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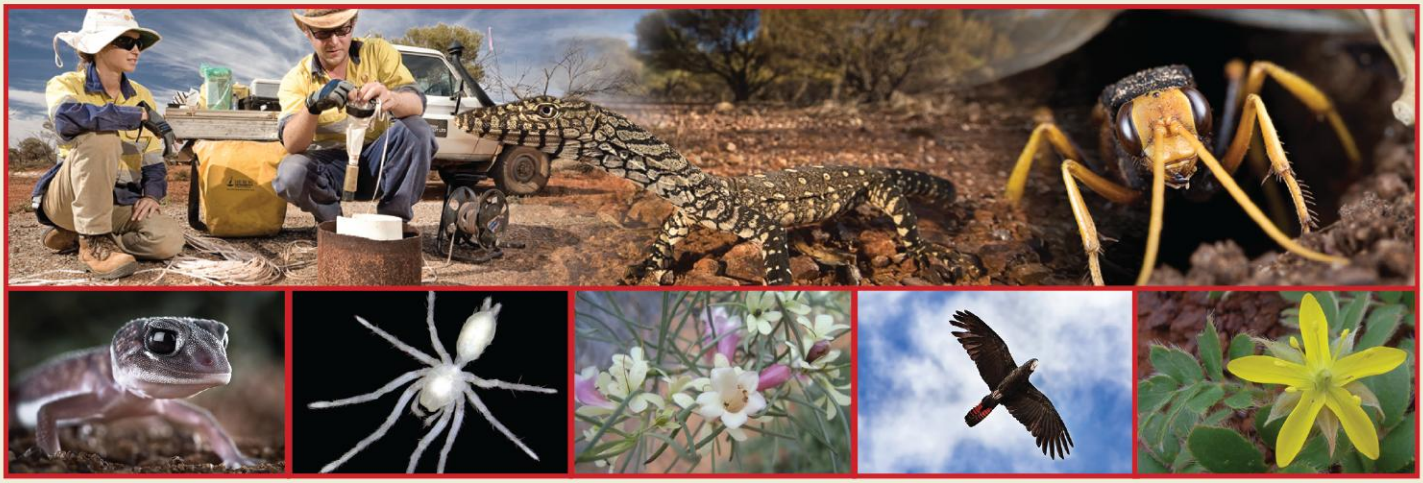
Basic and targeted terrestrial fauna survey for the Marri Wind Farm Proposal

Prepared for Aurecon Group, on behalf of Alinta Energy

October 2025

Final



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Version history

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EXECUTIVE SUMMARY

Marri WF Pty Ltd as trustee for the Marri WF Unit Trust (the Proponent), a wholly owned subsidiary of Alinta Energy Pty Limited (Alinta Energy), is seeking approval to develop Marri Wind Farm (the Proposal) located approximately 20 kilometres (km) south of the township of Dandaragan within the Shire of Dandaragan. The Proposal involves the construction of a 550 MW wind farm in Dandaragan, consisting of up to 82 turbines that will be able to generate up to 2,000 GWh of energy. Phoenix Environmental Sciences was commissioned by Aurecon Group to undertake a basic and targeted terrestrial fauna survey for the overarching Proposal footprint and transmission footprint. The purpose of the surveys was to inform an environmental impact assessment for the Proposal.

The desktop review identified that 370 vertebrate species occur within 40 km of the study area, 85 of which are listed as conservation significant. Eight significant vertebrate species have previously been recorded within the study area including:

- *Calidris ferruginea* Curlew Sandpiper – CR /Mig. /CR (EPBC Act; BC Act)
- *Calidris ruficollis* Red-necked Stint – Mig. (EPBC & BC Acts)
- *Dasyurus geoffroii* Chuditch - VU (EPBC & BC Acts)
- *Notamacropus irma* Western Brush Wallaby – P4 (DBCA)
- *Oxyura australis* Blue-billed Duck – P4 (DBCA)
- *Tringa glareola* Wood Sandpiper – Mig. (EPBC & BC Acts)
- *Tringa nebularia* Common Greenshank – EN /Mig. (EPBC Act; BC Act)
- *Zanda latirostris* Carnaby's Cockatoo – EN (EPBC & BC Acts).

The desktop also identified that 25 confirmed (i.e. breeding known to have occurred) and 10 potential (i.e. potential for breeding, no breeding has been observed) black cockatoo breeding trees occur within 5 km of the study area. Four known black cockatoo roosts were identified within 40 km of the study area, one of which was located within the study area.

The field surveys were conducted over 3 trips on 5-9th August 2024, 26-30th August 2024, and 11-14th August 2025. During the surveys, 6 broad vertebrate fauna habitats were defined in the study area, comprising Cleared areas (89.8%), *Banksia* heath and woodland (5.3%), Open Jarrah-Marri woodland (3.0%), Drainage line and riparian (1.2%), Pine plantations (0.7%) and Wetlands (<0.1%). Cleared areas included isolated trees, dams providing drinking water sources for fauna and agricultural crops, including canola, known to be foraged on by Carnaby's Cockatoo. Land use in the Dandaragan Plateau subregion is primarily agricultural; it is therefore unsurprising that most of the study area was highly modified. The modest extent of native vegetation in the study area occurred as highly fragmented patches, restricted to roadside verges and bush plots.

The field survey recorded a total of 99 terrestrial vertebrate species including 8 amphibians, 7 reptiles, 67 birds, and 17 mammal species. Six species were recorded during the field survey that were not identified in the desktop review, including Goat, European Cattle, South-western Long-necked Turtle, White-striped Free-tailed Bat, South-western Free-tailed Bat and Chocolate Wattled Bat. Additionally, evidence of 3 introduced predators (Red Fox, Cat and Dog) was recorded at several sites.

Two Threatened and one Priority vertebrate fauna species were recorded during the survey: Carnaby's Cockatoo (*Zanda latirostris,* Vulnerable), Forest Red-tailed Black Cockatoo (*Calyptorhynchus banksii naso*, Vulnerable) and Blue-billed Duck (*Oxyura australis*, Priority (P4). Two additional conservation significant species were considered likely to occur in the study area: Peregrine Falcon (*Falco peregrinus*, specially protected) and Black-striped Snake (*Neelaps calonotos*, P3).

The desktop review identified records of 27 Confirmed and 106 Potential short range endemic (SRE) invertebrate taxa from within 100 km of the study area. Fourteen Threatened and Priority invertebrate species were identified in the desktop review, of which 9 are from SRE target groups (8 mygalomorph spiders and a land snail). One Priority species had previously been recorded within the study area, the land snail *Bothriembryon perobesus* (P1), but this is a Widespread species. The remaining 5 Threatened/Priority invertebrates are from non-SRE target groups and therefore were not part of the survey scope.

Three of the vertebrate fauna habitats mapped in the study area were considered SRE habitat: *Banksia* heath and woodland, Open Jarrah-Marri woodland and Drainage line and riparian. All SRE habitats were considered to have low potential to harbor SREs as they are widespread in the local and greater region, although these habitats may support SREs in suitable microhabitats such as fallen logs or leaf litter.

A total of 22 SRE taxa was collected during the survey, including 9 isopods, 4 millipedes, 4 centipedes, 3 scorpion, one pseudoscorpion and one harvestman. No Confirmed SREs were collected, 13 taxa were considered Potential SREs, 2 taxa were of Uncertain status, and 7 were considered Widespread. Of the 22 SRE taxa, 9 had significant divergence from their closest matches on GenBank and/or the Phoenix database and were considered new species:

- isopod -
    - Armadillidae `Phoenix0390
    - *Buddelundia* `Phoenix0388`
    - *Spherillo* 'Phoenix0386'.
    - *Laevophiloscia* `Phoenix0389`
- pseudoscorpion –
    - *Austrochthonius* 'Ma01'
- Opiliones -
    - *Ballarra* `Phoenix0387`
- millipede -
    - Iulomorphidae 'Phoenix0384'
- soil centipede -
    - Mecistocephalidae 'Phoenix0385'
    - *Sepedonophilus* `Phoenix0383`.

All new species were considered Potential SREs due to data deficiency. Despite new taxa being discovered during the survey, it is unlikely that these species are restricted to the study area as they were collected in habitats that were limited within the study area but extensive in the greater region.

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ACRONYMS AND ABBREVIATIONS

BoM	Bureau of Meteorology
CAMBA	China-Australia Migratory Bird Agreement
CD	Conservation Dependent
CR	Critically Endangered
DBCA	Department of Biodiversity, Conservation and Attractions
DBH	Diameter at breast height
DCCEEW	Department of Climate Change, Energy, the Environment and Water
EIA	Environmental impact assessments
EN	Endangered
EPA	Environmental Protection Authority
EPBC	Environment Protection and Biodiversity Conservation Act
EX	Extinct
EW	Extinct in the Wild
HQS	Habitat quality scores
IBRA	Interim Biogeographic Regionalisation of Australia
IBSA	Index of Biodiversity Surveys for Assessment
Mig.	Migratory
MW	Megawatt
NES	National Environmental Significance
OS	Species otherwise in need of special protection
PNT	Potential nesting trees
ROKAMBA	Republic of Korea-Australia Migratory Bird Agreement
SP	Specially Protected
SRE	Short Range Endemic
VU	Vulnerable
WA	Western Australia

1 INTRODUCTION

Marri WF Pty Ltd as trustee for the Marri WF Unit Trust (the Proponent), a wholly owned subsidiary of Alinta Energy Pty Limited (Alinta Energy), is seeking approval to develop the Marri Wind Farm (the Proposal) located approximately 20 kilometres (km) south of the township of Dandaragan, Western Australia (WA; Figure 1-1). The study area is located in the Shire of Dandaragan and the Southern Climatic Region as defined by EPA (2020).

The Proposal involves the construction of a 550 MW wind farm in Dandaragan, consisting of 82 turbines that will be able to generate 2,000 GWh of energy. In March 2024, Phoenix Environmental Sciences Pty Ltd (Phoenix) was commissioned by Aurecon Group (Aurecon), on behalf of the Proponent, to undertake a basic and targeted terrestrial fauna survey for the overarching infrastructure footprint (MWF; Figure 1-1) for the Proposal. Subsequently in August 2025, Phoenix was re-engaged to undertake the same scope for the transmission footprint (TX footprint; Figure 1-1). The purpose of the surveys was to inform an environmental impact assessment for the Proposal. For the purposes of this report, the Proposal is split into two subareas: the windfarm footprint (MWF) and the transmission footprint (TX).

This report summarises results from the basic and targeted terrestrial fauna surveys for the MWF and TX footprint. Results from the first trip of the bird and bat utilisation survey (BBUS) for the Proposal, which was conducted concurrently to the basic and targeted survey conducted in the MWF are referenced in this report, where relevant to this scope. A comprehensive analysis of results from the BBUS is being reported on separately (Phoenix in prep-a).

1.1 SCOPE OF WORK

The scope of work for the basic and targeted terrestrial fauna survey was as follows:

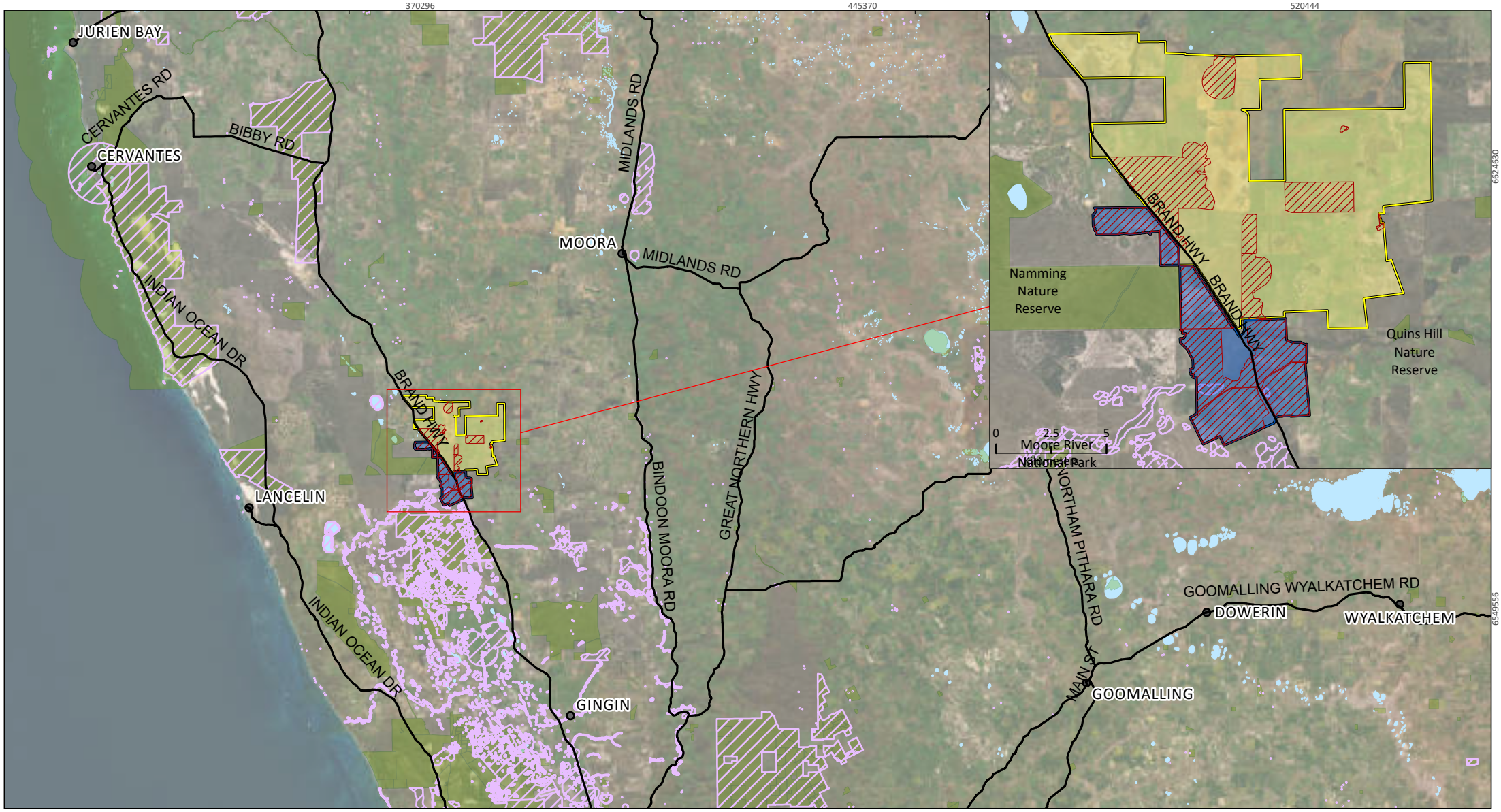
- desktop study –
    - to gather contextual information of the potential vertebrate fauna habitats and significant species of the study area
    - to gather contextual information of the potential short range endemic (SRE) invertebrate fauna habitats and species of the study area
    - to identify field survey requirements, including timing and methods
- basic survey –
    - to verify the overall adequacy of the desktop study
    - to gather broad fauna and habitat information on the vertebrate and SRE values of the study area
    - to map and describe habitats
    - to assist in planning for the BBUS
    - to inform an environmental impact assessment for the Proposal
- targeted survey –
    - to confirm the presence of significant species likely to occur
    - to determine distribution and abundance of specific significant species
    - to determine fauna movement and habitat use
    - to describe and map habitats or features that are important to significant fauna or faunal assemblages, such as for breeding, foraging, or dispersal
    - to inform an environmental impact assessment for the Proposal.

