troughtoni	eastern cave bat	LC	÷.
Vespertilionidae	Vespadelus vulturnus	little forest bat	LC	*



Family	Species	Common name	NC status	EPBC status	
REPTILES					
Agamidae	Intellagama lesueurii	eastern water dragon	LC	=	
Agamidae	Pogona barbata	bearded dragon	LC	æ	
Boidae	Morelia spilota	carpet python	LC	3.	
Carphodactylidae	Underwoodisaurus milii	thick-tailed gecko	LC	¥.	
Colubridae	Tropidonophis maini	keelback	LC	ŧ	
Cryptophis	Cryptophis nigrescens	eastern small-eyed snake	re	2	
Diplodactylidae	Diplodactylus steindachneri	box-patterned gecko	LC	÷	
Diplodactylidae	Gedura tryoni	southern spotted velvet gecko	LC	±	
Elapidae	Demansia psammophis	yellow-faced whip snake	LC	¥.	
Elapidae	Pseudechis porphyriacus	red-bellied black snake	LC	±	
Elapidae	Pseudonaja fextilis	sastem brown snake	re	2	
Gekkonidae	Gehyra dubia	dubious dtella	LC	÷	
Gekkonidae	Heteranotis binoei	Bynoe's gecko	LC	=	
Scincidae	Morethia taeniopleura	fire-tailed skink	LC	÷	
Varanidae	Varanus panoptes	yellow spotted monitor	LC	æ	
Varanidae	Varanus varius	lace monitor	LC	2	



Appendix 6

Koala assessment information under repealed referral guidelines

The following information has been prepared using the previous referral guidelines which were repealed on 12 February 2022. No referral guidelines have been released to date since the classification of koala as endangered. For context this information has been included in this MNES assessment given survey works and previous report iterations were completed prior to the EPBC Act conservation status listing of koala being updated from vulnerable to endangered on 12 February 2022

The repealed referral guidelines for koala (DoE 2014a) provide a method for determining whether the habitat within a project site is critical to the survival of the koala. The guidelines classify the project site as an inland environment as it receives less than 800 mm annual rainfall. The Kingaroy Airport Station 040922, approximately 30 km east of the site, records an average annual rainfall of 663.3 mm (BoM 2023).

Table 54 assesses koala habitat within the site following the referral guidelines for an inland environment. As described in Section 5.3, potential habitat for koala was identified as:

- ground-truthed remnant and HVR areas that contain known koala food trees
- non-remnant areas that contain known koala food trees (based on pre-clear vegetation mapping), woody vegetation foliage projective cover greater than a value of 125 and patch size greater than 0.3 ha.

Potential habitat within the site scores 7 out of 10 for koala habitat, which indicates that the habitat is critical for the continuing survival of the koala.

Table 54 Koala habitat assessment

Attribute	Score: inland environs	Site assessment				
Koala occurrence	+2 (high): Evidence of one or more koalas within the last 5 years.	+2. Field surveys recorded 15 sightings of koala (12 within and 3 adjacent to project sits and 21 signs of koala throughout the site.				
	+1 (medium). Evidence of one or more koalas within 2 km of the edge of the impact area within the last 10 years.					
	0 (low): None of the above.					
Vegetation composition	+2 (high): Has forest, woodland or shrubland with emerging trees with 2 or more known koala food tree species, OR	site were dominated by the primary koala food free. Queensland blue gum, but it generally did not form over 50% of the canopy layer. However, the most common eucalypt communities within the site (RE 11.11.4, 11.11.15, 11.12.3, 11.12.6) and substantial areas of non-rempart venetation.				
	1 food free species that alone accounts for >50% of the vegetation in the relevant strata.					
	+1 (medium): Has forest, woodland or shrubland with emerging trees with only 1 species of known					



Attribute	Score: inland environs	Site assessment		
	koala food tree present.	contained two secondary koala food species (spotted gum and narrow-leaved ironbark).		
	0 (low): None of the above.	Surveys recorded a total of 7 koala food species within the site.		
Habitat connectivity	+2 (high); Area is part of a contiguous landscape ≥ 1000 ha:	+1. The site is heavily fragmented with vegetation occurring predominantly as isolated patches. Larger tracts of vegetation		
	+1 (medium). Area is part of a configuous landscape < 1000 ha, but ≥ 500 ha.	occur along the eastern boundary		
	0 (low): None of the above			
Key existing threats	+2 (high): Little or no evidence of koala mortality from vehicle strike or dog attack at present in areas that score 1 or 2 for koala occurrence. Areas which score 0 for koala occurrence and have no dog or vehicle threat present.	+1. There is little or no evidence of koala mortality from vehicle strike or dog attack within the local area. This is likely due to the sparse nature of the koala population in the South Burnett region, rather than an indication of an absence of these threats.		
	+1 (medium): Evidence of infrequent or irregular koala mortality from vehicle strike or dog attack at present in areas that score 1 or 2 for koala occurrence, OR. Areas which score 0 for koala occurrence and are likely to have some degree dog or vehicle threat present.	also occurs to the south of the project site and presents a threat to koalas traversing the highway. However, traffic flows along other local roads such as tronpot Rd and Kingaro Burrandowan Rd are low so pose a lower		
	(low): Evidence of frequent or regular koala mortality from vehicle strike or dog attack in the study area at present, OR Areas which score 0 for koala occurrence and have a significant dog or vehicle threat present.	Ilhreat.		
Recovery value	+2 (high): Habital is likely to be important for achieving the interim recovery objectives.	The interim recovery objectives for inland areas include:		
	+1 (medium): Uncertain whether the habitat is important for achieving the interim recovery objectives for the relevant context.	protect and conserve the quality and extent of habitat refuges for the persistence of the species during droughts and periods of extreme heat, especially in riparian environments and other areas with reliable.		
	(low): Habitat is unlikely to be important for achieving the interim recovery objectives.	soil moisture and fertility • maintain the quality, extent and connectivity of large areas of koala habitat surrounding habitat refuges.		
		+1. The site contains some riparian corridors, but these are mostly cleared or confined to narrow fringes of remnant trees. Areas of habitat occur on the slopes and ranges, particularly along the eastern boundary, but they provide limited vegetated connection to drought refuges		

As the project is likely to impact on koala habitat that scores ≥5, the repealed koala referral guidelines also require assessment of impacts that may interfere substantially with the recovery of the koala (DoE 2014a):



- Increasing koala fatalities in habitat critical to the survival of the koala due to dog attacks to a level that is likely to result in multiple, ongoing mortalities. Dogs are already well established within the region and the project site is already fragmented and contains numerous access tracks (historically the site has had large amounts of clearing and currently 9.4% of the site retains remnant vegetation). The proposed activity is unlikely to result in dogs becoming more prevalent or moving into previously uninhabited areas. However, dog control may be implemented if signs of koala predation or increased predator numbers are observed during construction. This may include contributing to existing landholder and local government control programs for wild dogs (e.g. dog baiting programs).
- Increasing koala fatalities in habitat critical to the survival of the koala due to vehiclestrikes to a level that is likely to result in multiple, ongoing mortalities. A traffic management plan will be implemented during construction and operational phases of the project to incorporate measures to reduce the risk of collisions with vehicles, including limiting vehicle traffic to authorised tracks and roads, restricting vehicle travel to daytime where possible (as threatened species such as koala and greater gliders are most active at night), and enforcing strict speed limits. Any injured koalas will be taken to a qualified carer for rehabilitation. These measures are expected to avoid significant levels of mortality, especially during operation when vehicle traffic. levels will be much lower.
- Facilitating the introduction or spread of disease or pathogens to habitat critical to the survival of the koala, that are likely to significantly reduce the reproductive output of koalas or reduce the carrying capacity of the habitat. Most koalas observed during the survey displayed the tell-tale 'dirty bottom' appearance of chiamydia infection. Stress caused by land clearing and habital reductions are known to exacerbate chlamydia in koalas. The proposed project will result in clearance of koala habitat. that could increase stress in the short term, but is unlikely to cause a long term increase in stress-induced disease. Stress will be further reduced by sequential clearing, which involves staged clearing of trees to allow koalas to relocate without human intervention, and the temporary retention of any tree in which a koala is present. Vehicle and equipment hygiene procedures will minimise the risk of introducing or spreading Phytophthora or myrtle rust.
- Creating a barrier to movement to, between or within habitat critical to the survival of the koala that is likely to result in a long-term reduction in genetic fitness or access to habitat critical to the survival of the koala. Fragmentation of koala habitat through the construction of access tracks and other infrastructure may make koalas more vulnerable to vehicle collisions and predators such as wild dogs. However, given the already fragmented nature of the project site and surrounding areas (Figure 13) and the relatively small proportion of suitable habitat to be cleared, the current project is unlikely to increase fragmentation significantly. Strict traffic management procedures (e.g. limited access routes, speed controls, daylight use) will reduce potential impacts of access tracks.
- Changing hydrology which degrades habitat critical to the survival of the koala to the extent that the carrying capacity of the habitat is reduced in the long-term. The site already contains numerous tracks, watercourse crossings and dams that have



caused minor alterations to hydrology, erosion and sediment movement. The proposed project will involve installation of some extra tracks and watercourse crossings, but these will be constructed and maintained in accordance with Best Practice Erosion and Sediment Control Guidelines (IECA 2008). The project will not impact accessibility of koala to open water for drinking.



Distribution List

Copy#	Date	Туре	Issued to	Narrie
1	05/09/2023	Electronic	RES	
2:	05/09/2023	Electronic	Ecosure	Administration

Otation: Ecosure, 2023. Assessment of Matters of National Environmental Significance for Tarong West Wind Farm, Ironpot, Queensland, Report to RES Pty Ltd. Brisbane

Report complied by Eccause Pty Ltd. ABN: 63 106 087 976

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 Surry Hills NSW 2010
 Townsville QLD 4810

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Appendix 2 Fauna species list: Autumn 2023 – Spring 2023 surveys

Family	Species	Common name	NC status	EPBC status	Autumn 2023	Winter 2023	Spring 2023
BIRDS							
= :	s	†passerine species	392	8	1	1	*
Acanthizidae	Acanthiza chrysorrhos	yellow-rumped thombill	LC .	2	ा	t	1
Acanthizidae	Acanthiza lineata	striated thombill	LC	8	U 0 %		1
Acanthizidae	Acanthiza nana	yellow thombill	LC	2	1	1	1
Acanthizidae	Acanthiza pusilla	brown thornbill	re	ă	E	ä	. 1
Acanthizidae	Acanthiza spp	†thornbill species	·	8	唇	1	8
Acanthizidae	Gerygone alivacea	white-throated gerygone	LC		3	1	- 1
Acanthizidae	Sencornis frontalis	white-browed scrubwren	LC	3	- 23		1
Acanthizidae	Smicrornis bravtrostris	weebill	LC	Ξ	11	1	1
Accipitridae	Accipiter fasciatus	brown goshawk	re	E	11 2	8	.1
Accipitridae	Aquila audax	wedge-tailed eagle	LC	8	3	1	1
Aegothelidae	Aegotheles cristalus	Australian owlef-nightjar	LC		3		3
Analidae	Anas superciliosa	Pacific black duck	FC	8	31	1	×
Anatidae	Chenonetta jubata	Australian wood duck	LC	8	1	8	1
Apodidae	Apus pacificus	fork-failed swift	SEC	Mi	<u> </u>	2	1
Apodidae	Hirundapus caudacutus	white-throated needletail	V.	V. Mi	e .		1
Ardeidae	Ardea intermedia	intermediate egret	LC	2	1	2	ē
Ardeidae	Ardea pacifica	white-necked heron	LC	3	31	3	×
Ardeidae	Egretta novaenollandiae	white-faced heron	LC	8	1	8	1
Artamidae	Artamus cyanopterus	dusky woodswallow	rc	2	5:	ţ.	8
Arlamidae :	Artamus leucorynchus	white-breasted woodswallow	LC		£3	1.	8



Family	Species	Common name	NC status	EPBC status	Autumn 2023	Winter 2023	Spring 2023
Artamidae	Cracticus nigrogularis	pied butcherbird	LC	8	1	3	1
Artamidae	Cracticus torquatus	grey butcherbird	LC	3	4:	.1:	- 1
Artamidae	Gymnorhina tibicen	Australian magpie	LC	8	1	31	1
Artamidae	Strepera graculina	pied currawong	LC .	2	1	1	1
Cacatuidae	Cacatus galerita	sulphur-crested cockatoo	LC	3	179	1.	1
Cacaluidae	Cacatua sanguinea	little corella	LC	g .	1	1	1
Cacatuidae	Calyptorhynchus banksii	red-tailed black-cockatoo	LC	3	Ē:	9	- 1
Cacatuidae	Calyptomynchus lathami lathami	glossy black-cockatoo	v	Ÿ	£:	9	1
Cacatuldae	Eolophus roseicapilla	galah	LC .	2	ा	t	1
Cacatuidae	Nymphicus hollandicus	cockatiel	LC	8	100	1	8
Campephagidae	Coracina novaettollandies	black-faced cuckoo-shrike	LC	2	1	1	1
Campephagidae	Lalage leucomela	varied triller	re	3	042	ă	1
Charadnidae	Vanellus miles miles	masked lapwing	LC	8	:1	1	10
Climacleridae	Climacteris picumnus	brown freecreeper	LC		3	1	8
Climacleridae	Cormobates leucophaea	white-throated treecreeper	FC	8	31	-1	1
Columbidae	*Spilopelia chinensis	*spotted dove	3.7.2	8	1	8	1
Columbidae	Geopelia humeralis	bar-shouldered dove	LC	2	04)	1	1
Columbidae	Geopelia striata	peaceful dove	LC	8	3	1	1
Columbidae	Ocyphaps lophotes	crested pigeon	LC	8	1	1	1
Columbidae	Phaps chalcopters	common bronzewing	LC	3	Ē.	- 1	- 1
Coraciidae	Eurystomus orientalis	dollarbird	LC -		£:	8	1
Corcoracidae	Corcorax melanorhamphos	white-winged chough	rc	2	ा	jt.	1
Corcoracidae	Struthides cineres	apostlebird	FC		UT:	1	1
Corvidae	Corvus caranaides	Australian raven	LC	g l	1	1	1
Corvidae	Convus orru	Torresian crow	LG	3	11/		1



Family	Species	Common name	NC status	EPBC status	Autumn 2023	Winter 2023	Spring 2023
Corvidae	Corvus spp.	†corvid species (Australian raven/Torresian crow)	rc	9	্ৰু	<u>į</u>	3.
Cuculidae	Cacomantis flabelliformis	fan-tailed cuckoo	LC	8	1	1	*
Cuculidae	Centropus phasianinus	pheasant coucal	LC	2	1	2	1
Cuculidae	Chalcites basalis	Horsfield's bronze-cuckoo	LC		.05		8
Cuculidae	Chalcites minutillus	little bronze-cuckoo	LC	2	E .	2	1
Cuculidae	Eudynamys orientalis	eastern koel	EC	3	Ē:	3	- 1
Cuculidae	Scythrops novaehollandise	channel-billed cuckoo	LC	8	£:	8	1
Estriididae	Taeniopygia bichenovii	double-barred finch	LC	2	ा	t	1
Falconidae	Falco berigora	brown falcon	LC		6.5	1	1
Falconidae	Faico cencliroides	nankeen kestrel	LC	-	1	-	1
Halcyonidae	Dacelo novaegulneae	laughing kookaburra	LC	<u> </u>	041/	1	1
Halcyonidae	Todiramphus macleayii	forest kingfisher	ŁC	3	-5	=	1
Halcyonidae	Todiramphus sanctus	sacred kingfisher	LC		1	*	1
Hirundinidae	Hirundo neoxena	welcome swallow	LC	3	3	3	- 1
Hirundinidae	Petrochelidon ariel	fairy martin	LC		1		8
Hirundinidae	Petrochelidon nigricans	tree martin	LC	3	E	ä	1
Hirundinidae	Petrochelidon sp.	†martin species	100	8	31	8	8
Maluridae	Malurus cyaneus	superb fairy-wren	LC		-1	1	1
Maluridae	Malurus lamberti	variegated fairy-wren	LC:	3	3:	.1	- 1
Maluridae	Maiurus melanocephalus	red-backed fairy-wren	LC	8	1	3	1
Maluridae	Malurus sp.	†fairy-wren species	223	8	5:	1.	S
Meliphagidae	5	thoneyeater species	.997		.45	ē	1
Meliphagidae	Acenthagenys rufogularis	spiny-cheeked honeyeater	LC	=	1	9	8
Meliphagidae	Acanthorhynchus tenuirostris	eastem spinebill	LC	ā	01/		9