1.2 STUDY AREA

The study area (15,823 ha) was composed of 2 subareas including the MWF (12,555.5 ha) and the TX footprint (3,267.5 ha) (Figure 1-1). Additional sites targeting bird and bat species were located within 10 km of the study area, referred to as regional BBUS sites.

The vertebrate desktop search extent was defined by a 40 km buffer of the MWF, and the SRE desktop search extent was defined by a 100 km buffer of the MWF.

The exclusion area in the TX footprint was not surveyed due to access restrictions and the exclusion area in the MWF outlines areas where infrastructure will not be developed (Figure 1-1).



Alinta Energy
Marri Wind Farm Project

Project No	1739
Date	16/10/2025
Drawn by	JL
Map author	BQ

0 12.5 25
Kilometers

1:873,800 (at A4) GDA 1994 MGA Zone 50

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Study area
- MWF
- TX footprint
- Exclusion zone
- DBCA managed land
- Lakes
- Environmentally Sensitive Areas
- Roads

Figure 1-1

Proposal location and study area

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2 LEGISLATIVE CONTEXT

The protection of fauna in WA is principally governed by 3 acts:

- Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act)
- State *Biodiversity Conservation Act 2016* (BC Act)
- State *Environmental Protection Act 1986* (EP Act).

2.1 COMMONWEALTH

The EPBC Act is administered by the Federal Department of Climate Change, Energy, the Environment, and Water (DCCEEW). The EPBC Act provides for the listing of Threatened fauna as matters of National Environmental Significance (NES). Under the EPBC Act, actions that have, or are likely to have, a significant impact on a matter of NES, require approval from the Australian Government Minister for the Environment through a formal referral process. Key threats and habitat critical to the survival of EPBC Act Threatened species are usually defined in the conservation advice and/or recovery plan for the species.

Conservation categories applicable to Threatened fauna species under the EPBC Act are as follows:

- Extinct (EX)[1] – there is no reasonable doubt that the last individual has died
- Extinct in the Wild (EW) – taxa known to survive only in captivity
- Critically Endangered (CR) – taxa facing an extremely high risk of extinction in the wild in the immediate future
- Endangered (EN) – taxa facing a very high risk of extinction in the wild in the near future
- Vulnerable (VU) – taxa facing a high risk of extinction in the wild in the medium-term
- Conservation Dependent (CD)[1] – taxa whose survival depends upon ongoing conservation measures; without these measures, a conservation dependent taxon would be classified as Vulnerable, Endangered, or Critically Endangered.

The EPBC Act is also the enabling legislation for protection of migratory species as matters of NES under several international agreements:

- Japan-Australia Migratory Bird Agreement (JAMBA)
- China-Australia Migratory Bird Agreement (CAMBA)
- Convention on the Conservation of Migratory Species of Wild Animals (Bonn)
- Republic of Korea-Australia Migratory Bird Agreement.

2.2 STATE

2.2.1 Threatened and Priority species

In WA, the BC Act provides for the listing of Threatened fauna species (Government of Western Australia 2018a, b) in the following categories:

[1] Species listed as Extinct and Conservation Dependent are not matters of NES and therefore do not trigger the EPBC Act.

- Critically Endangered (CR) – species facing an extremely high risk of extinction in the wild in the immediate future[2]
- Endangered (EN) – species facing a very high risk of extinction in the wild in the near future[2]
- Vulnerable (VU) – species facing a high risk of extinction in the wild in the medium-term future[2].

Species may also be listed as specially protected (SP) under the BC Act in one or more of the following categories:

- species of special conservation interest (conservation dependent fauna, CD) – species with a naturally low population, restricted natural range, of special interest to science, or subject to, or recovering from a significant population decline or reduction in natural range
- migratory species (Mig.), including birds subject to international agreement
- species otherwise in need of special protection (OS).

The Department of Biodiversity, Conservation, and Attractions (DBCA) administers the BC Act and also maintains a non-statutory list of Priority fauna. Priority species are still considered to be of conservation significance – that is they may be Threatened – but cannot be considered for listing under the BC Act until there is adequate understanding of threat levels imposed on them. Species on the Priority fauna list are assigned to one of 4 Priority (P) categories, P1 (highest) – P4 (lowest), based on level of knowledge/concern.

2.2.2 Critical habitat

Under the BC Act, habitat is eligible for listing as critical habitat if it is critical to the survival of a Threatened species or a Threatened Ecological Community (TEC) and its listing is otherwise in accordance with the ministerial guidelines.

2.2.3 Other significant fauna

Under the EPA's environmental factor guideline (EPA 2016a), fauna may be considered significant for reasons other than listing as a Threatened or Priority species, including:

- species with restricted distribution (see also section 2.2.4)
- species subject to a degree of historical impact from threatening processes
- providing an important function required to maintain the ecological integrity of a significant ecosystem.

2.2.4 Short range endemic invertebrates

Short range endemic (SRE) fauna are defined as animals that display restricted geographic distributions, nominally less than 10,000 km^2, that may also be disjunct and highly localised (Harvey 2002). EPA (2016a) identifies species with restricted distributions as being significant fauna in the context of environmental impact assessments (EIA). SRE fauna need to be considered in EIA as localised, small populations of species that are generally at greater risk of changes in conservation status due to environmental change than other, more widely distributed taxa.

[2] As determined in accordance with criteria set out in the ministerial guidelines.

Short range endemism in terrestrial invertebrates is believed to have evolved through 2 primary processes (Harvey 2002):

- Relictual – where the drying climate reduced the area of suitable habitat available to a species, forcing a range contraction. Such habitats typically maintain historic mesic conditions (e.g. south-facing rock faces or slopes of mountains or gullies).
- Habitat speciality – where species settled in particular isolated habitat types (e.g. rocky outcrops) by means of dispersal and evolved in isolation into distinct species.

SRE invertebrates have, however, also been reported in more widespread habitats such as spinifex plains or woodlands, mainly in groups with low dispersal capabilities, for example mygalomorph spiders and millipedes (see for example Car & Harvey 2014; Rix *et al.* 2018).

There can be uncertainty in categorising a specimen as an SRE due to several factors including poor regional survey density, lack of taxonomic research, and problems of identification, i.e. specimens that may represent SREs cannot be identified to species level based on the life stage. For example, in contrast to mature males, juvenile and female millipedes, mygalomorph spiders and scorpions cannot be identified to species level. Molecular techniques such as 'barcoding' (Hebert *et al.* 2003a; Hebert *et al.* 2003b) are routinely employed to overcome taxonomic or identification problems.

3 EXISTING ENVIRONMENT

3.1 INTERIM BIOGEOGRAPHIC REGIONALISATION OF AUSTRALIA

The Interim Biogeographic Regionalisation of Australia (IBRA) classifies Australia's landscapes into large 'bioregions' and 'subregions' based on climate, geology, landform, native vegetation and species information (DoEE 2016). The study area lies on the boarder of the Perth (SWA2) and Dandaragan Plateau (SWA1) subregions, which both occur in the Swan Coastal Plain bioregion (Figure 3-1).

The Perth subregion is characterised by Mitchell *et al.* (2002b) as:

> "Colluvial and aeolian sands, alluvial river flats, coastal limestone. Heath and/or Tuart woodlands on limestone, *Banksia* and Jarrah/*Banksia* woodlands on Quaternary marine dunes of various ages, Marri on colluvial, and alluvials".

The Dandaragan Plateau subregion is characterised by Desmond (2001) as:

> "Cretaceous marine sediments are mantled by sands and laterites. Characterised by *Banksia* low woodland, Jarrah - Marri woodland, Marri woodland, and by scrub-heaths on laterite pavement and on gravelly sandplains".

3.2 LAND SYSTEMS AND SURFACE GEOLOGY

The Department of Primary Industries and Regional Development (DPIRD) undertakes land system mapping for WA using a nesting soil-landscape mapping hierarchy (Schoknecht & Payne 2011). While the primary purpose of the mapping is to inform pastoral and agricultural land capability, it is also useful for informing biological assessments. Under this hierarchy, land systems are defined as areas with recurring patterns of landforms, soils, vegetation and drainage (Payne & Leighton 2004). The study area intersects 5 land systems (Table 3-1; Figure 3-2).

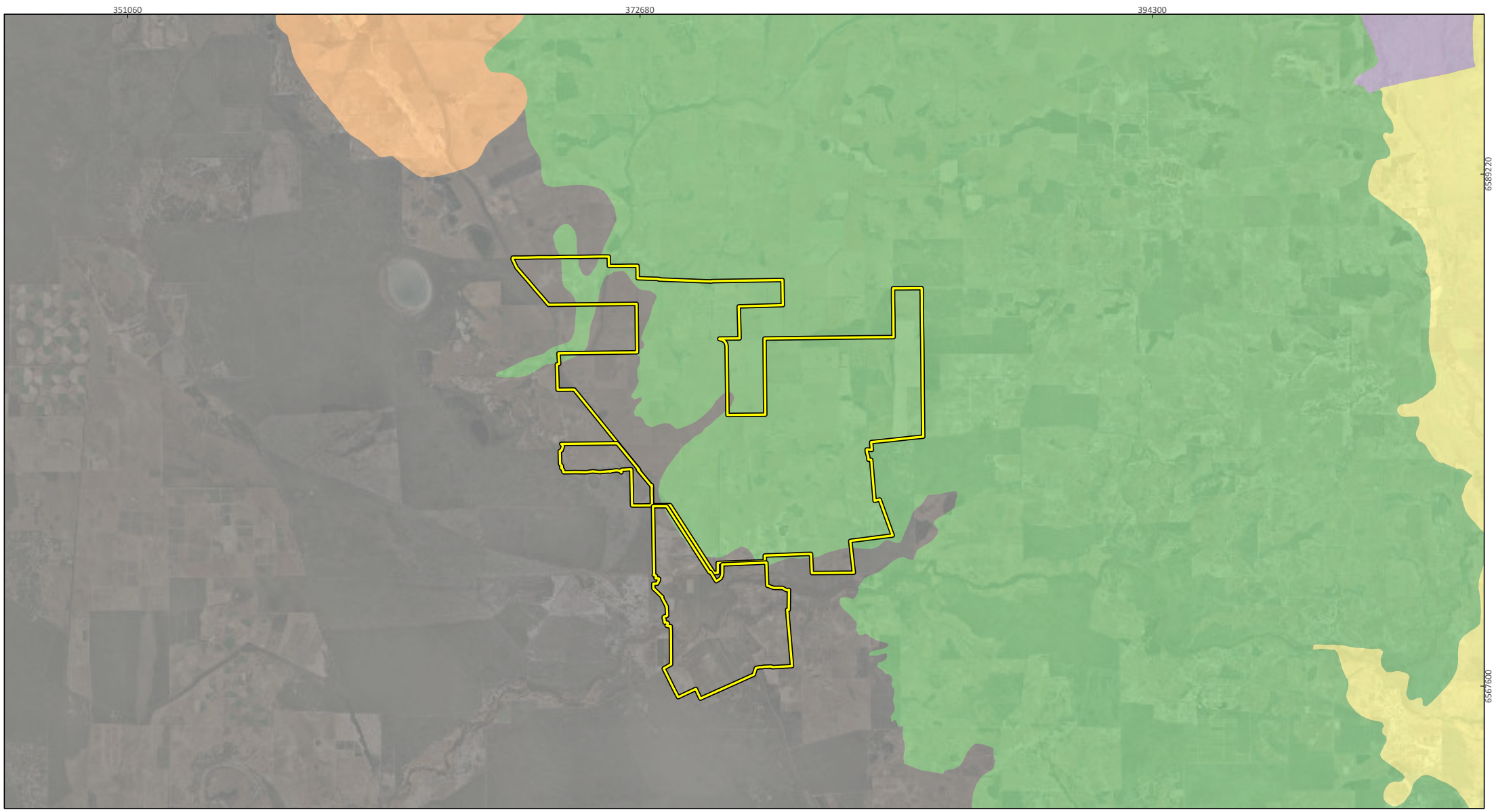
Table 3-1 Land systems and extent in study area

Land system	Description	Area (ha)	% of study area
Bassendean System	Swan Coastal Plain from Busselton to Jurien. Sand dunes and sandplains with pale deep sand, semi-wet, and wet soil. *Banksia*-paperbark woodlands and mixed heaths.	1,420	9
Capitella System	Subdued stripped lateritic plateau, undulating to gently undulating low rises with gently undulating plain including dunes; pale and yellow deep sands, sandy gravels, some duplex; from sandstones plus alluvial and aeolian deposits.	2,397.9	15.2
Dandaragan System	Subdued dissected lateritic plateau, undulating low hills, and rises with narrow alluvial plains. Variable deep sands and sandy gravels plus minor earths, duplexes, and clays. Marri woodlands and shrublands.	5,910.9	37.3
Moore River System	Alluvial flats; Swan Coastal Plain west of Gingin; wet soil, semi-wet soil, pale, and yellow deep sands; Woodlands and heaths.	1,414.2	8.9
Rowes System	Subdued partly dissected lateritic plateau, gently undulating plains, and gently undulating to undulating rises; yellow and pale sand, sandy earth, and sandy gravel; weathered sandstone.	4,680	29.6
	Total	**15,823**	**100**

According to the Surface Geology of Australia 1:1,000,000 scale, WA database (Stewart *et al.* 2008), the study area intersects 8 geological formations (Table 3-2; Figure 3-2).