Family	Species	Common name	NC status	EPBC status	Autumn 2023	Winter 2023	Spring 2023
Meliphagidae	Caligavis chrysops	yellow-faced honeyealer	LC	8	1	3	1
Meliphagidae	Entomyzon cyanotis	blue-faced honeyeater	LC:	3	4:	.1	- 1
Meliphagidae	Gavicalis virescens	singing honeyeater	FC			31	1
Meliphagidae	Lichenostomus leucatis	white-eared honeyeater	LC	9	01	¥	1
Meliphagidae	Lichenostomus peniciliatus	white-plumed honeyeater	LC	3	U 0 %	1.	1
Meliphagidae	Lichmera indistincta	brown honeyeater	LC	g I	=	1	1
Meliphagidae	Manorina melanocephala	noisy miner	LC	3	3	1	- 1
Meliphagidae	Meliphaga lewinii	Lewin's honeyeater	LC	8	1	31	1
Meliphagidae	Melithreptus albogularis	white-throated honeyeater	LC	2	1	t	1
Meliphagidae	Melithreptus brevirostris	brown-headed honeyeater	LC	3	-23	1	8
Meliphagidae	Melithreptus gularis	black-chinned honeyeater	LC	LC -		9	1
Meliphagidae	Melithreptus lunatus	white-naped honeyeater	LC	3	049	ă	ş
Meliphagidae	Myzomela sanguinolenta	scarlet honeyeater	LC	8	3	3	8
Meliphagidae	Philemon citreogularis	little friarbird	LC	8	1	1	1
Meliphagidae	Philemon corniculatus	noisy friarbird	FC	8	Gt.	.1:	- 1
Meliphagidae	Plectorhynche lanceolata	striped honeyeater	LC .	8	1	31	1
Meropidae	Merops ornatus	rainbow bee-eater	LC	2	<u> </u>		1
Monarchidae	Grallina cyanoleuca	magpie-lark	LC	8	3	1.	1
Monarchidae	Myiagra inquieta	restless flycatcher	LC	8	1	8	8
Monarchidae	Myiagra rubecula	leaden flycalcher	LC:	3	Ē.	3	- 1
Motacillidae	Anthus australis	Australian pipit	FC	8	51	31	
Nectariniidae	Dicaeum hirundinaceum	misfieloebird	rc			t.	1
Neosittidae	Daphoenositta chrysoptera	varied sittella	LC	3	U 0 5	1.	1
Oriolidae	Oriolus sagittatus	olive-backed oriole	LC	Ξ	1	1	1
Onolidae	Sphecotheres vieilloti	Australasian figbird	LG	3	017	_ E	2



Family	Species	Common name	NC status	EPBC status	Autumn 2023	Winter 2023	Spring 2023
Otididae	Ardeotis australis	Australian bustard	LC .	8	8	3	3
Pachycephalidae	Colluricincia harmonica	grey shrike-thrush	LC	3	4:	.1	9
Pachycephalidae	Pachycephala pectoralis	golden whistler	LC		1	31	
Pachycephalidae	Pachycephala rufiventris	rufous whistler	FC	9	1	1	1
Pardalotidae	ē	†pardalote species		3	.45		8
Pardalotidae	Acanthiza reguloides	buff-rumped thornbill	LC	g I	1	1	1
Pardalotidae	Pardaletus punctatus	spotted pardalote	LC:	3	3:	1	1
Pardalotidae	Pardalotus striatus	striated pardalote	LC	8	1	31	1
Pelecanidae	Pelecanus conspicillatus	Australian pelican	rc	2	5:	t	\$
Petroicidae	Eopsaltria australis	eastern yellow robin	LC	LC -		1	0
Petroicidae	Microeca fascinans	jacky winter	LC	LC - 1		1	1
Petroicidae	Petroica goodenovii	red-capped robin	LG	3	049	1	9
Phalacrocoracidae	Phalacrocorax carbo	great cormorant	LG	8	-	8	1
Phalacrocoracidae	Phalacrocorax sulcirostris	little black comprant	LC		3	8	- 8
Phalacrocoracidae	Phalacrocorax varius	pied cormorant	LC	8	31	-1	×
Phascolarctidae	Phascolarctos cinereus	koala	E	Ē	£i .	8	1
Pomatostomidae	Pomatostomus temporalis	grey-crowned babbler	LC	2	0 ()	1	1
Psittacidae	Alisterus scapularis	Australian king-parrot	LC	8	3	1	1
Psittacidae	Aprosmictus erythropterus	red-winged parrot	LC.	8	1	1	3
Psittacidae	Parvipsitta pusilla	little lorikest	LC	3	Ē.	- 1	- 1
Psittacidae	Platycercus adscitus	pale-headed rosella	LC	8	1	31	1
Psittacidae	Trichaglassus chlorolepidatus	scaly-breasted lorikeet	rc	8	ा	į.	1
Psittacidae	Trichoglossus haematodus moluccanus	rainbow lurikeet	LC	3	24/	9	ì
Psittaculidae	Neophema pulcheila	turquoise parrot	LC	3	E	. 3	- 1



Family	E/A &		NC status	EPBC status	Autumn 2023	Winter 2023	Spring 2023
Rhipiduridae	Rhipidura albiscapa	grey fantall	LC		1	1	8
Rhipiduridae	Rhipidura leucophrys	willie wagtail	EC	3	er:	.1	- 1
Sturnidae	*Stumus vulgaris	*common starling	570	8	£1		1
Threskiomithidae	Threskiamis spinicallis	straw-necked ibis	rc	2	<u> </u>	t	1
Timaliidae :	Zosterops lateralis	silvereye	LC		U T S		1
Tytonidae	Tyto delicatula	eastern barn owl	LC	2	E .	2	1
MAMMALS	0		"				
Phascolarctidae	Phascolarctos cinereus	koala	E	E	<u> </u>		1

^{*}exotic species, †unidentified species



Appendix 3 BioCondition site scores

Site-based BioCondition scores for impact area assessment sites

								S	core							
Site AU	AU	Large free	Tree height	Recruit- ment	Tree canopy cover	Shrub	Coarse woody debris	Tree spp.	Shrub spp.	Grass spp.	Forb	Non- native cover	Native grass cover	Organic litter cover	Bench- mark score	Total score (/10)
Maximum	score	15	5	5	5	5	5	5	5	5	5	10	5	5	80	10
P84	11.12.6-h	15	5	5	4	5	15	5	2.5	5	2.5	10	31	3	58	7.3
P05	11.12.6-h	10	5	5	4	3	5	5	5	5	5	10	3	5	70	8.8
P88	11.3.25-m	15	3	5	0	0	2	5	2.5	2.5	5	3	5	5	53	5.6
P10	11.3.25-m	15	5	5	4	0	2	5	2.5	0	5	0	0	. 5	48.5	6.1
P11	11.12.3-m	15	5	5	5	0	15	2.5	5	5	5	10	5	5	72.5	9.1
P12	11.11.15-m	5	5	5	3.5	3	5	2.5	2.5	5	5	5	5	3	54.5	6.8
P13	NR	15	3	5	4	0	15	5	5	5	5	5	3	3	53	5.6
P14	11.11.15-m	5	3	5	3.5	3	5	5	5	5	5	5	1	3	53.5	6.7
P15	11.3.25-m	15	3	5	5	3	10)	5	5	5	5	3	5	5	54	6.8
P16	11.3.25-m	10	3	5	3.5	0	ž	5	2.5	5	5	10	5	. 5	61	7.6
P17	11.11.15-m	15	5	5	5	5	5	5	5	5	5	5	3	5	63	7.9
P18	NR	0	3	5	2	5	2	5	2.5	5	5	5	3	5	47,5	5.9



Site			Score													
	AU	Large	Tree height	Recruit- ment	Tree canopy cover	Shrub	Coarse woody debris	Tree spp.	Shrub spp.	Grass spp.	Forb app.	Non- native cover	Native grass cover	Organic litter cover	Bench- mark score	Total score (/10)
Maximum	SCORE	15	5	5	5	5	5	5	5	5	5	10	5	5	80	10
P25	NR	5	0	5	0	5	5	5	25	2.5	2.5	5	5	5	47.5	5.9
P26	NR	5	0	5	0	0	15)	5	5	2.5	2.5	3	5	38	41	5,1
P27	NR	10	0	5	0	0	2	2.5	3	7	2.5	5	5	5	50	6.3
P28	NR	10	0	5	0	0	2	5	5	5	25	5	5	5	49.5	6.2

Landscape-based BioCondition scores for impact area assessment sites

		Score					
Site)	AU	Patch size	Connectivity	Context	Landacape		
Maximum	score	10	5	(5	20		
P04	11.12.6-h	10	4	ঞ	18		
P65	11.12.6-h	10	4:	(4)	18		
P08	11.3.25-m	0	2	2	4		
P10	11.3.25-m	5	2	2	9		
P11	11.12.3-m	5	0	2	Ž		
P12	11.11.15-m	7	0	2	9		
P13	NR	7	2	2	11		



ARM V	1	Score					
Site	AU	Patch size	Connectivity	Context	Landscape		
Maximum	SCORE	10	5	5	20		
P14	11.11.15-m	10	4	4	18		
P15	11.3.25-m	10	2	(4)	16		
P16	11.3.25-m	₹	2	2	11		
P17	11.11.15-m	7	2	2	11		
P18	NR	0	0	2	2		
P25	NR	5.	2	0	7		
P26	NR	0	0	2	2		
P27	NR	7	2	2	11		
P28	NR	7	2	2	31		



Appendix 4 Likelihood assessment for MNES species

Key to likelihood of occurrence assessment.

- EPBC Act Status:
 - CE critically endangered
 - E endangered
 - V vulnerable
 - Mi migratory
- Likelihood of occurrence:
 - Confirmed the species or signs of their presence were observed during the field survey
 - Likely the site contains habitat that is suitable for the species and Wildnet has recent records of the species (i.e. since 1980) within 10 km of the site
 - Possible the site contains habitat that is suitable for the species, but Wildnet has no recent records of the species within 10 km of the site, or the site contains marginal / low quality habitat for the species and Wildnet has recent records of the species within 10 km of the site
 - Unlikely the site contains marginal / low quality or no habitat for the species and Wildnet has no recent records of the species within 10 km of the site
- Source:
 - E EPBC Act protected matters search
 - W wildirfe online database search.
- Marginal / low quality habitat habitat that although meeting the broad habitat description is poor in quality, occupies a small area, is outside the known species range and is generally unsuitable to sustain the species.



Scientific name	Common	EPBC status	Habitat description/ regional ecosystems present	Likelihood of occurrence	Source
Fauna	*				
Actitis hypoleucos	common sandpiper	Mi	Around coastal wellands and some inland wellands on the muddy margins or rocky shores. Also inhabits estuaries, deltas of streams, lakes, pools, billabongs, reservoirs, dams and claypans.	Unlikely. Limited marginal habitat available onsite. No Wildnet records within 10 or 20 km. No detections during dam surveys, bird surveys, 24 months of BUS and opportunistic sightings.	E
Anomalopus mackayi	five-clawed worm skink	×	Known to occur in both remnant and non-remnant woodlands and grasslands on alluvial cracking clays or self-mulching friable basalt soils in NSW and QLD, occurring on REs 11.3.21, 11.3.25, 11.8.5, 11.8.15, 13.3.3.13.3.4 associated non-remnants. They have also been found in areas modified by agriculture and other human activities. This species has been found sheltering under artificial materials lying flat on the ground.	Unlikely. Limited marginal habitat available onsite. No Wildnet records within 10 or 20 km.	E
Anthochaera phrygia	regent honeyealer	CE	Commonly associated with box-ironbark eucalypt woodland and dry sclerophyll forest, may inhabit riparian vegetation and lowland coastal forest. Mainly a canopy species it is reliant on select species of eucalypt and mistletoe which provide rich nectar (Commonwealth of Australia, 2016).	Possible Suitable habital on site and no records within 10 or 20 km. No detections during dam surveys, bird surveys, 24 months of BUS and opportunistic sightings	E
Apus pacificus	fork-tailed swift	Mi	The fork-tailed swift is a non-breeding migrant to Australia. It is widespread across Australia and territories arriving in north west Australia in October and November. Almost exclusively aerial from <1 m to 1,000 m. Most observed over inland plains in Australia, but sometimes recorded over coastal cliffs and beaches as well as urban areas.	Confirmed. Present in a wide range of habitats and may overfly the project site. Three individuals sighted in fixed point surveys. No Wildnet records within 10 km but four records within 20 km.	E
Botaurus poiciloptilus	Australasian bittern	E	The Australasian bittern can be found in habitats containing reedbeds, and other vegetation in water such as cumbungi, lignum and sedges (BirdLife Australia, 2024).	Possible Limited suitable habitat on site. No WildNet records within 10 km, but one Wildnet record within 20 km to the north adjacent to Gordonbrook Dam in 1984. No detections during dam surveys, bird surveys, 24 months of BUS and	W



Scientific name	Common name	EPBC status	Habitat description/ regional ecosystems present	Likelihood of occurrence	Source
				opportunistic sightings.	
Calidris acuminata	sharp-tailed sandpiper	V, Mi	Edges of shallow fresh or brackish wellands, with inundated or emergent sedges, grass, saltmarsh or other low vegetation, lagoons, swamps, lakes and pools near the coast, dams, waterholes, soaks, bore drains and bore swamps, saltpans and hypersaline salt lakes, saltworks, sewage farms, flooded paddocks, sedge lands, ephemeral wellands, but leave when they dry (Morcombe, 2004).	Unlikely. Marginal habitat onsite. No Wildnet records within 10 km, but 3 records within 20 km. No detections during dam surveys, fixed point surveys, roaming surveys and opportunistic sightings.	E, W
Calidris ferruginea	curlew sandpiper	CE, MI	Intertidal mudifats in sheltered coastal areas, such as estuaries, bays, inlets and lagoons, non-tidal swamps, lakes and lagoons, ponds in saltworks, sewage farms, ephemeral and permanent lakes, dams, waterholes and bore drains (Pizzey and Knight, 2012).	Unlikely. No suitable habitat onsite. No Wildnet records within 10 or 20 km. No detections during dam surveys, bird surveys, and opportunistic sightings.	E
Calidris melanotos	pectoral sandpiper	ME-	In Australasia, the pectoral sandpiper prefers shallow fresh to saline wetlands. The species is found at coastal lagoons, estuaries, bays, swamps, lakes, inundated grasslands, saltmarshes, river pools, creeks, floodplains and artificial wetlands (DCCEEW, 2025)	Unlikely. No suitable habitat onsite. No Wildnet records within 10 or 20 km. No detections during dam surveys, bird surveys, and opportunistic sightings.	E
Gaiyptorhynchus Iathami lathami	glossy black- cockatoo	v	The glossy black cockatoo is highly dependent on Allocasuarina species (Higgins, Peter and Steele, 2001). It inhabits open forest and woodlands on the coastine as well as within the Great Dividing Range where stands of shenak (especially Allocasuarina littoralis and Allocasuarina torulosa) triland populations feed on a wide variety of shenaks including drooping shenak, Allocasuarina diminuta, Allocasuarina gymnanthers and belah (OEH, 2022). They mostly roost in the canopy of live, leafy trees such as eucalypts but breed in a hollow stump or limb of living or dead trees as well as holes in trunks of fall trees (Higgins, Peter and Steele, 2001).	Confirmed Suitable foraging habitat exists in patches within the project site. Two individuals were observed roosting beside a dam onsite, a further five were sighted during fixed point surveys, and evidence of feeding found (22 detections). There are records of this species and evidence of their activity has been recorded from areas adjacent the project site over several years (Golder Associates, 2018).	E. survey results
Chelinolobus dwyeri	large-eared pied bat	Ε	The species has been found roosting in caves, overhangs, abandoned mine tunnels and disused fairy martin nests (Hoye and Dwyer, 1995, Schulz, 1998). No evidence exists of the large-eared pied bat roosting in	Unlikely. Limited marginal habitat onsite and no Wildnet records within 10 or 20 km. No	E