Table 3-2 Surface geology of the study area, extent by deposit type

Surface geology	Abbreviation	Description	Area (ha)	% of study area
Bassendean Sand	Qdcb	Basal conglomerate overlain by dune quartz sand with heavy mineral concentrations	1,180	7.5
Ferruginous Duricrust 38498	Czl	Pisolitic, nodular, or vuggy ferruginous laterite; some lateritic soils; ferricrete; magnesite; ferruginous and siliceous duricrusts and reworked products, calcrete, kaolinised rock, gossan; residual ferruginous saprolite	6,246.8	39.4
Guildford Formation	Qag	Alluvial sand and clay with shallow-marine and estuarine lenses and local basal conglomerate	1,330.8	8.4
Molecap Greensand	Kscm	Glauconitic sand, sandstone, clay, minor phosphatic nodules	516.4	3.3
Osborne Formation	Ksco	Glauconitic sandstone, siltstone, shale, claystone	88.2	0.6
Poison Hill Greensand	Kscp	Glauconitic sand and clay	353.3	2.2
Sand Plain 38499	Czs	Sand or gravel plains; quartz sand sheets commonly with ferruginous pisoliths or pebbles, minor clay; local calcrete, laterite, silcrete, silt, clay, alluvium, colluvium, aeolian sand	6,012.1	38
Yarragadee Formation	Jsya	Variegated sandstone, feldspathic sandstone, siltstone, shale, conglomerate, coal	95.4	0.6
		Total	**15,823**	**100**



Alinta Energy
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Date	19/09/2025
Drawn by	MW
Map author	BQ

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Kilometers

1:216,200 (at A4) GDA 1994 MGA Zone 50

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Region, subregion

- Dandaragan Plateau, Swan Coastal Plain
- Katanning, Avon Wheatbelt
- Lesueur Sandplain, Geraldton Sandplains
- Northern Jarrah Forest, Jarrah Forest
- Perth, Swan Coastal Plain

Figure 3-1

Study area in relation to IBRA bioregions and subregions

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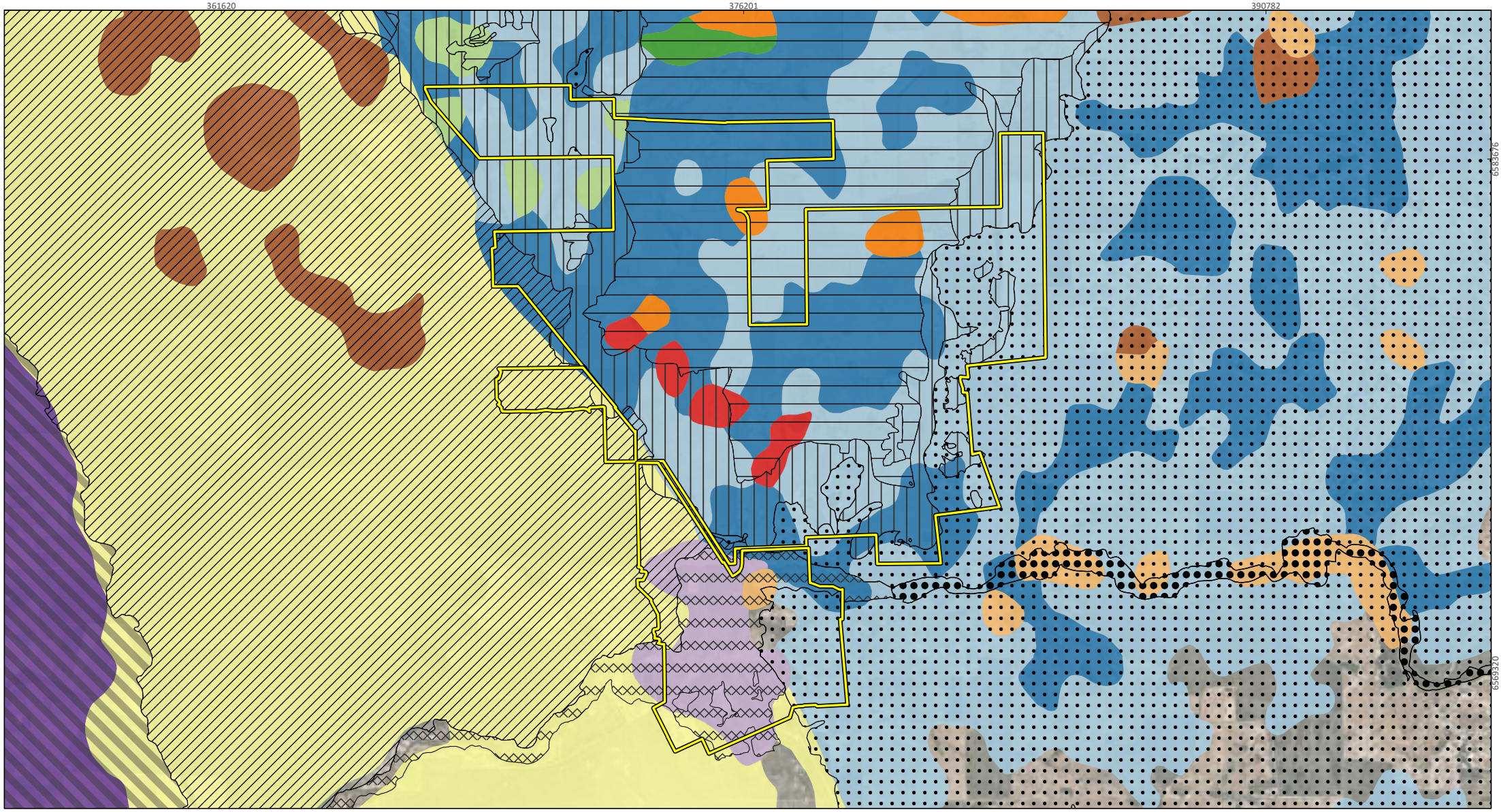

Alinta Energy
Marri Wind Farm Project

Project No	1739
Date	19/09/2025
Drawn by	MW
Map author	BQ

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Kilometers

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Surface geology

- Czl
- Czs
- Jsya
- Klcg
- Kscm
- Ksco
- Kscp
- Qag
- Qdc
- Qdcb
- Qt

Land system

- Bassendean System
- Boothendarra System
- Capitella System
- Dandaragan System
- Moochamulla System
- Moore River System
- Rowes System
- Spearwood System

Figure 3-2

Land systems and surface geology in the study area

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3.3 CLIMATE AND WEATHER

The climate of the Dandaragan Plateau and Swan Coastal Plain subregion is described as warm mediterranean with an annual rainfall of between 600 and 1,000 mm (Desmond 2001; Mitchell *et al.* 2002a). The nearest Bureau of Meteorology (BoM) weather station with comprehensive data collection and recent historic climate data is Gingin Aero (no. 009178, Latitude: 31.46°S Longitude 115.86°E), located 55.8 km south of the study area.

Gingin Aero records the highest mean maximum monthly temperature (33.3°C) in January and February (lowest in July, 18.4°C) and the lowest minimum mean monthly temperature (6.6°C) in July and August (highest in February, 17°C) (Figure 3-3). July records the highest monthly median rainfall (118.4 mm; Figure 3-3) and January records the lowest median rainfall, at 1.6 mm.

Daily mean temperatures at Gingin Aero over the year proceeding the surveys was slightly warmer than long term averages across all months except February, July and August of 2025 (Figure 3-3). Records from Gingin Aero show that the total monthly rainfall was consistent with the long-term median rainfall during the month of the first survey (August 2024) and was slightly higher than long-term averages in the month prior to the first survey (July). Total monthly rainfall was much higher than long term averages in the month during and prior to the second survey (August 2025). Therefore both surveys had optimal conditions for the survey of SRE taxa (EPA 2016b) (Figure 3-3).

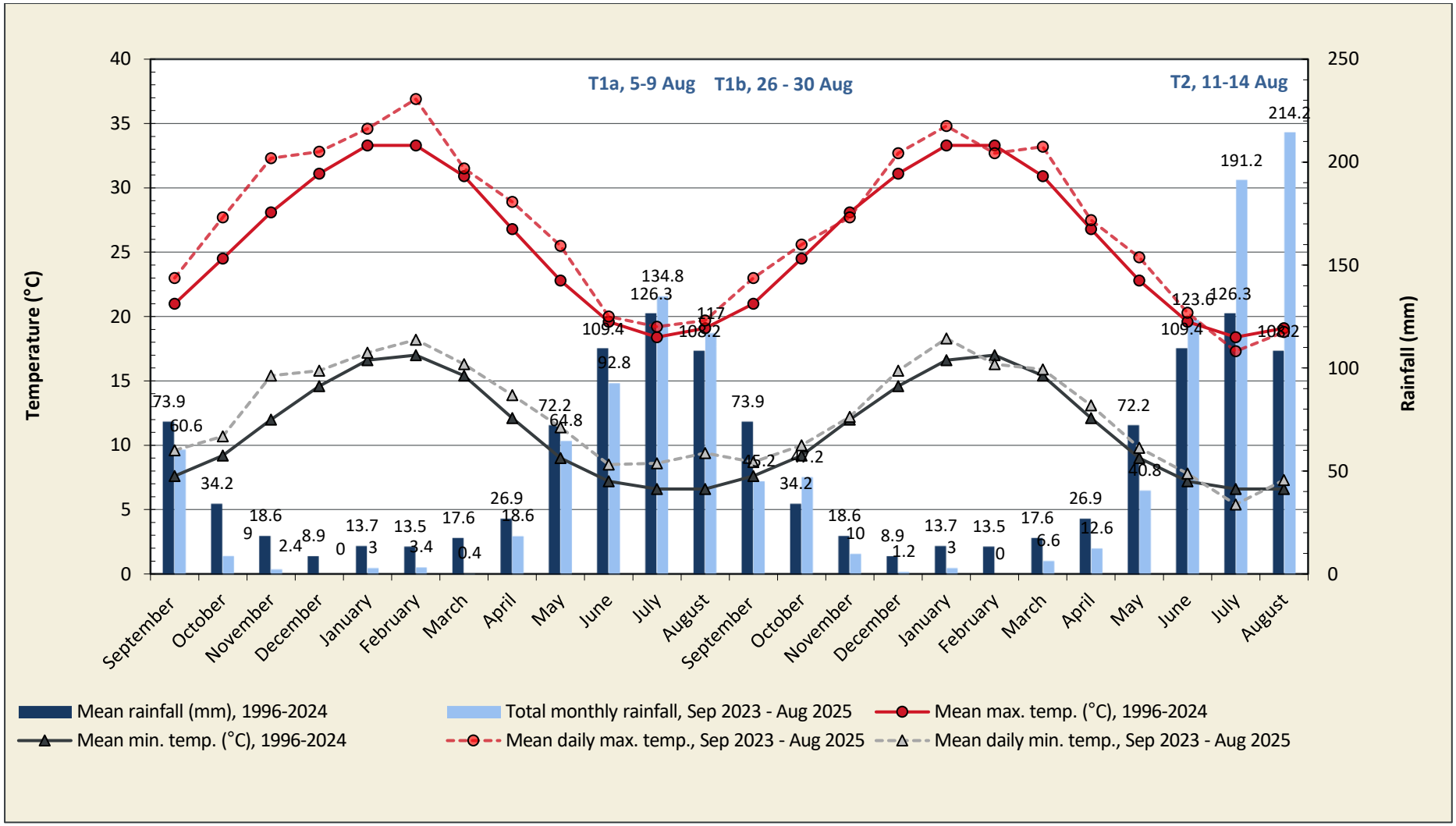


Figure 3-3 **Annual climate and weather data for Gingin Aero (no. 009178) and mean monthly data for the 12 months preceding the surveys (BoM 2025)**

3.4 LAND USE

The dominant land use of the Dandaragan Plateau and Perth subregions is agriculture, followed by conservation (May & McKenzie 2003). This remains consistent with the land use within the study area whereby the vast majority consists of crop fields, with pockets of remnant vegetation. Conservation reserves and environmentally sensitive areas

Several nature reserves occur within 5 km of the study area, including Moochamulla, Bundarra, Quins Hill, one unnamed reserves and, most notably, Namming, which lies adjacent to the western border of the study area, and Moore River National Park, located 1.4 km south of the study area (Figure 1-1).

The study area intercepts 2 Environmentally Sensitive Areas (ESAs; Figure 1-1); one located along Moore River and the other in a seasonally inundated wetland located on private property. Additionally, several occur in the surrounding area. Most notably is Lake Guraga, which is located 5 km west of the study area and is listed in the Directory of Important Wetlands in Australia. ESAs also occur along portions of Moore River, located south of the study area, as well as 2 small areas located 2.1 km west of the study area.

4 METHODS

The basic and targeted terrestrial fauna survey was conducted in accordance with relevant survey guidelines and guidance, including:

- *EPA Environmental Factor Guideline: Terrestrial fauna* (EPA 2016a)
- *EPA Technical Guidance: Technical Guidance: Terrestrial vertebrate fauna surveys for environmental impact assessment* (EPA 2020)
- *EPA Technical Guidance: Sampling of short range endemic invertebrate fauna* (EPA 2016b)
- Survey guidelines for Australia's threatened birds. Guidelines for detecting birds listed as threatened under the *Environment Protection and Biodiversity Conservation Act 1999*. (DSEWPaC 2010)
- Survey guidelines for Australia's threatened mammals. Guidelines for detecting mammals listed as threatened under the *Environment Protection and Biodiversity Conservation Act 1999* (DSEWPaC 2011)
- National Malleefowl Monitoring Manual (NMRT 2022).

4.1 DESKTOP REVIEW

Searches of several biological databases were undertaken to identify and prepare lists of significant fauna that may occur within the study area (Table 4-1). A literature search was conducted for accessible reports for biological surveys conducted within 40 km of the study area to build on the lists developed from the database searches (Table 4-2).

Table 4-1 Database searches conducted for the desktop review

Database	Target group/s	Search coordinates and extent
BirdLife BirdData (Birdlife 2024)	Birds	Study area plus a 40 km buffer
Dandjoo Biodiversity Data Repository (DBCA 2024a)	Fauna records	Study area plus a 40 km buffer
DBCA Threatened and Priority Fauna Database (DBCA 2024b)	BC Act listed and Priority fauna	Study area plus a 30 km buffer[1]
Index of Biodiversity Surveys for Assessment (IBSA) database (DWER 2024) for nearby survey reports and data	Fauna survey records and data	Study area plus a 40 km buffer
Protected Matters Search Tool (DCCEEW 2024b)	EPBC Act Threatened and Migratory fauna	Study area plus a 40 km buffer
Phoenix Biological Database (Phoenix 2024c)	Fauna and SRE records	Study area plus a 40 km buffer
WA Museum Arachnid and Myriapod Database, Mollusca Database (WAM 2024)	Arachnid, myriapod, and mollusc SREs	Study area plus a 100 km buffer

[1]DBCA decrease the buffer size to 30 km for data-rich areas.

Table 4-2 Survey reports included in the desktop review

Report title	Survey type	Approximate distance from study area
Bamford (2015) Cooljarloo West Development Envelope Fauna Assessment	Detailed	21 km NW
DEC (2008) Resource Condition Report for a Significant Western Australian Wetland: Lake Guraga	Desktop	5 km W
Eco Logical Australia (2021) Black Cockatoo Habitat Assessment of Part of Lot 3333 Mimegarra Road, Cataby	Targeted	11.3 km NW
Ecoedge (2019) Orange Springs Road Fauna Assessment	Basic	2.5 km S
Ecologia (2024) Yandin Wind Farm Avian Fauna Monitoring Program	Monitoring	5 km N
Phoenix (2023) Black cockatoo potential habitat tree survey at potential offset site (confidential report)	Targeted	24.5 km SE
Phoenix (2023) Black cockatoo potential habitat tree survey at potential offset site at Lot 1, Indian Ocean Drive	Targeted	36.5 km SW
Phoenix (2024a) Black cockatoo habitat assessment for potential offset site at Lot 2 Orange Springs Road	Targeted	8.5 km SW
Phoenix (2024b) Black Cockatoo habitat assessment for the northern section of Lot 3832/327 Nammegarra Road, Regans Ford	Targeted	1.5 km W

4.2 FIELD SURVEY

4.2.1 Survey timing

Field survey dates are provided in Table 4-3. The survey of the MWF area was conducted over 2 weeks in August 2024, concurrent with the first phase of the BBUS (Phoenix in prep-a). The survey of the TX footprint was conducted in August 2025.

Table 4-3 Survey dates

Focus area	Trip	Season	Dates
MWF	1a	Winter	5 – 9 August 2024
	1b	Winter	26 – 30 August 2024
TX footprint	2	Winter	11 – 14 August 2025

4.2.2 Field methods

Field methods for the fauna survey of the study area included:

- habitat assessment (see 4.2.2.1)
- active diurnal searches (4.2.2.2)
- bird surveys (4.2.2.3)
- bat echolocation recordings (4.2.2.5)

- camera trapping (4.2.2.6)
- black cockatoo habitat assessments (4.2.2.7)
- Malleefowl habitat assessment (4.2.2.8)
- SRE invertebrate sampling (4.2.2.9).

Nine basic fauna sites and 21 bird-bat utilisation sites were sampled (Figure 4-1; Appendix 1). Additional opportunistic sightings and habitat assessments were made throughout the study area. No sampling was conducted in the exclusion zones within the study area (Figure 1-1), other than the occasional site description or opportunistic record while driving through these areas.