Scientific name	Common	EPBC status	Habitat description/ regional ecosystems present	Likelihood of occurrence	Source
			tree hollows (DETSI 2025).	detections during surveys.	
Climacteris picumnus victoriae	brown treecreeper (south-eastern)	V	Found in eucalypt woodlands and dry open forests of the inland slopes and plains inland of the Great Dividing Range. Northernmost known range is in the Bunya Mountains, Queensland Mainly inhabits woodlands dominated by stringybarks or other rough-barked eucalypts also found in mallee and River Red Gum (Eucalyptus camaldulensis) forest (OEH, 2024)	Unlikely. No Wildnet records within 10 or 20 km. Marginal suitable habitat on site, but project site is outside of known species range.	E
Cuculus optatus	oriental cuckoo	Mi	Mainly inhabiting forests, the oriental cuckeo occurs in mixed, deciduous and coniferous forest. It is present at all levels of the forest canopy, and can be found at a range of elevations, occasionally being recorded in mountains as high up as 1,100 metres (Higgins, 1999).	Possible Present in a wide range of habitats, and suitable habitat for the species is present on the project site. No Wildnet records within the 10 or 20 km. No detections during dam surveys, bird surveys, 24 month of BUS and opportunistic sightings.	E
Cyclopsitta diophthalma coxeni	Coxen's fig- parrot	CE	Habital includes rainforests, adjacent eucalypt woodlands, coastal scrub and riparian vegetation (Pizzey and Knight, 2012). Coxen's fig-parrot occurs wherever fig trees are present in lowland and upland forest types, riparian corridors, farmland and urban environments. It feeds primarily on the seeds of figs (DCCEEW, 2023a).	Unlikely. No suitable habital onsite and no confirmed records within 10 km. One citizen science record exists from Kumbia (ALA 2020), however this is likely to be erroneous and has not been confirmed by other reputable sources.	Ε
Dasyurus hallucatus	northern quoli	E	Desyurus hallucatus is commonly found in a wide range of eucalypt forest and woodland habitats associated with steep dissected rocky terrain, also found in rainforest patches, vegetation along creek lines, adjacent to mangroves, around human settlement and on beaches (DCCEEW, 2025).	Unlikely. Limited marginal habitat onsite and no records within 10 km. Two records are about 20 km south of site in very different montane habitat in the Bunya Mountains. Not detected during camera trapping and spotlighting surveys.	E.W
Dasyurus maculatus maculatus	spotted-tail quali	E	The southern subspecies, D. maculatus maculatus, has been recorded from a wide range of habital types including rainforest, wet and dry sclerophyll forest, coastal heathland, scrub and dunes, woodland, heathy woodland, swamp forest, mangroves, on beaches and	Unlikely. Limited marginal habitat onsite. One Wildnet record from 1930 within 10 km	E.W



Scientific name	Common	EPBC status	Habitat description/ regional ecosystems present	Likelihood of occurrence	Source
			sometimes in grassland or pastoral areas adjacent to forested areas (Threatened Species Scientific Committee, 2020).	from Kumbia, but this area is now extensively cleared. Nearest recent records are about 20 km south of the project site in very different montane habitat in the Bunya Mountains Not delected during camera trapping and spotlighting surveys.	
Deima torquafa	collared delma	v	This species is endemic, recorded disjunctly from the western edges of Brisbane north-west to Blackdown Tableland and infand to the Roma area (Wilson and Swan, 2014). This species habitat is associated with rocky terrain; however this species has also been recorded in woodlands with no significant rock components (Wilson and Swan, 2014). Habitat includes open eucalypt forest with a sparse understorey of shrubs and tussock grasses, on rocky hillsides with flattish rocks or on deep-cracking soils. Associated with land zones 3, 9 and 10 and specifically, RE 11.3.2, 11.9.10, 11.10.1 and 11.10.4.	Unlikely. Preferred REs not present on sile. No rocky areas observed in land zones 3, 9 or 10. Several areas of scree slopes were identified in land zone 8 and 11, which may provide marginal habitat. No Wildnet records within 10 km. Nearest records are about 20 km south of site in very different montane habitat in the Bunya Mountains. Not detected during active searches in woodland habitats.	E, W
Egemia rugosa	yakka skink	v	Known distribution extends from the coast to the hinterland of sub-humid to semi-arid Queenstand. Core habitat is within the Mulga Lands and Brigatow Belt South Bioregions. Occurs in open dry sclerophyll forests (ironbark) or low woodland and open shrub land on RE land zones 3, 4, 5, 7, 8, 9, 10 and 12 (though land zone 8 not considered core habitat and land zone 12 in Wet Tropics bioregion only). Has also been recorded in lancewood forest on coarse griffy soils in the vicinity of low ranges, foothills and undulating terrain with good drainage (DCCEEW, 2025). Colonies have been found in large hollow logs, cavities or burrows under large fallen trees, tree stumps, logs, stick-raked piles, large rocks and rock piles, dense ground-covering vegetation, and deeply eroded guilies.	Possible Marginal suitable habitat within the project site No Wildnet records within 10 or 20 km. No species detections during targeted herpetofauna and species-specific surveys (2018 – 2025) of suitable habitat	E
Elseya albagula	southern	CE	tunnels and sinkholes (DCCEEW, 2025). Prefers clear flowing water but can occur in non-flowing water. Known	Unlikely:	E
	snapping furtie		from Wide Bay Creek and Mary River.	All records are from much further downstream, no Wildnet records within 10 or 20 km.	