4.2.2.1 Habitat assessment

Initial habitat characterisation was undertaken using various remote geographical tools, including aerial photography (Google Earth®), land system maps and topographic maps. Habitats with the potential to support significant terrestrial fauna species were identified based on known habitats of such species within the Swan Coastal Plain bioregion. Tentative sites were selected for the terrestrial fauna survey to represent all habitat types. Final survey site selection was conducted after ground-truthing of site characteristics.

At the broadest scale, site selection considered aspect, topography and land systems. At the finer scale, consideration was given to proximity to water bodies (drainage lines and creek), vegetation complexes, and condition and soil type. Sites were primarily chosen to represent the best example of distinct habitats within the broader habitat associations of the study area with a focus on species of conservation significance identified in the desktop review. Habitat descriptions and characteristics were recorded at all basic and targeted survey sites (Figure 4-1; Table 4-4; Appendix 2).

Table 4-4 Survey effort

Site name	Site type	Location relative to study area	Habitat assessment (#)	Litter sieve (#)	Active foraging – SRE (hrs)	Active searches – vertebrates (hrs)	Opportunistic sighting (count)	Bat echolocation recording (nights)	Bird surveys (hrs)	Bird audio recording (nights)	Camera trap (nights)
CBC01	Basic fauna	Inside	1						0.3		
CBC02	Basic fauna	Inside	1								
CBC03	Basic fauna	Inside	1				1				
CBC04	Basic fauna	Inside	1				1				
CBC05	Basic fauna	Inside	1								
Opp01	Opportunistic	Outside					1				
Opp02	Opportunistic	Outside					1				
Opp03	Opportunistic	Inside					1				
Opp04	Opportunistic	Inside					1				
Opp05	Opportunistic	Inside	1				1				
Opp06	Opportunistic	Inside					1				
Opp07	Opportunistic	Inside					1				
Opp08	Opportunistic	Outside					1				
Opp09	Opportunistic	Inside					1				
Opp10	Opportunistic	Outside					1				

Site name	Site type	Location relative to study area	Habitat assessment (#)	Litter sieve (#)	Active foraging – SRE (hrs)	Active searches – vertebrates (hrs)	Opportunistic sighting (count)	Bat echolocation recording (nights)	Bird surveys (hrs)	Bird audio recording (nights)	Camera trap (nights)
Site01	BBUS	Outside	1				1	3	0.8	2	
Site02	BBUS	Outside	1					3	0.5	2	
Site03	BBUS	Outside	1					3	0.5	2	
Site04	BBUS	Outside	1					3	0.5	2	
Site05	BBUS	Inside	1				1	3	0.5	2	
Site06	BBUS	Outside	1					3	0.5	1	
Site07	BBUS	Outside	1					3	0.5	1	
Site08	BBUS	Inside	1	3	1	1		3	1.5	1	
Site09	BBUS	Inside	1					3	0.5	2	
Site10	BBUS	Outside	1				1	3	0.5	2	
Site11	BBUS	Inside	1	3	1	1		3	0.5	2	
Site12	BBUS	Inside	1					3	0.5	2	
Site13	BBUS	Outside	1					3	1.2	3	
Site14	BBUS	Outside	1	3	1	1		3	0.5	1	
Site15	BBUS	Inside	1					3	0.5	1	
Site16	BBUS	Inside	1	3	1	1	1	3	0.5	1	
Site17	BBUS	Inside	1		1	1	1	3	0.5	1	6
Site18	BBUS	Inside	1				1	3	0.5	1	
Site19	BBUS	Outside	1	3	1	1	2	3	0.5	3	6
Site20	BBUS	Inside	1					3	0.5	2	
Site21	BBUS	Inside	1	3	1	1	1	3	0.5	2	
Site25	Basic fauna	Inside	1	3	1	1			1		
Site26	Basic fauna	Inside	1	3	1	1			1		
Site27	Basic fauna	Inside	1								
Site28	Basic fauna	Inside	1				1		0.5		
Site29	Opportunistic	Inside	1				1				
TL-01	Basic fauna	Inside	1	3	1	1		3	1	3	3
TL-02	Basic fauna	Inside	1	3	1	1			1		
TL-03	Basic fauna	Inside	1	3	1	1		2	1	2	
TL-04	Basic fauna	Inside	1	3	1	1			1		
TL-05	Basic fauna	Inside	1								
TL-06	Basic fauna	Inside	1								
TL-07	Basic fauna	Inside	1								
TL-08	Basic fauna	Inside	1								
TL-09	Basic fauna	Inside	1								
TL-10	Basic fauna	Inside	1								
TL-11	Basic fauna	Inside	1								

Site name	Site type	Location relative to study area	Habitat assessment (#)	Litter sieve (#)	Active foraging – SRE (hrs)	Active searches – vertebrates (hrs)	Opportunistic sighting (count)	Bat echolocation recording (nights)	Bird surveys (hrs)	Bird audio recording (nights)	Camera trap (nights)
TL-12	Basic fauna	Inside	1								
TL-13	Basic fauna	Inside	1	3	1	1	1		1		
TL-14	Basic fauna	Inside	1								
TL-15	Basic fauna	Inside	1	3	1	1			1		
TL-16	Basic fauna	Inside	1						1		
		Total	**48**	**42**	**15**	**15**	**24**	**68**	**22.3**	**41**	**15**

4.2.2.2 Active searches for vertebrates

Active searches were undertaken at 15 sites during the survey (Table 4-4). Active searches targeted herpetofauna and mammals from direct sightings and secondary evidence. Searches focused primarily on significant species identified in the desktop review as potentially occurring within the study area.

Searches were undertaken in any observable microhabitats considered likely to support mammals, reptiles and amphibians. Techniques included: raking leaf and bark litter, overturning logs, searching beneath the bark of trees, investigating dead trees and logs, investigating burrows, investigating infrastructure ruins, or disused building materials such as tin piles and identifying any secondary evidence including tracks, diggings, scats, fur or sloughs (shed skins), predation or feeding sites, and fauna constructed structures such as nests. One person-hour was spent active searching at each site for a total of 15 hours over the duration of the field surveys (Table 4-4).

4.2.2.3 Bird surveys

Bird surveys were undertaken at each of 21 BBUS sites and 11 of the basic fauna sites (Figure 4-1; Table 4-4). Bird surveys comprised of both timed searches confined to habitat types (up to 2 ha) represented by each site to collect assemblage data for each habitat, and fixed point counts per the methods suggested in Brett Lane and Associates (2005). The methods for point counts are tailored for bird utilisation surveys for windfarms and consist consisted of 2 replicate 15-minute censuses at 21 sites. Bird surveys were undertaken throughout the day with a focus on periods of higher activity around sunrise and sunset where possible. The data used for this report include bird recordings from visual sightings and call recognition.

A total of 22.3 person hours of bird census was undertaken during the field surveys (Table 4-4). Additional bird observations were also recorded opportunistically while other field work was being completed, including observations made during travel and active searches.

4.2.2.4 Bird audio recording

SongMeter SM4 recording devices were deployed at the 21 systematic BBUS sites and 2 of the basic fauna sites to record bird calls and activity over a longer period outside of disturbance periods during the field survey, and to target nocturnal birds (Site01-21; Table 4-4; Figure 4-1). Of the 23 sites, 14 were located within the study area and 9 were outside. Devices were deployed for a minimum of one night and maximum of 3 nights during the field survey, totalling 41 nights (Table 4-4).

4.2.2.5 Bat echolocation recordings

SongMeter SM4 recording devices were deployed at 21 systematic BBUS sites and 2 of the basic fauna sites to record bat echolocation calls (Site01-21; Table 4-4; Figure 4-1), of which 14 were inside and 9 were outside the study area. Recording devices were deployed at each site for 3 nights of recording from sunset to sunrise (Table 4-4). Devices were aimed at a 45° angle to the ground. The SongMeters were positioned in areas of habitat likely to have increased insect activity and to attract bats (i.e. likely foraging areas or movement corridors) and/or potential roosting sites.

4.2.2.6 Camera trapping

Motion-activated cameras were deployed at 3 sites (Table 4-4; Figure 4-1) in high value fauna habitat.

4.2.2.7 Black cockatoo habitat assessment

The study area is within the modelled distribution and breeding range for Carnaby's Cockatoo (CC; *Zanda latirostris*; EN) (DAWE 2022) (Appendix 5). The black cockatoo habitat assessment therefore entailed recording of breeding habitat, foraging habitat quality and night roosting habitat for CC.

The study area is just outside the northern boundary of the modelled distribution for Forest Red-tailed Cockatoo (FRTBC; *Calyptorhynchus banksii* subsp. *naso*; VU; Appendix 5) however the species is known to be returning to its former northern range which encompasses the study area (Garnett & Baker 2021). Foraging habitat quality was therefore also assessed for FRTBC.

The modelled distribution for Baudin's Cockatoo (*Zanda baudinii;* VU) is outside the study area to the south and therefore was not assessed for the Proposal.

Breeding habitat for black cockatoos consists of woodland or forest; however, they will also breed in areas of former woodland or forest habitats which consist of now fragmented patches of habitat and/or isolated trees. Breeding habitat is defined in DAWE (2022) as "habitat that contains known, suitable or potential nesting trees". Known nesting trees are trees that contain a hollow where breeding has been recorded, or which demonstrates evidence of breeding.

Potential nesting trees (PNTs) with a diameter at breast height (DBH) equal to or greater than 300 mm for Wandoo (*E. wandoo*), and 500 mm for all other hollow bearing tree species, were recorded throughout the study area. The location of PNTs were recorded on a GPS accurate to <1 m. The following information was recorded for each tree:

- DBH (mm)
- tree location
- tree species
- life status of tree (dead or alive)
- presence of hollows
- number of visible hollows
- type of hollows
- entrance size of hollows
- height of hollow
- evidence of use by black cockatoos or other species.

Black cockatoos have been recorded successfully nesting in hollows as shallow as 100 mm (Saunders 1979), however research suggests nesting attempts in shallow hollows (<400 mm) are less successful than those in deeper hollows (Saunders *et al.* 2014). Hollows suitable for black cockatoos must have

a minimum diameter of 100 mm, but preferably 200-300 mm (Groom 2010). Black cockatoos show no preference for aspect of natural hollows (Groom 2010).

The foraging value of each habitat type within the study area was assessed for CC and FRTBC species using the habitat quality score (HQS) methodology developed by Bamford Consulting Ecologists (Bamford 2021). The scoring system provides a numerical value that reflects the significance of vegetation as foraging habitat for black cockatoos, and this numerical value is designed to provide the information needed by the Department of Climate Change, Energy, the Environment and Water (DCCEW), Department of Water and Environmental Regulation (DWER) and the EPA to assess impact significance and offset requirements. The components required for calculating the score are as follows:

- Site condition – a score out of 6 for the vegetation composition, condition and structure
- Site context – a score out of 3 for the context of the site, such as availability of foraging habitat nearby
- Species stocking rate – a score out of one for species density.

A fourth component is then required to moderate the context and species density in relation to the vegetation condition. The combination of the scores provides an overall foraging value score out of 10, where a higher score represents better foraging value. The calculation of scores and moderation process are described in detail in Bamford (2021). HQS values range from 0 to 10, with scores of 0 to 3 classified as low foraging value foraging habitat, scores of 4 to 6 represent moderate foraging value and scores of 7 to 10 represent high foraging value (Bamford 2021).

The HQS for each habitat type was determined based on the presence and density of key foraging species. CC are known to forage on native shrublands, kwongan heathlands, woodlands, proteaceous species such as *Banksia* sp., *Hakea* sp., *Grevillea* sp., as well as *Callistemon* sp. and Marri. They also utilise a variety of non-native plant species including but not limited to pines, canola, *Erodium* sp., almonds, macadamias, pecans, apples, persimmons, and liquidambar (DAWE 2022). FRTBC primarily forage on Jarrah, Marri, Karri, Wandoo, *Allocasuarina*, Snottygobble and Mountain Marri. Secondary food sources include Bullich, Blackbutt, *Hakea,* Tuart, Bushy Yate and Redheart Moit (DAWE 2022).

Searches were also conducted for evidence of night roost sites (presence of clipped leaves and branches and droppings under suitable trees).

4.2.2.8 Malleefowl habitat assessment

Malleefowl habitat was assessed in the field using a set of environmental variables based on features of critical Malleefowl habitat in Western and Central Australia, as described in the National Recovery Plan (Benshemesh 2007). Individual sites were assessed with a numerical score as a basis for mapping areas of suitable habitat in the study area. The score used is an unweighted sum of values for the attributes presented in Table 4-5, with a maximum achievable score of 12.

Malleefowl habitat was assigned an overall habitat suitability of high (score of 9 or more), moderate (scores of 4 to 8), or low (scores of 3 or less) depending on the habitat attributes (Table 4-5):

- high suitability habitat is characterised by dense vegetation that provides screening and is defined as primary nesting, foraging, and dispersal habitat, that is regarded as habitat critical for the survival of the species
- moderate suitability habitat was split into 2 subcategories based on the habitat attributes:
    i. suitable for foraging and dispersal (not suitable for breeding)
    ii. suitable for foraging, dispersal, and may contain marginally suitable breeding habitat depending on the combination of the environmental variables

- low suitability habitat does not contain enough habitat features for it to be considered suitable for breeding; however, it may still be used for dispersal and occasional foraging.

Scores attributed to a site were applied to vegetation type polygons and the entire polygon (usually) assigned as the corresponding suitability (low, moderate, or high). Where 2 or more sites were assessed within a single polygon, the higher score was applied unless features of the lower-scored site(s) were more representative. Where no site occurred within a polygon, polygons were classified based on scores for similar vegetation nearby and inspection of relative vegetation density.

Table 4-5 Malleefowl habitat assessment criteria

Environmental variable	Description	Score and suitability		
		0–low	1–moderate	2–high
Substrate	Suitability of substrate to build a mound. Easily workable/moveable substrates regarded as more suitable.	Rocky/hard substrate	Clay, large gravel	Sand, sandy loam, sandy clay, small gravel (e.g. laterite)
Slope	Suitability of slope to build a mound. Level ground less susceptible to soil and leaf litter disturbance from rainfall runoff.	Steep	Moderate	Flat/gentle
Leaf litter	Availability of leaf litter suitable for mound construction and foraging.	Sparse/none	Moderate	Abundant
Canopy cover	Amount of canopy cover. Higher canopy cover contributes to protection from aerial predators.	Sparse/none	Moderate	Continuous/near continuous
Vegetation screening	Amount of horizontal vegetation screening between ground level and 2m high. Dense vegetation screening provides greater protection from ground dwelling predators.	Sparse/none	Moderate	Dense
Vegetation type	Presence of suitable vegetation such as Mulga- type *Acacia*, Mallee, *Casuarina*, *Melaleuc*a, *Callitris*, or similar.	Not present	Present but not dominant	Dominant

4.2.2.9 SRE invertebrate sampling

Sampling for SRE invertebrates was conducted at 15 sites (Table 4-4; Figure 4-1), in areas identified as suitable habitat for SREs. Sampling comprised the following methods:

- SRE habitat assessment and mapping
- active foraging
- litter/soil sieving.

Active foraging for SRE invertebrate groups comprised inspection of logs, larger plant debris, the underside of bark of larger trees and the underside of rocks. Methodical searches were conducted amongst the leaf litter of shade-bearing tall shrubs and trees, including raking of litter. Rocks and rock crevices were inspected, particularly for pseudoscorpions.

A standardised approach was undertaken whereby each site was sampled for one person hour (concurrently with active searches for vertebrate fauna), a total search effort of approximately 15 hours (Table 4-4). Trapdoor spider burrows identified during the searches were excavated if they were considered inhabited. Excavation involved removing soil from around the burrow to carefully expose the burrow chamber and remove the spider.

Combined litter/soil sifts were undertaken at 14 sites, with up to 3 sifts conducted at each site dependent on abundance of leaf litter. In total, 42 sifts were undertaken (Table 4-4). The collection of leaf litter samples was standardised volumetrically by the diameter and height (310 mm x 50 mm = 1.55 L) of the sieves which were completely filled with compressed litter and the upper layers of underlying soil. Samples were sieved through 3 stages of decreasing mesh size over a round tray and invertebrates were picked from the sieves and tray with forceps. These samples particularly targeted small spiders (Araneomorphae), pseudoscorpions, buthid scorpions, millipedes, centipedes (in particular Geophilomorpha and Cryptopidae) and slaters.

4.2.2.10 SRE potential habitat rating

Fauna habitat mapping was assessed for its potential to support SRE species and communities. Potential SRE habitat was rated as follows:

- High – defined/known areas of habitat that contain elements that often give rise to specialisation or dependency in invertebrate fauna, such as aspect (e.g. south-facing slopes, geological features (e.g. granite), soil types that retain water (e.g. clay, loam). These habitats may also include habitat isolates which have the capacity to restrict dispersal.
- Low – areas of largely in-tact native vegetation that occur broadly across the landscape, are less incised, and typically link more restricted habitats. This may include land that was cleared but has since been rehabilitated or is in the process of being rehabilitated.
- None – land that has been previously cleared for other uses that no longer contains native vegetation.

4.2.2.11 SRE status rating

Currently, there is no accepted system to determine the likelihood that a species is an SRE. The WA Museum applies 3 categories: Confirmed, Potential, and Widespread. Confirmed SREs are taxa for which the distribution is known to be less than 10,000 km^2, the taxonomy is well known, and the group is well represented in collections and/or via comprehensive sampling (WAM 2013). Potential SREs include those taxa for which there is incomplete knowledge of taxonomy or geographic distribution, and the group is not well represented in collections. Phoenix applies 4 categories based on the WA Museum criteria (Table 4-6).

Table 4-6 SRE categories

SRE category	Criteria
Confirmed	Distribution < 10,000 km^2. Taxonomy of the group is well known (but not necessarily published); group is well represented in collections, in particular from the region in question; high levels of endemism exist in documented species; inference is often possible from immature specimens.
Potential	Distribution < 10,000 km^2.

SRE category	Criteria
	Taxonomically poorly resolved group (data deficient); patchy distribution, often common in certain microhabitats, but no other regional records; congeners (= species in the same genus) both widespread and restricted in distribution.
Widespread	Distribution >10,000 km^2.
Uncertain	Taxonomy cannot be resolved to species level (i.e. indeterminate species designations due to sex, life stage or damage) and is therefore species distribution remains uncertain).

4.2.2.12 SRE taxonomy

Initial higher-level (class, order, family) identifications of specimens were undertaken by Phoenix staff in Phoenix' invertebrate laboratory. Final species designations were allocated using specialist taxonomists and/or molecular sequencing (Table 4-7).

Where possible identifications were compared with reference material from the WA Museum and/or taxonomist reference collections.

Table 4-7 Specialist taxonomists

Person	Title	Taxa
Dr Erich S. Volschenk	Taxonomic Consultant, Alacran	Scorpiones, Pseudoscorpiones
Anna Jacks	Invertebrate Zoologist, Phoenix	Chilopoda, Isopoda
Dr Mark Harvey	Taxonomist	Diplopoda
Dr Blake Wyber	Invertebrate Zoologist, Phoenix	Chilopoda
Dr Calum Irvine	Zoologist, Phoenix	Isopoda, millipedes

Genomic analysis was undertaken for all specimens for which morphological identification did not provide sufficient taxonomic resolution. A total of 38 specimens was sent for molecular analysis, comprising 19 millipedes, 5 scorpions, 5 centipedes, 6 isopods, 2 pseudoscorpions and one harvestman. Of these, 33 produced a successful sequence. Tissue from each specimen was obtained in Phoenix's laboratory and sequenced by Genotyping Australia.

Sequences were edited and analysed using Geneious 2022.2. Sequences for comparison were sourced from GenBank (Benson *et al.* 2012) and Phoenix's DNA database using the megablast search function in Geneious. For each sequence, the most similar 10 matches were retrieved. In cases where the retrieved sequences represented a species more than twice, the 2 longest sequences were retained and the shorter conspecific sequences discarded. Where megablast results yielded families differing from the morphological assessment, additional sequences were obtained from GenBank, representing the morphological taxonomic assessment. If all the resulting blast sequences represented organisms from a different taxonomic class, sequences were discarded as likely contamination.

SRE specimens collected during the survey will be lodged with the WA Museum.

4.2.2.13 Likelihood of occurrence assessment

Following the field survey, the likelihood of occurrence for each significant fauna species identified in the desktop review was assessed and assigned to one of 4 ratings:

- recorded – species recorded within the study area by previous or current survey

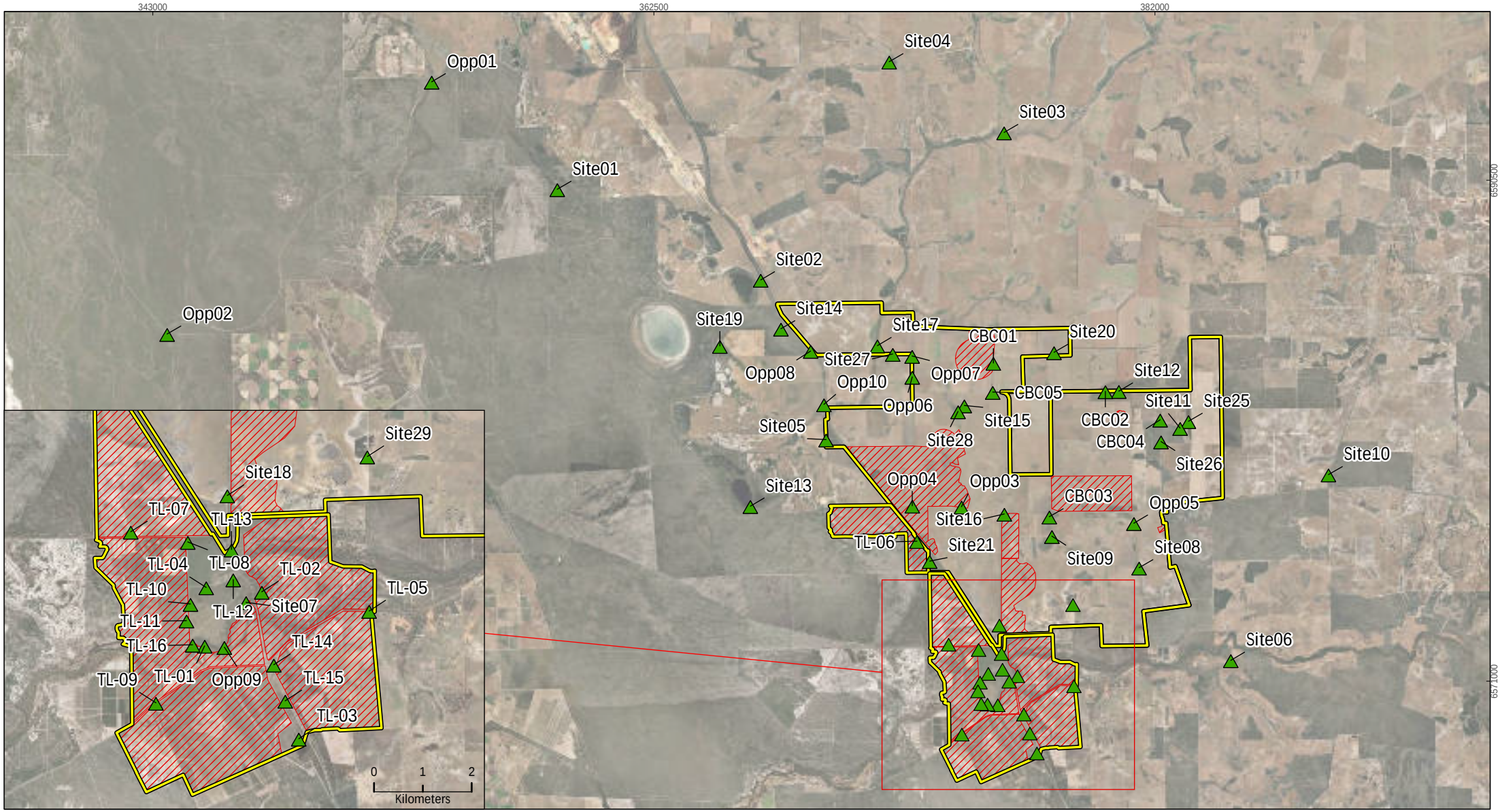
- likely – study area within current known range of species, suitable habitat within the study area and home range of species intersects study area based on known records
- possible – study area within current known range of species, suitable habitat within the study area and home range of species does not intersect study area based on known records
- unlikely – study area outside current known range of species or no suitable habitat present in study area.

4.2.3 Survey personnel

The personnel involved in the surveys are listed in Table 4-8. All survey work was carried out under relevant licences issued by DBCA under the BC Act and Wildlife Animal Ethics Committee (WAEC) (Table 4-8).

Table 4-8 Survey personnel

Name	Permit	Qualifications	Role/s
Floyd Holmes	WAEC Scientific Use Licence no. U304/2022-2024 and U304/2025-2027 Fauna taking (biological assessment) licence no. BA27001101 and BA27001359 Authorisation to take or disturb threatened species TFA-2425-0037	PhD (Biological Sciences)	Project manager, field survey, report review
Brooke Quick		BSc (Environmental Science)	Field survey, reporting
Calum Irvine		PhD (Zoology)	Field survey, invertebrate taxonomy, report review
Madeline Wallington		BSc (Conservation & Wildlife Biology/ Marine Biology), Hons (Marine Biology)	Field survey
Anna Jacks	N/A	BSc (Environmental Science)	Invertebrate taxonomy
Blake Wyber		PhD (Evolutionary biology)	Invertebrate taxonomy
Brigitte Kovar		MSc (Geospatial Intelligence)	GIS and cartography
Jade Larkman		BSc (Environmental Management)	



Alinta Energy
Marri Wind Farm Project

Project No	1739
Date	23/09/2025
Drawn by	JL
Map author	BQ

0 5 10
Kilometers

1:200,200 (at A4) GDA 1994 MGA Zone 50

P:\Data\Projects\Dandaragan Wind Farm\1739-DAN-AUR-FAUNA\GIS\Mapping\MapDocuments\Figures\1739maps\1739maps.aprx

- Study area
- Exclusion Zone
- Sites

Figure 4-1

Survey sites

PHOENIX ENVIRONMENTAL SCIENCES

5 RESULTS

5.1 DESKTOP REVIEW

5.1.1 Vertebrate fauna

The desktop review identified 370 vertebrate taxa within the 40 km desktop search extent (Figure 5-1). The list comprised 12 amphibians, 65 reptiles, 258 birds (including 6 introduced species) and 35 mammals (including 7 introduced species) (Table 5-1; Appendix 3). Thirty of the species were only returned in the Protected Matters database (DCCEEW 2024b) which does not provide geometries, therefore no locational details were available for these species (Appendix 3).

Eighty-five significant vertebrate species were identified in the desktop review (excluding extinct species), including 49 species listed as Threatened, CD or SP under the EPBC Act and/or BC Act (Table 5-2). Forty-nine species were listed as Migratory and 11 species were listed as Priority by DBCA (Table 5-2). Eight significant vertebrate species have previously been recorded within the study area including (Figure 5-1):

- *Calidris ferruginea* Curlew Sandpiper – CR /Mig. /CR (EPBC Act; BC Act)
- *Calidris ruficollis* Red-necked Stint – Mig. (EPBC & BC Acts)
- *Dasyurus geoffroii* Chuditch - VU (EPBC & BC Acts)
- *Notamacropus irma* Western Brush Wallaby – P4 (DBCA)
- *Oxyura australis* Blue-billed Duck – P4 (DBCA list)
- *Tringa glareola* Wood Sandpiper – Mig. (EPBC & BC Acts)
- *Tringa nebularia* Common Greenshank – EN /Mig. (EPBC Act; BC Act)
- *Zanda latirostris* Carnaby's Cockatoo – EN (EPBC & BC Acts).

The DBCA Threatened and Priority fauna database contained 1,269 black cockatoo records in the desktop search extent (Figure 5-1), including 1,185 CC, 67 white-tailed black cockatoos, and 6 black cockatoos, the latter 2 of which are likely CC. There were also 10 records of FRTBC and one of Baudin's Cockatoo, predominantly south of the study area. The study area is outside the known range for FRTBC but the southern part of the desktop search area intercepts the northern boundary of its modelled distribution (Appendix 5). As the study area is well outside the known range of Baudin's Cockatoo, the Baudin's record is likely to have been a CC.

The DBCA black cockatoo breeding site dataset (DBCA 2019) contained 198 confirmed breeding trees (i.e. breeding known to have occurred) and 27 potential breeding trees (i.e. potential for breeding, no breeding has been observed) within the desktop search extent (Figure 5-2). No confirmed or potential breeding trees were located in the study area but 2 clusters of breeding trees occur within 5 km (Figure 5-2), one south of the study area along Moore River (22 confirmed and 10 potential breeding trees), the other in Bundarra Nature Reserve (3 confirmed breeding trees). Four known roosting sites are within the desktop area (Birdlife WA 2020), the most notable, DANREGR001, is located within the TX footprint (Figure 5-2).