Scientific name	Common	EPBC	Habitat description/ regional ecosystems present	Likelihood of occurrence	Source
Erythrotriorchis radiatus	red goshawk	E	Typically occurs in woodland and forests in subtropical and warm temperate regions of Australia (Marchant and Higgins, 1993). It prefers landscapes that contain a mix of habitats including coastal and subcoastal tall open forest, woodland and rainforest edges. Resident pairs of red goshawks prefer intact, extensive woodlands and forests with a mosaic of vegetation types that are open enough for fast manoeuvring flight (Marchant and Higgins, 1993). These favoured areas contain permanent water, are relatively fertile and biologically rich with large populations of birds. Such areas are also preferentially selected for agricultural development (Sattler and Williams, 1999). Nests are typically built at an average height of 20 m (DCCEEW, 2023b).	Unlikely. Marginal habital onsite, nearest record is from the Nanango area approximately 50 km east of the project site. No detections during dam surveys bird surveys, 24 months of BUS and opportunistic sightings	Ē
Falco hypoleucas	grey falcon	v	Inhabits woodland, shrubland and grassland in the arid and semi-arid zones, especially wooded watercourses.	Unlikely. Limited marginal habital and no records within 20 km. No detections during dam surveys, bird surveys, 24 months of BUS and opportunistic sightings.	E
Furina dunmalli	Dunmall's snake	v	This species occurs from near the Queensland border in the brigalow belt south and Nandewar regions (DSEWPaC, 2011b). Habitat for this species includes forest and woodlands on cracking clays and clay loams dominated by brigalow (Acscia harpophylla), other wattles (A. burrowii, A. deanii, A. leiocalyx), and native Cypress (Califris spp.). Little is known about this species ecological requirements, however it is suggested that fallen timber, ground litter, and cracks in alluvial soils provide shelter for this species (DSEWPaC, 2011b).	No suitable habitat within the project site. Not detected during active herpetofauna searches No Wildnet records within 10 km and one record within 20 km.	E, W
Gallinago hardwickii	Latham's snipe	V; MI	Latham's snipe is a non-breeding migrant to the south-east of Australia including Tasmania, passing through the north and New Guinea on passage. Latham's Snipe breed in Japan and on the east Asian mainland. Usually seen in small groups or singly in freshwater wetlands on or near the coast (Pizzey and Knight, 2012).		E
Geophaps scripta scripta	squatter pigeon	v	The squatter pigeon is regionally abundant within the Brigalow Belt (northern) and Desert Uplands Bioregions. The species occurs in a wide range of habitals wherever there is a grassy understorey. It is commonly encountered in grassy woodlands and open forests dominated by eucalypts (DCCEEW, 2025). It is nearly always associated with areas	Sulfable habitat is present within the project site, however no Wildnet records	E



Scientific name	Common	EPBC status	Habitat description/ regional ecosystems present	Likelihood of occurrence	Source
			with nearby permanent water (e.g. rivers, creeks and waterholes). Sandy areas dissected by gravel ridges, which have open and short grass cover allowing easier movement, are preferred. It is less commonly found on heavier soils with dense grass (DCCEEW, 2024b)		
Grantiella picta	painted honeyeater	v	Forests, woodlands, dry scrublands often with abundant mistletoe. Key habitat is defined as brigatow and gidgee (with mistletoe), including REs 11.3.1, 11.3.1a, 11.3.1b, 11.3.1c, 11.3.16, 11.3.17, 11.3.20, 11.4.3, 11.4.3a, 11.4.3b, 11.4.3c, 11.4.7, 11.4.10, 11.9.5, 11.9.6, 11.9.6a, and 11.9.10 (DETSI, 2025).	Unlikely. No suitable habitat exists onsite and no records within 10 km. One Wildnet record within 20 km. Many records from the wider locality (ALA 2022). No detections during dam surveys, bird surveys, 24 months of BUS and opportunistic sightings.	E W
Hemiaspis damelii	grey snake	E	Found on the inland eastern interior to the Rockhampton coastal region. Inhabits fallen timber and soil cracks, usually near water (Wilson and Swan, 2014). Occurs from central inland NSW to coastal areas near Rockhampton. Inhabits brigalow and belah woodlands on cracking clay soils in association with water bodies, small gullies, ditches and gilgais as they prey almost exclusively on frogs (Rowland, 2012).	Unlikely. No suitable habital within the project site and no Wildnet records within 10 or 20 km. Not detected during active herpetofauna searches.	E
Hirundapus caudacutus	white-throated needletail	V, Mi	The white-throated needlefall is a non-breeding migrant to Australia (present October-April). It is widespread across eastern and south-eastern Australia but is considered a vagrant in central and western Australia. White-throated needletails are aerial birds, utilising the airspace above forests, woodlands, farmlands and ridge tops (Pizzey and Knight, 2012).	Confirmed. Numerous individuals recorded during fixed point count surveys from 2018 - 2023. Likely to fly over the project site. No observations of roosting onsite. Four Wildnet records within 20 km.	E. W. survey results
Hydroprogne caspia	Caspian tem	Mi	Mostly found in sheltered coastal areas and may also occur on near- coastal or inland terrestrial wetlands that are either fresh or saline.	Unlikely. No suitable habital on site and no Wildnet records within 10 km. One Wildnet record within 20 km.	W
Lathamus discolor	swift parrot	CE	Dry sclerophyll eucalypt forests and woodlands Occasionally wet sclerophyll forests. Feeds mostly on nectar, mainly from eucalypts, but also eats psyllid insects and lerps, seeds and fruit.	Unlikely. No suitable habital onsite and no records within 10 or 20 km.	E



Scientific name	Common	EPBC status	Habitat description/ regional ecosystems present	Likelihood of occurrence	Source
Maccullochella peelii	Murray cod	v	Diverse range of habitats within the Murray-Darling River system from clear rocky streams to slow-flowing, turbid lowland rivers and billabongs (DCCEEW, 2025).	Unlikely. The project area is located within the Burnett drainage basin and there are no Wildnet records within 10 or 20 km.	Ē
Motscilla flava	yellow wagtail	Mi	Variety of habitat types from farmland to well pastures and grasslands.	Unlikely. Habitat is suitable, but no Wildnet records within 10 or 20 km. No detections during dam surveys, bird surveys, 24 months of BUS and opportunistic sightings.	E
Nyctophilus corbeni	Corben's long- eared bat, south-eastern long-eared bat	v	Variety of vegetation types, including mallee, bulloak and box / ironbark eucalypt dominated communities. Requires hollows for roosting and prefers large, intact and connected habitat patches (DCCEEW, 2024d). The species is found to increase in abundance in habitats with a distinct tree canopy and dense, cluttered understorey layer (Turbill and Ellis, 2006).	Unlikely: Marginal habitat and no records from within 10 or 20 km. Harp trapping surveys within areas of potential habitat did not detect this species.	E
Pandion cristatus (listed as P. halipetus)	eastern osprey	Mi	Occur in littoral and coastal habitats and terrestrial wetlands and occasionally travel inland along major rivers. Require extensive areas of open fresh, brackish or saline waters.	Unlikely. No rivers with permanent water occur. No Wildnet records within 10 km but one record within 20 km.	E.W
Petauroides volans volans	central greater glider	E	Tall eucalypt forests and woodlands. Silent, solitary and noctumal. Eats gum leaves. Dependent on large tracts of undisturbed, tall forest with suitably large denning hollows, each animal requires approximately 1.5 ha (DCCEEW, 2022).	Confirmed. Suitable habitat exists onsite and Wildnet records within 20 km. A total of 76 individuals were defected during spotlighting surveys (36 within the project site).	E. W. survey results
Petaurus australis australis	yellow-bellied glider	Y	Occurs at altitudes ranging from sea level to 1400 m above sea level and has a widespread but patchy distribution from SEQ to far south-eastern South Australia, near the South Australia to Victorian border (DAWE, 2022a). In Queensland distribution is mostly coastal, extending southward along the eastern seaboard from north of Mackay to the Queensland border Inhabits tall mature eucalypt forest (either wet or dry forest) and shelters in hollows (DAWE, 2022a).	Possible Marginal habitat exists within the project site due to the absence of large contiguous patches of mature old growth forest. No WildNet records exist within 10 km but two records within 20 km (see habitat description). There were no	E