Table 5-1 Summary of vertebrate fauna desktop results

Class	Native	Introduced	Total
Amphibians	12	0	**12**
Reptiles	65	0	**65**
Birds	252	6	**258**
Mammals	28	7	**35**
Total	**357**	**13**	**370**

Table 5-2 Significant vertebrate fauna identified in the desktop review

Species	Status	Proximity to study area	Habitat
Birds (13)			
Aphelocephala leucopsis Southern Whiteface	VU (EPBC Act)	Projected distribution	Occur in a wide range of open woodlands and shrublands where there is an understory of grasses and/or shrubs. Habitats are often dominated by acacias or eucalypts on ranges, foothills, lowlands, and plains. May move outside normal range during drought (DCCEEW 2023).
Botaurus poiciloptilus Australasian Bittern	EN (EPBC & BC Acts)	13.6 km W	Found in large, relatively undisturbed, freshwater or brackish swamps with dense vegetation (Birdlife Australia 2013). Occasionally feeds in more open habitats, often at night (McKilligan 2005).
Calyptorhynchus banksii subsp. *naso* Forest Red-tailed Black-Cockatoo	VU (EPBC & BC Acts)	7.7 km SE	Occurs in dense Jarrah, Karri, and Marri forests, mainly in the hilly interior, and a range of other forest and woodland types (DCCEEW 2024c). May also be a casual visitor to Perth's southern suburbs in search of Cape Lilac (Johnstone *et al.* 2013b).
Falco hypoleucos Grey Falcon	VU (EPBC & BC Acts)	Projected distribution	The Grey Falcon is a widespread but rare species inhabiting much of the semi-arid interior of Australia. Its distribution is centred on inland drainage systems. It has a large foraging range extending from timbered plains, such as *Acacia* shrublands, into open grasslands (Garnett & Crowley 2000).
Falco peregrinus Peregrine Falcon	OS (BC Act)	20.8 km NNW	Preferred habitat includes cliffs and wooded watercourses. Nesting occurs mainly on cliff ledges, granite outcrops, quarries and in trees with old raven or Wedge-tailed Eagle nests (Johnstone & Storr 1998).
Ixobrychus dubius Australian Little Bittern	P4 (DBCA list)	20.7 km SW	Occurs in diverse freshwater swamp habitats, mainly where tall rushes, reeds, Typha, shrub thickets or other dense cover is inundated by at least 30 cm of water (Marchant & Higgins 1990).
Leipoa ocellata Malleefowl	VU (EPBC & BC Acts)	6.2 km W	Malleefowl occur mainly in scrubs and thickets of mallee (*Eucalyptus* spp.), boree (*Melaleuca lanceolata*) and bowgada (*Acacia linophylla*), and other dense litter-forming shrublands including mulga shrublands (Johnstone & Storr; (Johnstone & Storr 2004). Nest mounds require sandy soil as well as abundant litter (Benshemesh 2007).
Ninox connivens subsp. *connivens* Barking Owl (southwest subpop.)	P3 (DBCA list)	33.2 km SSW	Found in open forests, woodlands, dense scrubs, large trees near watercourses, paperbark woodlands.
Oxyura australis Blue-billed Duck	P4 (DBCA list)	Within study area	Endemic to Australia's temperate regions, inhabiting inland wetlands (fresh or saline) with extensive bordering vegetation, including artificial wetlands such as sewage ponds (Birdlife International 2015); (del Hoyo *et al.* 2014).

Species	Status	Proximity to study area	Habitat
Platycercus icterotis subsp. *xanthogenys* Western Rosella (inland)	P4 (DBCA list)	18.9 km N	The Western Rosella (inland form) is primarily found in *Eucalyptus* and *Casuarina* woodlands, preferring Salmon Gum, Wandoo and tall mallees (Johnstone & Storr 1998). Feeds on a range of fruits, seeds, and Marri flowers both on the ground and in trees. Salmon Gum, Gimlet, Wandoo, Marri, Flooded Gum and York Gum are preferentially used for nesting (KLA 2011).
Rostratula australis Australian Painted Snipe	EN (EPBC & BC Acts)	Projected distribution	Inhabits shallow terrestrial freshwater (occasionally brackish) wetlands, including temporary, and permanent lakes, swamps and claypans (DCCEEW 2024c).
Zanda baudinii Baudin's Cockatoo	EN (EPBC & BC Acts)	37.0 km ESE	Mainly occurs in eucalypt forests of far south-west WA, especially Jarrah, Marri and Karri forest. Breeds predominately in forests averaging more than 750 mm of rainfall annually. During the non-breeding season, the range is determined by the distribution of Marri (DCCEEW 2024c). Record of the species probably misidentified CC as they have similar morphology.
Zanda latirostris Carnaby's Cockatoo	EN (EPBC & BC Acts)	Within study area	Occurs in uncleared or remnant native eucalypt woodlands of south-west WA. During the breeding season, it occurs mainly in eucalypt woodlands with suitable hollow bearing trees in the Wheatbelt. In the non-breeding season, occurs on coastal plains. Foraging habitat includes native vegetation surrounding breeding areas during the breeding season, and *Banksia* heath and woodlands in the non-breeding season (DCCEEW 2024c).
Migratory, marine and pelagic birds (56)			
Actitis hypoleucos Common Sandpiper	Mig. (EPBC & BC Acts)	1.6 km WNW	Found across a wide range of wetlands: small ponds, large inlets and mudflats where they forage on the shore usually close to the vegetation (DCCEEW 2024c). Prefers rocky creeks, channels, dams, and mangrove-lined inlets (Geering *et al.* 2007).
Anarhynchus bicinctus Double-banded Plover	Mig. (EPBC & BC Acts)	4.3 km W	Found on littoral, estuarine and fresh or saline terrestrial wetlands, rivers, saltmarshes, lagoons, grasslands and pasture. Also occurs on muddy, sandy, shingled or rocky beaches, bays and inlets (DCCEEW 2024c).
Anous stolidus Common Noddy	Mig. (EPBC & BC Acts)	31.0 km WSW	Mainly occurs in ocean off Queensland coast, but also off the north-west and central WA coast. During the breeding season, usually occurs on or near islands, on rocky islets and stacks with precipitous cliffs, or on shoals or cays. The species has also been recorded nesting in the forks of tall trees, at the top of Coconut Palms, in holes in dead timber and on tree-stumps (DAWE 2021a).
Anous tenuirostris subsp. *melanops* Australian Lesser Noddy	VU (EPBC Act) EN (BC Act)	Projected distribution	Endemic to Australia and nests on the Houtman Abrolhos Islands and, possibly, Ashmore Reef. Birds remain near breeding islands throughout the year (DoEE 2020).
Apus pacificus Fork-tailed Swift	Mig. (EPBC & BC Acts)	Projected distribution	Non-breeding habitat only: found across a range of habitats, from inland open plains to coastal and wooded areas, where it is exclusively aerial (1-300 m above ground). Occurs in a wide range of

Species	Status	Proximity to study area	Habitat
			dry or open habitats, including riparian woodlands, tea-tree swamps, low scrub, heathland, saltmarsh, grassland, and spinifex sandplains and open farmland (DCCEEW 2024a).
Ardenna carneipes Flesh-footed Shearwater	VU/Mig. (BC Act)	31.2 km WSW	Marine, pelagic, offshore islands. Continental shelves, slopes and occasionally inshore waters (DCCEEW 2024c).
Ardenna pacifica Wedge-tailed Shearwater	Mig. (BC Act)	30.1 km WSW	Pelagic, marine bird known from tropical and subtropical waters. Usually found off the continental shelf in north-west Australia (DCCEEW 2024c).
Arenaria interpres Ruddy Turnstone	VU/Mig. (EPBC Act) Mig. (BC Act)	25.9 km WSW	Mainly found on coastal regions with exposed rock coastlines or coral reefs. Also occurs on platforms, beaches, estuaries, harbours, bays and coastal lagoons, sewage ponds and mudflats. Strongly prefers rocky shores or beaches with large deposits of rotting seaweed (DCCEEW 2024a). Roosts on beaches above the tideline, among rocks, shells and seaweed. Also observed roosting on rocky islets among grassy tussocks, mudflats, sandflats and inland claypans.
Calidris acuminata Sharp-tailed Sandpiper	VU/Mig. (EPBC Act) Mig. (BC Act)	1.6 km WNW	Muddy edges of shallow fresh or brackish vegetated wetlands, including lagoons, swamps, lakes and pools near the coast, and dams, waterholes, soaks, bore drains, and bore swamps, saltpans and hypersaline salt lakes inland (DCCEEW 2024c).
Calidris alba Sanderling	Mig. (EPBC & BC Acts)	25.9 km WSW	Found utilising coastal environments open to sea swell, sandbars, spits, and shingle banks. They also occur on wave-washed rock outcrops. They are less frequently found in estuaries and inlet harbours and near-coastal inland wetlands (DCCEEW 2024c).
Calidris canutus Red Knot	VU/Mig. (EPBC Act) EN (BC Act)	Projected distribution	The species is widespread across coastal Australia often found in intertidal mudflats, sandbars, estuaries, harbours, lagoons, beaches, and reefs (DCCEEW 2024c).
Calidris falcinellus Broad-billed Sandpiper	Mig. (EPBC & BC Acts)	4.3 km W	Occurs in sheltered coastal habitats, favouring estuarine mudflats but also saltmarshes, shallow freshwater lagoons, saltworks, sewage farms, and soft intertidal mudflats, which may have shell, or sandbanks nearby. Occasionally observed on reefs, rocky platforms, creeks, swamps, and lakes near the coast, particularly those with bare mudflats or sand. Often favour mud among, or fringed by, mangroves, particularly on the seaward side and sometimes occur in estuaries edged by saltmarsh. Rarely recorded inland (DCCEEW 2024c).
Calidris ferruginea Curlew Sandpiper	CR/Mig. (EPBC Act) CR (BC Act)	Within study area	Occurs on intertidal mudflats in sheltered coastal areas, such as estuaries, bays, inlets, and lagoons. They are known to favour non-tidal swamps, lakes and lagoons near the coast, and ponds in saltworks, and sewage farms. They are also recorded inland, though less often, including around ephemeral, and permanent lakes, dams, waterholes and bores/drains, usually with bare edges of mud or sand (DCCEEW 2024c).

Species	Status	Proximity to study area	Habitat
Calidris melanotos Pectoral Sandpiper	Mig. (EPBC & BC Acts)	4.3 km W	Shallow fresh to saline wetlands such as coastal lagoons, estuaries, bays, swamps, lakes, inundated grasslands, saltmarshes, river pools, creeks, floodplains and artificial wetlands (DCCEEW 2024c).
Calidris ruficollis Red-necked Stint	Mig. (EPBC & BC Acts)	Within study area	Mostly found in coastal areas, including sheltered inlets, bays, lagoons, and estuaries with intertidal mudflats, often near spits, islets, banks and sometimes on protected sandy or coralline shores (DCCEEW 2024c). Forages on bare wet mud on intertidal mudflats or sandflats, or in very shallow water. Sometimes forages in non-tidal wetlands during high tides, in samphire, in beach cast seaweed on beaches and in flooded paddocks (Higgins & Davies 1996). Roosts on sheltered beaches, spits, banks, or islets, of sand, mud, coral, or shingle, sometimes in saltmarsh, or other vegetation. They occasionally roost on exposed reefs or shoals (Higgins & Davies 1996).
Calidris subminuta Long-toed Stint	Mig. (EPBC & BC Acts)	4.3 km W	Occupies shallow, freshwater, and brackish wetlands including river floodplains, sewage ponds, swamps and lagoons (DCCEEW 2024c). Forages in wet mud or in shallow water, often among short grass, weeds, and other vegetation on islets or around the edges of wetlands. Occasionally feeds on open water, well away from the shore; this is more common in drying ephemeral wetlands (Higgins & Davies 1996). Roosts in wet mud or in shallow water, often among short grass, weeds, and other vegetation on islets or around the edges of wetlands.
Calidris tenuirostris Great Knot	VU/Mig. (EPBC Act) CR (BC Act)	4.3 km W	Prefers sheltered coastal habitat with large intertidal mudflats or sandflats. This includes inlets, bays, harbours, estuaries, and lagoons. They are occasionally found on exposed reefs or rock platforms, shorelines with mangrove vegetation, ponds in saltworks, at swamps near the coast, salt lakes, and non-tidal lagoons. The Great Knot rarely occurs on inland lakes and swamps (DCCEEW 2024c).
Charadrius cucullatus Hooded Plover/Dotterel	P4 (DBCA)	4.5 km WNW	In WA, this species is found on ocean beaches but can also be seen at inland salt lakes, however they are not abundant (Birdlife Australia N.D.; Threatened Species Scientific Committee 2014; (DCCEEW 2024c).
Anarhynchus leschenaultii Greater Sand Plover	VU/Mig. (EPBC Act) VU (BC Act)	30.1 km WSW	The Greater Sand Plover is almost entirely coastal, inhabiting littoral, and estuarine habitats. They mainly occur on sheltered sandy, shelly, or muddy beaches with large intertidal mudflats or sandbanks, as well as sandy estuarine lagoons, inshore reefs, rock platforms, small rocky islands or sand cays on coral reefs (DAWE 2021b).
Chlidonias leucopterus White-winged Black Tern	Mig. (EPBC & BC Acts)	25.9 km WSW	Typically occurs in wetland environments such as brackish, saline, and coastal areas. They are also known to occupy sheltered areas such as estuaries, harbours, and lagoons, particularly those with sandflats and mudflats (DCCEEW 2024c).

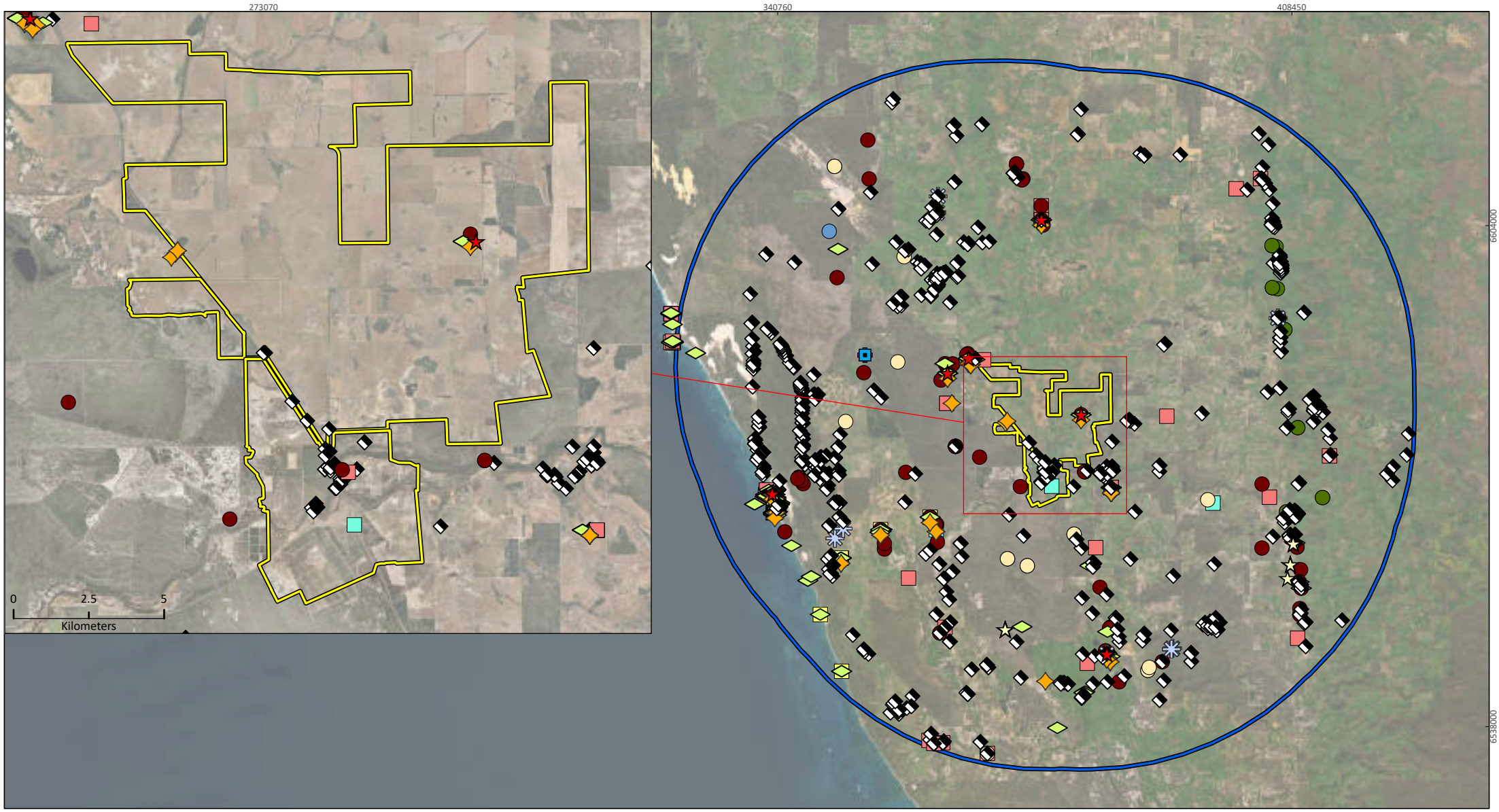
Species	Status	Proximity to study area	Habitat
Diomedea amsterdamensis Amsterdam Albatross	EN/Mig. (EPBC Act) CR/Mig. (BC Act)	Projected distribution	A marine pelagic species that flies large distances over the ocean, only landing to breed, and feed. Breeds on offshore islands.
Diomedea epomophora Southern Royal Albatross	VU/Mig. (EPBC & BC Acts)	Projected distribution	A marine pelagic species that flies large distances over the ocean, only landing to breed, and feed. Breeds on offshore islands.
Diomedea exulans Wandering Albatross	VU/Mig. (EPBC & BC Acts)	Projected distribution	A marine pelagic species that flies large distances over the ocean, only landing to breed, and feed. Breeds on offshore islands.
Halobaena caerulea Blue Petrel	VU (EPBC Act)	Projected distribution	A marine species that forages in Antarctic and subantarctic waters (Threatened Species Scientific Committee 2015).
Hydroprogne caspia Caspian Tern	Mig. (EPBC & BC Acts)	16.0 km S	In WA, the species occurs almost exclusively on the coast, in estuaries, inlets, bays, lagoons with muddy, or sandy shores. Other habitats include near-coastal or inland terrestrial wetlands that are either fresh or saline, especially lakes (including ephemeral lakes), waterholes, reservoirs, rivers, and creeks. They also use artificial wetlands, including reservoirs, sewage ponds, and saltworks. In offshore areas the species prefers sheltered situations, particularly near islands, and is rarely seen beyond reefs (DAWE 2021c).
Limosa lapponica Bar-tailed Godwit	Mig. (EPBC & BC Acts)	4.3 km W	Occupies a variety of aquatic habitats such as intertidal sandflats, banks, mudflats, estuaries coastal lagoons, and harbours. They have also been found in saltmarshes and brackish coastal wetlands (DCCEEW 2024c).
Limosa lapponica subsp. *menzbieri* Bar-tailed Godwit (northern Siberian)	CR/Mig. (EPBC Act) EN (BC Act)	Projected distribution	Occupies a variety of aquatic habitats such as intertidal sandflats, banks, mudflats, estuaries coastal lagoons, and harbours. They have also been found in saltmarshes and brackish coastal wetlands (DCCEEW 2024c).
Limosa limosa Black-tailed Godwit	EN/Mig. (EPBC Act) Mig. (BC Act)	4.3 km W	Typically found in coastal environments with sheltered bays, estuaries, and lagoons. Habitat use is dictated by the tides. They are also found in shallow and sparsely vegetated near-coastal wetlands (DCCEEW 2024c).
Macronectes giganteus Southern Giant Petrel	EN/Mig. (EPBC Act) Mig. (BC Act)	30.4 km WSW	Pelagic. Breeds on 6 subantarctic and Antarctic islands in Australian territory (DCCEEW 2024c).
Macronectes halli Northern Giant Petrel	VU/Mig. (EPBC Act) Mig. (BC Act)	Projected distribution	Marine, pelagic, aerial, coastal and offshore waters (DCCEEW 2024c).
Motacilla cinerea Grey Wagtail	Mig. (EPBC & BC Acts)	Projected distribution	Vagrant visitor to Australia that inhabits fast flowing streams and rivers (IUCN 2019).

Species	Status	Proximity to study area	Habitat
Numenius madagascariensis Eastern Curlew	CR/Mig. (EPBC Act) CR (BC Act)	Projected distribution	Occurs mainly on intertidal mudflats, on exposed seagrass beds or mudflats (Geering *et al.* 2007). Also utilises sand spits of estuaries, mangroves, lake shores, and ocean beaches.
Numenius minutus Little Curlew	Mig. (EPBC & BC Acts)	25.2 km S	Found on short, dry grasslands and dry grass edges of freshwater inlands (Geering *et al.* 2007).
Onychoprion anaethetus Bridled Tern	Mig. (EPBC & BC Acts)	29.9 km WSW	Occurs in tropical and subtropical seas, rarely found in inshore continental waters (DCCEEW 2024c).
Pachyptila turtur subantarctica Fairy Prion	VU (EPBC Act)	Projected distribution	Marine seabird (DCCEEW 2024c). Breeds on remote islands in the Southern ocean
Pandion haliaetus Osprey	Mig. (EPBC & BC Acts)	0.9 km WNW	Occur in littoral and coastal habitats and terrestrial wetlands of tropical and temperate Australia and offshore islands. Occur in a variety of wetland habitats including inshore waters, reefs, bays, coastal cliffs, beaches, estuaries, mangrove swamps, exposed reeds and inland along major rivers (DCCEEW 2024c).
Phaethon rubricauda westralis Indian Ocean Red-tailed Tropicbird	EN/Mig. (EPBC & BC Act) P4 (DBCA list)	Projected distribution	Found in tropical and subtropical parts of the Indian Ocean. Nests on islands, stacks, atolls, cays or coastal cliffs (DCCEEW 2024c).
Philomachus pugnax Ruff	Mig. (EPBC & BC Acts)	19.6 km WSW	Typically occupies saline and brackish wetlands with mudflats. They have been found in a range of wetlands including lakes, swamps, tidal rivers, and flood lands. There are some records of them occupying sheltered coastal areas such as harbours and estuaries (DCCEEW 2024c).
Phoebetria fusca Sooty Albatross	VU/Mig. (EPBC Act) EN/Mig. (BC Act)	Projected distribution	Marine, pelagic seabird (DCCEEW 2024c).
Plegadis falcinellus Glossy Ibis	Mig. (EPBC & BC Acts)	1.6 km WNW	Predominantly inhabits terrestrial wetlands, foraging in shallow water over soft substrate or on grassy or muddy verges of wetlands providing a variety of water depths. Inland, freshwater wetlands are preferred, especially permanent or ephemeral waterbodies on floodplains and shallow swamps with abundant aquatic flora (Johnstone *et al.* 2013a; Marchant & Higgins 1990).
Pluvialis fulva Pacific Golden Plover	Mig. (EPBC & BC Acts)	1.6 km WNW	Typically inhabits coastal environments and occasionally can be found in wetlands, mudflats, and sandflats in sheltered areas. Have also been found on islands, sand, and coral cays, as well as terrestrial environments, usually near waterbodies and paddocks (DCCEEW 2024c).
Pluvialis squatarola Grey Plover	VU/Mig. (EPBC Act) Mig. (BC Act)	4.3 km W	Occurs on intertidal mudflats, saltmarshes, sandflats, and beaches of oceanic coastlines, bays, and estuaries. During migration it may also be found inland on lakes, pools or grasslands (del Hoyo *et al.* 2014; IUCN 2019).

Species	Status	Proximity to study area	Habitat
Pterodroma mollis Soft-plumaged Petrel	VU (EPBC Act)	Projected distribution	Marine, pelagic seabird (DCCEEW 2024c).
Sterna dougallii Roseate Tern	Mig. (EPBC & BC Acts)	31.0 km WSW	Occurs in coastal and marine areas in subtropical and tropical seas (DCCEEW 2024c).
Sternula albifrons Little Tern	Mig. (EPBC & BC Acts)	Projected distribution	In Australia, they inhabit sheltered coastal environments, including lagoons, estuaries, river mouths, and deltas, lakes, bays, harbours and inlets (DCCEEW 2024c).
Sternula nereis subsp. *nereis* Fairy Tern	VU (EPBC & BC Acts)	4.1 km SE	Nest on sheltered, sandy beaches. Have also been known to occur on the edges of offshore estuaries, islands, wetlands and other areas of the mainland coastline (DCCEEW 2024c).
Thalassarche carteri Indian Yellow-nosed Albatross	VU/Mig. (EPBC Act) EN/Mig. (BC Act)	Projected distribution	Marine, pelagic seabird (DCCEEW 2024c).
Thalassarche cauta subsp. *cauta* Shy Albatross	EN/Mig. (BC Act)	Projected distribution	Marine, pelagic seabird (DCCEEW 2024c).
Thalassarche cauta subsp. *steadi* White-capped Albatross	VU/Mig. (BC Act)	Projected distribution	Marine, pelagic seabird (DCCEEW 2024c).
Thalassarche impavida Campbell Albatross	VU/Mig. (EPBC & BC Acts)	Projected distribution	Marine, pelagic seabird (DCCEEW 2024c).
Thalassarche melanophris Black-browed Albatross	VU/Mig. (EPBC Act) EN/Mig. (BC Act)	Projected distribution	Marine, pelagic seabird (DCCEEW 2024c).
Thalasseus bergii Greater Crested Tern	Mig. (EPBC & BC Acts)	16.0 km S	Found in coastal areas including low lying rocky, sandy, and coral islands. They are often found on open shores and less commonly found in tidal creeks and inland waterbodies (DCCEEW 2024c).
Tringa brevipes Grey-tailed Tattler	Mig. (EPBC & BC Acts) P4 (DBCA list)	30.5 km WSW	Occurs on sheltered coasts with reefs and rock platforms or mudflats, and can also be found on reefs or platforms that are exposed at low tide (DCCEEW 2024c).
Tringa glareola Wood Sandpiper	Mig. (EPBC & BC Acts)	Within study area	Uses well-vegetated, shallow, freshwater wetlands, such as swamps, billabongs, lakes, pools and waterholes (DCCEEW 2024c).
Tringa nebularia Common Greenshank	EN/Mig. (EPBC Act) Mig. (BC Act)	Within study area	Mostly occurs on the coast but sometimes inland; uses permanent and ephemeral terrestrial wetlands, including rivers and creeks (DCCEEW 2024c).
Tringa stagnatilis Marsh Sandpiper	Mig. (EPBC & BC Acts)	4.3 km W	Occurs in permanent of ephemeral wetlands including swamps, lagoons, billabongs, saltpans, saltmarshes, estuaries, pools on inundated floodplains and intertidal mudflats and also regularly at sewage farms and saltworks (DCCEEW 2024c).
Mammals (12)			

Species	Status	Proximity to study area	Habitat
Bettongia penicillata subsp. *ogilbyi* Woylie	EN (EPBC Act) CR (BC Act)	Projected distribution	Inhabited a wide range of landscapes prior to European colonisation. Remnant subpopulations inhabit woodlands and adjacent heaths with a dense understorey of shrubs, particularly Gastrolobium spp. (poison pea) (Threatened Species Scientific Committee 2018).
Dasyurus geoffroii Chuditch	VU (EPBC & BC Acts)	Within study area	The Chuditch is now confined to south-WA, occurring in only 5% of its former range. Prior to European settlement the species occupied approximately 70% of continental Australia (Smith *et al.* 2004); (Van Dyck & Strahan 2008). The species is now mostly found in Jarrah forest and woodland of the southwest or heath and Mallee habitats along the south coast. Uses horizontal hollow logs or earth burrows as refugia and dens (DEC 2012b).
Hydromys chrysogaster Water-rat	P4 (DBCA list)	0.8 km SSE	In the south-west of WA, the Water-rat occupies habitats in the vicinity of permanent water, favouring areas with dense, low lying vegetation, low density canopy cover, good water quality, narrow water bodies and some habitat complexity (DEC 2012c); (Speldewinde *et al.* 2013). It is likely that woody debris, rock ledges and wetland islands are important for refuge and feeding (DEC 2012g). Can also occur in mangrove and estuarine areas (IUCN 2019).
Isoodon fusciventer Quenda	P4 (DBCA list)	24.6 km ESE	Found in scrubby vegetation with dense cover, often around swamps, wetlands, or in *Banksia* and Jarrah woodland. Feeds in frequently burnt forest and woodland close to dense cover. Populations inhabiting Jarrah and Wandoo forests are usually associated with watercourses. Also occur in more open habitat if it is subjected to introduced predator control (DBCA 2017).
Macroderma gigas Ghost Bat	VU (EPBC & BC Acts)	Projected distribution	Present in a variety of habitats from the Pilbara to tropical savanna woodlands and rainforests further north and east. Prefers to roost in caves beneath bluffs of low, rounded hills composed of Marra Mamba geology, and granite rock piles in the Pilbara and sandstone elsewhere, as well as adits (abandoned mines) (Armstrong *et al.* 2021; Threatened Species Scientific Committee 2016).
Macrotis lagotis Bilby	VU (EPBC & BC Acts)	18.9 km SW	Inhabits hummock grassland in plains and alluvial areas, open tussock grassland on uplands and hills, mulga woodland/shrubland on ridges and rises (DCCEEW 2023), loamy, or sandy soils associated with paleodrainage lines and perched drainage lines, dune fields, and sandplains; recently burnt habitat (1-3 years) is used frequently (DBCA 2018a).
Myrmecobius fasciatus Numbat	EN (EPBC & BC Acts)	Projected distribution	The species is now restricted to 2 isolated wild populations in south-west Australia and nests in hollow logs, trees or in burrows (DCCEEW 2024c). Inhabits eucalypt woodland and forests with abundant termites, and hollow logs for shelter (DPaW 2017).
Notamacropus irma Western Brush Wallaby	P4 (DBCA list)	Within study area	A grazing species that occurs in open forest or woodland with low grasses and scrubby thickets, and also found in some areas of Mallee and heathland (DEC 2012d). Prefer open grassy areas and are absent in Karri forests with dense understorey (Woinarksi & Burbidge 2016).

Species	Status	Proximity to study area	Habitat
Parantechinus apicalis Dibbler	EN (EPBC & BC Acts)	Projected distribution	The Dibbler is confined to the Fitzgerald River National Park (where it was discovered in 1984) on the mainland and islands off the west coast (DCCEEW 2024c). It is likely that Dibblers can occupy a diverse range of habitats.
Phascogale calura Red-tailed Phascogale	VU (EPBC Act) CD (BC Act)	Projected distribution	Occurs in Allocasuarina woodlands with hollow-containing eucalypts, prefers vegetation that is unburnt for a long time, which provides continuous canopy cover to assist their arboreal habits (DCCEEW 2024c).
Phascogale tapoatafa subsp. *wambenger* South-western Brush-tailed Phascogale	CD (BC Act)	15.1 km WNW	Occurs in mature dry sclerophyll forests and open woodlands that contain hollow bearing trees. These nocturnal, arboreal carnivores forage for food under the bark of trees (DEC 2012a) and nest in the hollows of dead and mature Jarrah and Marri trees (Burbidge & Woinarksi 2020).
Potorous platyops Broad-faced Potoroo	EX (EPBC & BC Acts)	15.1 km WNW	Extinct.
Reptiles (4)			
Ctenotus lancelini Lancelin Island Skink	VU (EPBC & BC Acts)	30.0 km WSW	The species is restricted to Lancelin Island (DCCEEW 2024c).
Egernia stokesii subsp. *badia* Western Spiny-tailed Skink	EN (EPBC Act) VU (BC Act)	Projected distribution	Known to occur in semi-arid areas of south-west WA between Shark Bay and Minnivale, east of Cue (DCCEEW 2024c).The species have been recorded in York Gum, Gimlet, and Salmon Gum woodlands with numerous fallen logs.
Neelaps calonotos Black-striped Snake	P3 (DBCA list)	10.7 km WNW	The Black-striped Snake is restricted to the sandy coastal strip of the Swan Coastal Plain between Mandurah and Cataby, with some records existing inland at Gingin, Bullsbrook and Caversham (Storr *et al.* 2002). This species primarily occurs on dunes and sandplains vegetated with heaths and *Banksia* woodlands (Ismar *et al.* 2010).
Pseudemydura umbrina Western Swamp Tortoise	CR (EPBC & BC Acts)	16.7 km SSW	The species has only been recorded from scattered localities in a narrow strip (3–5 km wide) of the Swan Coastal Plain, WA, roughly parallel with the Darling Range (DoEE 2019). The only naturally occurring population is at Ellen Brook Nature Reserve. The Twin Swamps Nature Reserve and Mogumber Nature Reserve populations are maintained with translocated individuals (DCCEEW 2024c). Inhabits shallow, ephemeral, winter- and spring-wet swamps on clay or sand over clay soils with nearby suitable aestivation refuges (Burbidge *et al.* 2010).