Scientific name	Common	EPBC status	Habitat description/ regional ecosystems present	Likelihood of occurrence	Source
			The distribution is highly disjunct due to a combination of biogeographic processes and land clearing, as well as the specific habitat requirements, even in continuous sections of forest (Eyre 2004). Species generally occur in small social groups that occupy large and exclusive home ranges and occur at low densities (0.03-0.14 individuals/ha). Yellow-bellied glider shows a preference for large patches of mature old growth forest that provide suitable trees for foraging and shelter (DAWE, 2022a). Home ranges are large due to the dispersed nature of foraging trees and the seasonal changes in use (DAWE, 2022a). It is suggested by Goldingay and Possingham (1995) that minimum habitat areas of 180-350 km² are required to maintain a viable subpopulation with a figure of 320 km² suggested for south east Queensland (Eyre, 2002). Habitat comdors are required to facilitate dispersal of yellow-bellied glider between fragmented habitat patches and/or to enable recolonization or movement away from threats (DAWE, 2022). This species has very low dispersal capabilities which reinforces its dependence on contiguous areas of forest (DAWE, 2022). Vellow-bellied glider has previously been recorded in the region (e.g. within 80 km of the project site Diamondy State Forest [14,200 ha], Barakula State Forest [23,500 ha], Tarong State Forest [1500 ha] and Squirrel Creek State Forest [8,655 ha]) where there are large continuous patches of habitat.	detections during targeted surveys for this species A total of 219.6 hrs were spent spotlighting and conducting call playback for yellow-bellied glider between 2019 - 2025, along with more than 64 habitat assessment sites and extensive vegetation surveys identifying flora diversity, including key foraging trees for the species. Additionally, no V-shaped feeding scars (which are characteristic of yellow-bellied gliders (Goldingay and Kavanagh 1991)) were detected on any suitable foraging trees during targeted surveys or habitat assessments across the project site. High numbers of other glider species were detected on site, indicating that suitable habitat features for gliders are present in the form of den sites and foraging species. However, the absence of sufficiently large contiguous patches of forest required by this yellow-bellied glider has limited the suitability of the project site to marginal at best. Based on these findings, and the fragmented nature of the project site compared to the targe continuous patches of habitat where known records of yellow-bellied glider have previously been recorded in the region, there is a low likelihood of this species occurring within the impact area or project site.	
Petrogale penicillata	brush-tailed rock-wallaby	V	Prefers steep rocky habitats, with high importance on rocky outcrops and north facing aspects. Occurs in a range of vegetation types from rainforest to open forest.	Unlikely. No habitat onsile and no Wildnet records from within 10 or 20 km.	E



Scientific name	Common	EPBC status	Habitat description/ regional ecosystems present	Likelihood of occurrence	Source
Phascolarcios cinereus	koala	E	A range of temperate, sub-tropical and tropical forest, woodland and semi-arid communities dominated by Eucalyptus species – food and shelter trees (DAWE 2022b).	Confirmed Fauna surveys have recorded numerous individual sightings as well as scals and scratches. Suitable habitat and nine Wildnet records within 10 km.	W, E, survey results
Plegadis falcinelius	glossy ibis	Mi	Fresh water marshes near the edges of lakes and rivers, lagoons, flood- plains, swamps, reservoirs, sewage ponds and cultivated areas under irrigation (DCCEEW, 2025).	Possible Some suitable habitat exists on the project site. No Wildnet records within 10 km but three records within 20 km. No detections during dam surveys, bird surveys, 24 months of BUS and opportunistic sightings.	w
Potorous tridactylus tridactylus	long-nosed potarao	V	Fragmented distribution along the east coast mainland. Inhabits coastal heath, and dry or wet sclerophyll forests with thick ground-cover and understorey habitats (DSEWPaC, 2011a)	Unlikely. Marginal habital onsite and no records from within 10 or 20 km	E
Pseudomys novaehollandiae	New Holland mouse	v	This species inhabits open health lands, open woodlands with a healthland understorey and vegetated sand dunes. It has a communal burrowing system and feeds on insects, leaves, flowers and fungi. It is a social animal, living predominantly in burrows shared with other individuals. Soil type may be an important indicator of suitability of habitat for the New Holland Mouse, with deeper top soils and softer substrates being preferred for digging burrows. In Victoria, the species has been recorded on deep siliceous podsols, sandy clay, loamy sands, sand dunes and coastal dunes. The species peaks in abundance during early to mid-stages of vegetation succession typically induced by fire (DCCEEW, 2025)	No suitable habitat exists for this species within the project area and no Wildnet records occur within 10 or 20 km.	E
Pteropus poliocephalus	grey-headed flying-fox	v	Sub-tropical and temperate rainforest, tall open forest, swamps, heaths and urban areas. Roosting sites usually in dense forest adjacent to waterbodies. Forages within 50 km of camp in flowering trees or rainforests, eucalypts, paperbarks and banksias (DCCEEW, 2025).	Confirmed. Observed foraging at two locations within the project site during spring 2021 when food species in flower Most flying fox camps occur closer to the coast. No	E, W, survey results



Scientific name	Common	EPBC status	Habitat description/ regional ecosystems present	Likelihood of occurrence	Source	
				camps known from within 20 km, with closest camp in The Palms National Park, Cooyar, approximately 39 km to the south-east.		
Rostratula australis	Australian painted snipe	E	Shallow inland wellands, brackish or freshwater that are permanently or temporarily inundated.	Unlikely. No suitable welland habital and no records within 10 or 20 km.	E	
Stagonopieura guttata	diamond firefail	v	Endemic to south-eastern Australia, extending from central Queensland to the Eyre Peninsula in South Australia. Found in grassy eucalypt woodlands, including box-gum woodlands and snow gum Eucalyptus not detected during surveys an paucifiora woodlands. Also occurs in open forest, mallee, Natural Temperate Grassland, and in secondary grassland derived from other communities (DGCEEW, 2025).			
Turnix melanogaster	black-breasted button-quail	v	Occur in forested areas where deep leaf litter layer exists in a wide variety of forest types. Fallen logs and a dense, heterogeneously distributed shrub layers are also considered to be important habital characteristics for shelter and breeding (DCCEEW, 2025).	Possible Marginal habitat exists in RE 11.8.3 in the south-western corner. No Wildnet records within 10 km. Numerous recent records within 20 km from Bunya Mountains which contains very different habital. No detections during dam surveys, bird surveys, 24 months of BUS and opportunistic sightings.	E.W	
Flora	41-					
Acacia grandifolla	5	v	Grows on hilly terrain of varying aspects and slope, on hillcrests, in gullies on plains. Species forms open stands on sand, among large sandstone boulders and has been found on stony soils which are basalt derived.	Unlikely. Marginal habital in project site and no records within 10 km. One Wildnet record within 20 km. Southern end of distribution near Wilkesdale about 20 km north of site.	E.W	
Arthraxon hispidus	hairy-joint grass	v	Spreading grass often growing near creeks or swamps, generally in or on the edges of rainforest and wet eucalypt forest.	Unlikely. Marginal habitat and no records within 20 km.	E	



Scientific name	Common	EPBC status	Habitat description/ regional ecosystems present	Likelihood of occurrence	Source
Bothnochlos bunyensis	satin top grass	v	Endemic to south east Queensland and occurs on relatively fertile krasnozem (dark brown) soils derived from basalt on upper slopes and hill crests at altitudes of 600–1,100 m. Occurs in grassland or woodland with a grassy understorey.	Unlikely. No suitable habital and no records within 10 km. Nearest records are about 20 km south of sile in very different montane habital in the Bunya Mountains.	E, W
Cadellia peritastylis	coline	v	Semi-evergreen vine thickets and scierophyll vegetation on undulating terrain of various geology, including sandstone, conglomerate and claystone.	Unlikely. Marginal habitat (only 0.63 ha of vine thicket) within the project site and no records within 20 km. Not found during surveys of suitable habitat.	E
Clematis fawcettii	stream clematis	v	Prefers carropy gaps on loam soils derived from basall and mixed volcanic rocks usually near streams. Occurs in association with dry rainforest, subtropical rainforest, eucalypt forests with scattered vine forest species.	Unlikely. Limited marginal habital in project site and no records within 10 km. Nearest records are about 20 km south of site in very different montane habital in the Bunya Mountains. Not found during surveys of suitable habital.	E.W
Coleus omissus (listed as Plectranthus omissus)	-	E	Known from only four sites between Gympie and Gayndah. Grows on steep rock outcrops in eucalypt open forest and adjacent to vine forests at approximately 300-400 m above sea level (DEWHA, 2008b)	Unlikely. Marginal habitat present but no Wildnet records within 10 or 20 km of project site. Edge of species distribution is to the east of the project site.	E
Cossinia australiana	cossinia	Ε	Occurs on fertile soils from Rockhampton to Kingaroy: Associated with patches of Araucarian vine forest or vine thickets.	Unlikely. Limited marginal habitat in project site. No Wildnet records within 10 km and one record within 20 km. Not found during surveys of suitable habitat.	E.W
Denhamia parvifolia	small-leaved denhamia	v	Grows on soils derived from various geological substrates and is associated with semi-evergreen vine thickets and Acadia harpophylla (brigalow) scrub communities.		E, W



Scientific name	Common	EPBC status	Habitat description/ regional ecosystems present	Likelihood of occurrence	Source
				suitable habitat	
Dichanthium setosum	bluegrass	V	Occurs on heavy basaltic black soils and red-brown leams with clay subsoil in grasslands and open woodlands.	Unlikely. No suitable habitat and no records within 10 or 20 km.	E
Eucalyptus taurīna	Helidon Ironbark	Ε	Occurs on sandy soils in open woodlands at three separate sites in Queensland (Helidon, Crows Nest, and Mundubbera). Known to occur in Lockyer National Park to the east of Toowoomba(DCCEEW, 2024a). Recorded as occurring in regional ecosystems mapped as 11.7.6, 11.9.2, 11.10.1, 11.10.4, 12.9-10.2, 12.9-10.5, 12.9-10.14, 12.5.1, 12.12.2, 12.12.12, and 12.12.23 (DCCEEW, 2024a).	Unlikely. Marginal habitat in small areas of 11.7.6, which occurs in a mosaic of RE 11.12.3/11.7.6 on the project site. No Wildnet records within 10 or 20 km but the project site is between two known populations. Mundubbera and Crows Nest. No detections within areas of suitable habitat on site.	Ē
Haloragis exalata subsp. valutina	tall velvet sea berry	v	Found in rainforest and rainforest margins and adjacent grassland and open grassy woodland and often occurs in damp places near watercourses and in woodland on steep rocky slopes	Unlikely. Limited marginal habitat on the project site. No records within 10 km and four records within 20 km. Not found during surveys of suitable habitat.	E, W
Homopholis belsonli	Belson's panic	. W	Occurs in dry woodland habitats on a range of soil types; or on rocky hills supporting white box (Eucalyptus albens) and in wiiga (Geijera parvillors) woodland; flat to gently undutating alluvial areas supporting belah (Casuarina cristata) forest, and soils and plant communities of poplar box (Eucalyptus populnes) woodlands; or flat to gently undutating alluvial areas supporting Casuarina cristata (belah) forest and sometimes Acacia harpophylla (brigalow) or G. parviflora (wilga) and subject to intermittent inundation. Also, drainage lines supporting Caristata intermixed with sandy country dominated by cypress pine-bloodwood-ironbark-she-oak forest (DETSI, 2025). Generally found among fallen timber at the base of trees or shrubs, among branches and leaves of trees hanging to ground level or along the bottom of netting fences. It may also be associated with shadier areas of brigalow, myail, and weeping myall communities, in mountain coolibah communities; and on roadsides (DETSI, 2025).	Limited marginal habitat on the project site. No records within 10 km and one record within 20 km.	.w



Scientific name	Common name	EPBC status	Habitat description/ regional ecosystems present	Likelihood of occurrence	Source
Lepidium peregrinum	wandering peopercress	É	This species has been found growing in riparian areas associated with open forests. It is commonly abundant in tussock grasslands fringing riparian areas. Species known distribution occurs from the Bunya Mountains, south-east Queensland, to near Tenterfield, in northern New South Wales (DCCEEW, 2024c).	Suitable habital but no records within	
Leuzea australis (listed as Rhaponticum australe)	Austral cornflower, native thistle	v	Grows in eucalypt open forest with grassy understory on roadsides and on road reserves with Chloris gayana, Cirsium vulgare, Eucalyptus tereticornis and Angophora floribunda on black clay soil (DCCEEW, 2025).	Unlikey Limited habitat in the project site. No Wildnet records within 10 km and one record within 20 km Possible on heavy clay soils that occur only in the southwestern edge of the project site, unlikely elsewhere. Not found during surveys of suitable habitat. No suitable habitat within planning comidor.	E.W
Macadamia integrifoka	macadamia nut	v	Prefers rainforest margins in remnant rainforest, on high nutrient soils with rock fragments: Occurs on a wide variety of well drained landforms and slopes	Unlikely. Limited marginal habital in the project site and no records within 10 or 20 km.	E
Pheballum distans	Mt Berryman phebalium	Ε	Found in semi-evergreen vine thicket on red volcanic soils, or in communities adjacent to this vegetation type.	Unlikely. Limited marginal habitat. No records within 10 km and three records within 20 km. Not found during surveys of suitable habitat.	E.W
Picris evae	hawkweed	v	Occurs from Inverell region in NSW to Darling Downs and Moreton regions in south-east Queensland. If grows in eucalypt open woodland with a grassy understorey. Often found along roadsides and in cultivated areas on black, dark grey or red-brown soils, reddish clay-loam or medium clay soils (DEWHA, 2008a)		E



Scientific name	Common	EPBC status	Habitat description/ regional ecosystems present	Likelihood of occurrence	Source
				woodland habitats.	
Polisathion minutifiorum		V	Forest and woodland on sandstone slopes and guilles with skeletal soil, or deeper soils adjacent to deeply weathered laterite (DEWHA, 2008c).	Possible Marginal habital present on project site, but no Wildnet records within 10 km. One record within 20 km from Diamondy State Forest. Not found during surveys of suitable habitat.	E, W
Sophora fraseri	brush sophora	V	Found in moist habitats, often in hilly terrain at altitudes between 60- 660 m. Occurs in shallow soils along rainforest margins in eucalypt forests or in large canopy gaps in closed forest communities.	Unlikely. Limited marginal habital within the project sile and no records within 20 km.	E
Thesium australe	Austral toadflax	v	Shrubland, grassland or woodland, usually on damp sites. Suitable vegetation types within the project site likely to be limited to woodlands and grasslands in seasonally wet riparian areas (DCCEEW, 2025)	Possible Suitable riparian habitat within the project site, limited suitable habitat and host plants in impact area. Wildnet records beside Jarail Road about 1 km west of site. Species not found during surveys of suitable habitat in impact area, but possible to occur in unsurveyed areas of the project site.	E, W
Zieria obovata		V.	Wet open eucalypt forest dominated by Syncarpia glomulifera, Eucalyptus aberglana, and E cloeziana, and on steep rocky slopes among granite slabs and boulders.	Unlikely. Limited marginal habitat in the project site and no Wildnet records within 10 km. One Wildnet record within 20 km.	vv



Revision History

Revision No.	Revision date	Details	Prepared by	Reviewed by	Approved by
00	21/05/2025	Supplement to the Assessment of MNES - Tarong West Wind Farm	Con Lokkers, Principal Ecologist	Dr Natalie Toon Principal Ecologist	Diane Lanyon, Director of Strategic Partnerships
01	26/06/2025	Supplement to the Assessment of MNES - Tarong West Wind Farm, R1	Dr Natalie Toon Principal Ecologist	Leigh Knight, Principal Ecologist	Diane Lanyon, Director of Strategic Partnerships
02	22/08/2025	Supplement to the Assessment of MNES - Tarong West Wind Farm. R2	Dr Natalie Toon Principal Ecologist	Diane Lanyon, Director of Strate Partnerships	

Distribution List

Copy #	Date	Type	Issued to	Name
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