Alinta Energy
Marri Wind Farm Project

Project No	1739
Date	24/09/2025
Drawn by	JL
Map author	BQ

0 10 20
Kilometers

1:676,900 (at A4) GDA 1994 MGA Zone 50

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- Study area
- 40 km buffer

Status

- CD (BC Act)
- CR (EPBC & BC Acts)
- CR/Mig. (EPBC Act); CR (BC Act)
- EN (EPBC & BC Acts)
- EN/Mig. (EPBC Act); Mig. (BC Act)
- EX (EPBC & BC Acts)
- Mig. (BC Act)
- Mig. (EPBC & BC Acts)
- Mig. (EPBC & BC Acts); P4 (DBCA list)
- OS (BC Act)
- P1 (DBCA list)
- P2 (DBCA list)
- P3 (DBCA list)
- P4 (DBCA list)
- VU (BC Act)
- VU (EPBC & BC Acts)
- VU/Mig. (BC Act)
- VU/Mig. (EPBC Act); Mig. (BC Act)
- VU/Mig. (EPBC Act); VU (BC Act)

Figure 5-1

Desktop records of significant vertebrate fauna

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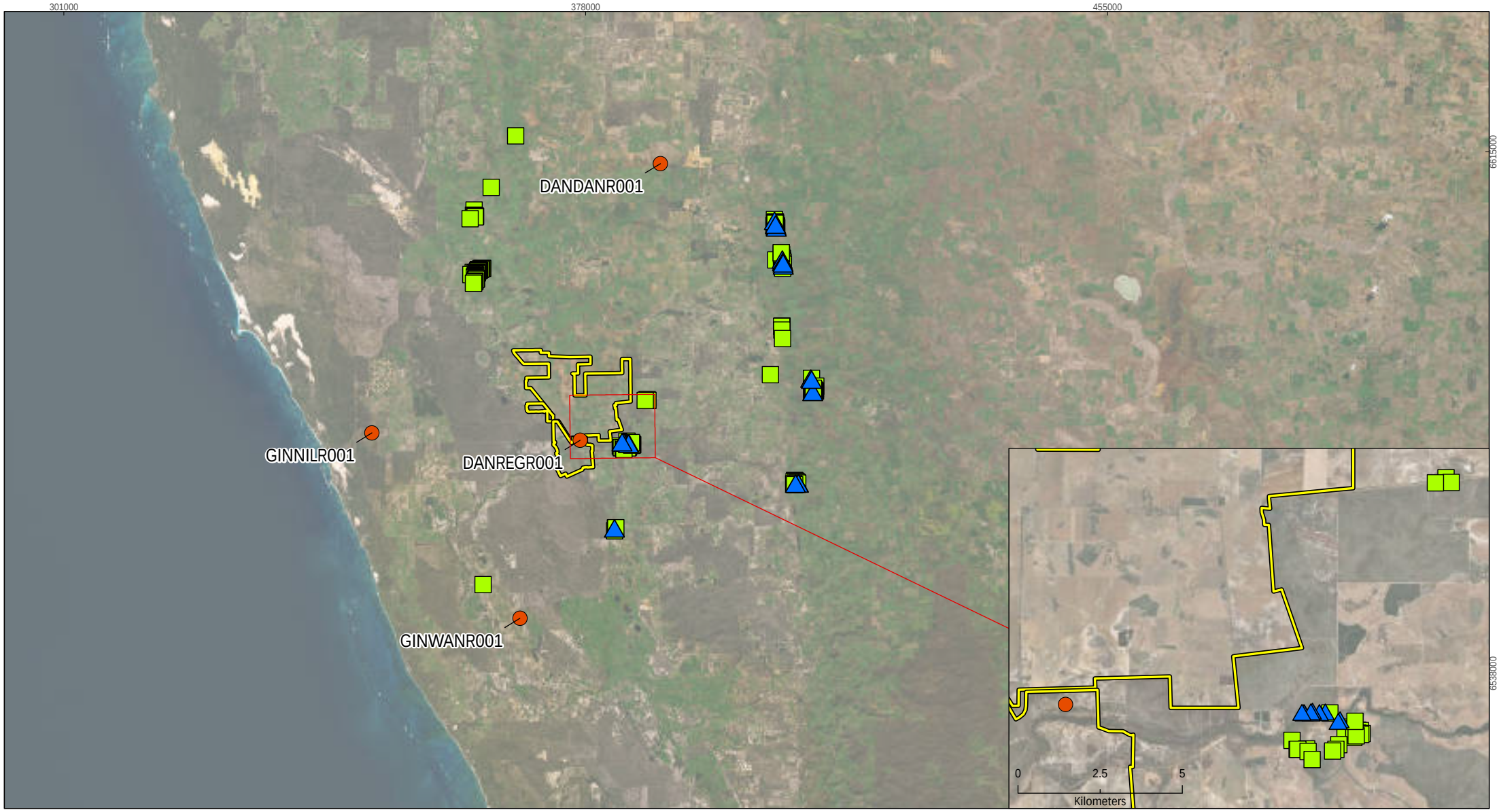

Alinta Energy
Marri Wind Farm Project

Project No	1739
Date	30/09/2025
Drawn by	JL
Map author	BQ

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Kilometers

1:758,600 (at A4) GDA 1994 MGA Zone 50

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- Study area
- Confirmed breeding sites for black cockatoos (DBCA 2019)
- Potential breeding sites for black cockatoos (DBCA 2019)
- Known roost sites for black cockatoos (Birdlife 2020)

Figure 5-2

Black cockatoo known breeding and roosting locations

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5.1.2 SRE invertebrate fauna

The desktop review identified a total of 256 invertebrate taxa from groups known to include SREs, including records of 27 Confirmed and 106 Potential SRE taxa from within the desktop review area (Table 5-3; Figure 5-3; Appendix 4). A further 67 Widespread taxa were identified. The remaining 56 taxa had Uncertain SRE status due to incomplete taxonomic resolution.

Of the 133 Confirmed and Potential SRE taxa, 38 are named species (Appendix 4). The remaining 95 comprise taxa named only to morphospecies codes as applied by the WA Museum or are not identified to confirmed species level (i.e. "sp." or "cf."). The majority of records of Uncertain SRE status are unidentifiable ("sp. indet.", i.e. female or juvenile specimens) or could not be identified to species or morphospecies and may represent new species or other species listed in the same genus where records exist (Appendix 4).

Eight of the Confirmed/Potential SRE taxa, all mygalomorph spiders, are listed as Threatened or Priority species:

- *Euoplos inornatus* – P3, Potential
- *Idiosoma dandaragan* – P2, Confirmed
- *Idiosoma gardneri* – P2, Confirmed
- *Idiosoma kwongan* – P1, Potential
- *Idiosoma mcclementsorum* – P2, Confirmed
- *Idiosoma nigrum* - EN/VU (BC & EPBC Act), Confirmed
- *Idiosoma schoknechtorum* – P3, Confirmed
- *Idiosoma sigillatum* – P3, Potential.

The desktop results indicate that one other Priority species from the targeted SRE groups (a land snail, *Bothriembryon perobesus* – P1) has previously been recorded within the study area, on a roadside in 1971 (Figure 5-3). This species is however considered a Widespread species.

An additional 5 taxa from SRE groups have been recorded within the study area, including 3 Uncertain SRE taxa (*Bothriembryon* `sp. indet.`, *Lychas* `sp. indet.`, *Oratemnus* `sp. indet.`), one Potential SRE taxon (*Proshermacha telaporta*) and one Widespread SRE taxon (*Urodacus hartmeyeri*).

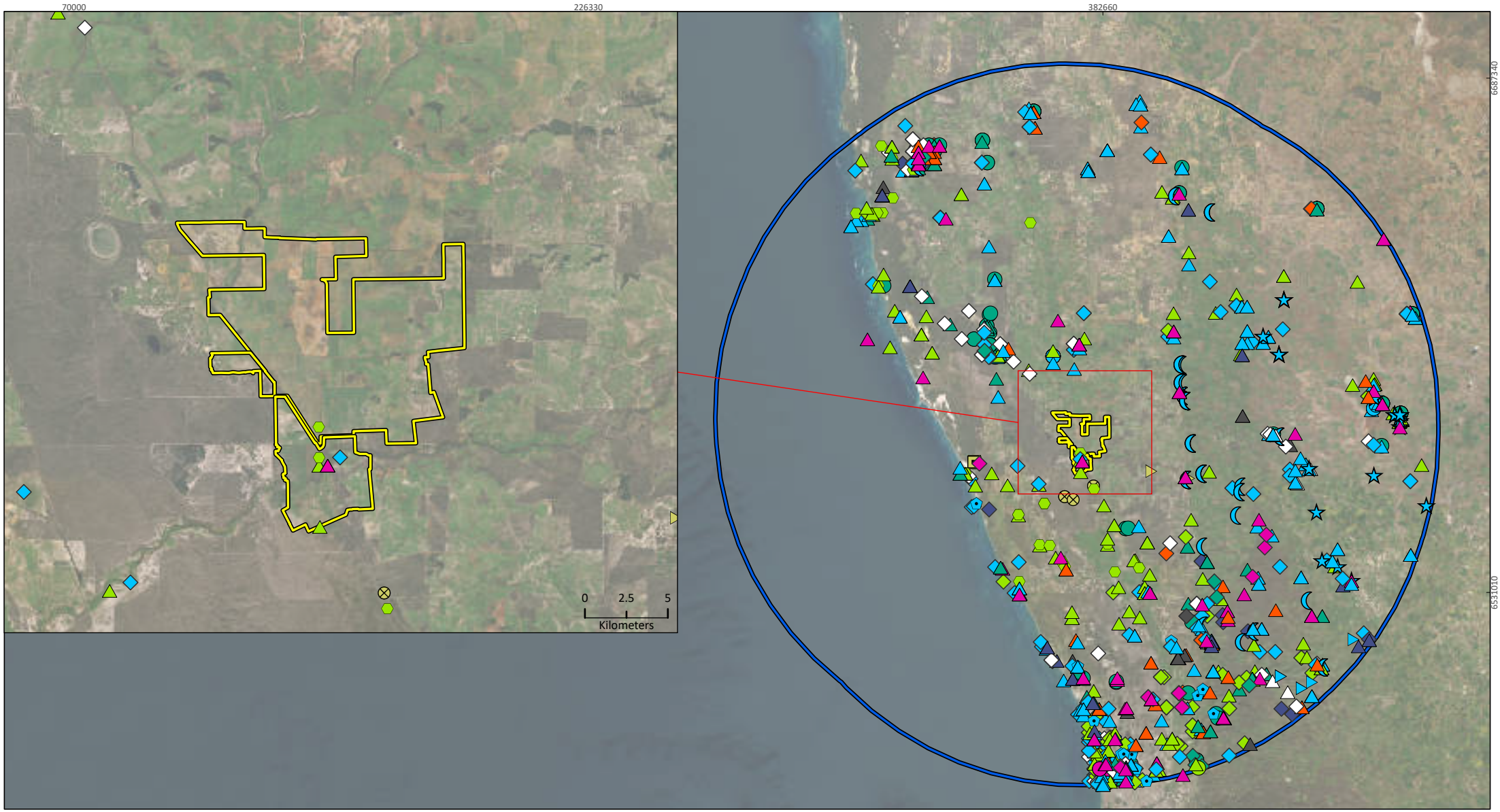
Five additional Threatened or Priority invertebrate species that are not from SRE target groups (and therefore not part of the survey scope) were returned in the desktop review (Figure 5-3):

- Bee
  - *Hylaeus globuliferus* – P3, Widespread
  - *Leioproctus contrarius* – P3, Widespread
- Katydid
  - *Throscodectes xederoides* – P3, Potential (data deficient)
- Moth
  - *Synemon gratiosa* – P4, Widespread
- Mussel
  - *Westralunio carteri* - VU (BC & EPBC Act), Widespread.

Of these, *Westralunio carteri* has previously been recorded within the study area.

Table 5-3 Summary of SRE and significant invertebrate taxa identified in the desktop review

Group	EN & VU, Confirmed	VU, Widespread	P1, Potential	P1, Widespread	P2, Confirmed	P3, Confirmed	P3, Potential	P3, Widespread	P4, Widespread	Confirmed	Potential	Uncertain	Widespread	Total
Bivalvia		1											1	2
Centipede											1	6	2	9
Harvestman											4	5	2	11
Insect							1	2	1					4
Isopoda											29	4	8	41
Land snail				1						1	7	4	2	15
Millipede										18	5	8	9	40
Mygalomorph spider	1		1		3	1	2			2	47	14	16	87
Pseudoscorpion											7	10	9	26
Scorpion										1	2	5	10	18
Selenopidae spider													2	2
Velvet worm													1	1
Grand Total	**1**	**1**	**1**	**1**	**3**	**1**	**3**	**2**	**1**	**22**	**102**	**56**	**62**	**256**



Alinta Energy
Marri Wind Farm Project

Project No	1739
Date	24/09/2025
Drawn by	JL
Map author	BQ

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Kilometers

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- Study area
- 100 km buffer

Centipede
- Potential
- Uncertain

Harvestmen
- Potential
- Uncertain

Insect
- P3 (DBCA)/ Confirmed
- P3 (DBCA)/ Widespread
- P4 (DBCA)/ Widespread

Isopod
- Potential
- Uncertain

Land snail
- Confirmed
- Potential
- Uncertain
- P1 (DBCA)/ Widespread

Millipede
- Confirmed
- Potential
- Uncertain

Mygalomorph spider
- Confirmed
- Potential
- Uncertain
- EN (BC Act) VU (EPBC)/ Confirmed
- P1 (DBCA)/ Potential
- P2 (DBCA)/ Confirmed
- P3 (DBCA)/ Confirmed
- P3 (DBCA)/ Potential

Pseudoscorpion
- Potential
- Uncertain

Scorpion
- Confirmed
- Potential
- Uncertain

Figure 5-3

Desktop records of SRE and significant invertebrates

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5.2 FIELD SURVEY

5.2.1 Vertebrate fauna

5.2.1.1 Habitats

Six broad fauna habitat types were identified in the study area, comprising Cleared (which includes agricultural paddocks and infrastructure), Open Jarrah-Marri woodland, Pine plantation, *Banksia* heath and woodland, Wetlands, and Drainage line and riparian zone (Table 5-4; Figure 5-4). Cleared areas were defined as a habitat as they included isolated trees which may contain nesting hollows and or foraging habitat, dams which provide drinking water sources for black cockatoos, and agricultural crops, including canola, known to be foraged on by CC. Habitat condition (based on the site descriptions) varied from Completely degraded to Excellent depending on the impact of livestock and/ or level of historic clearing for agricultural purposes.

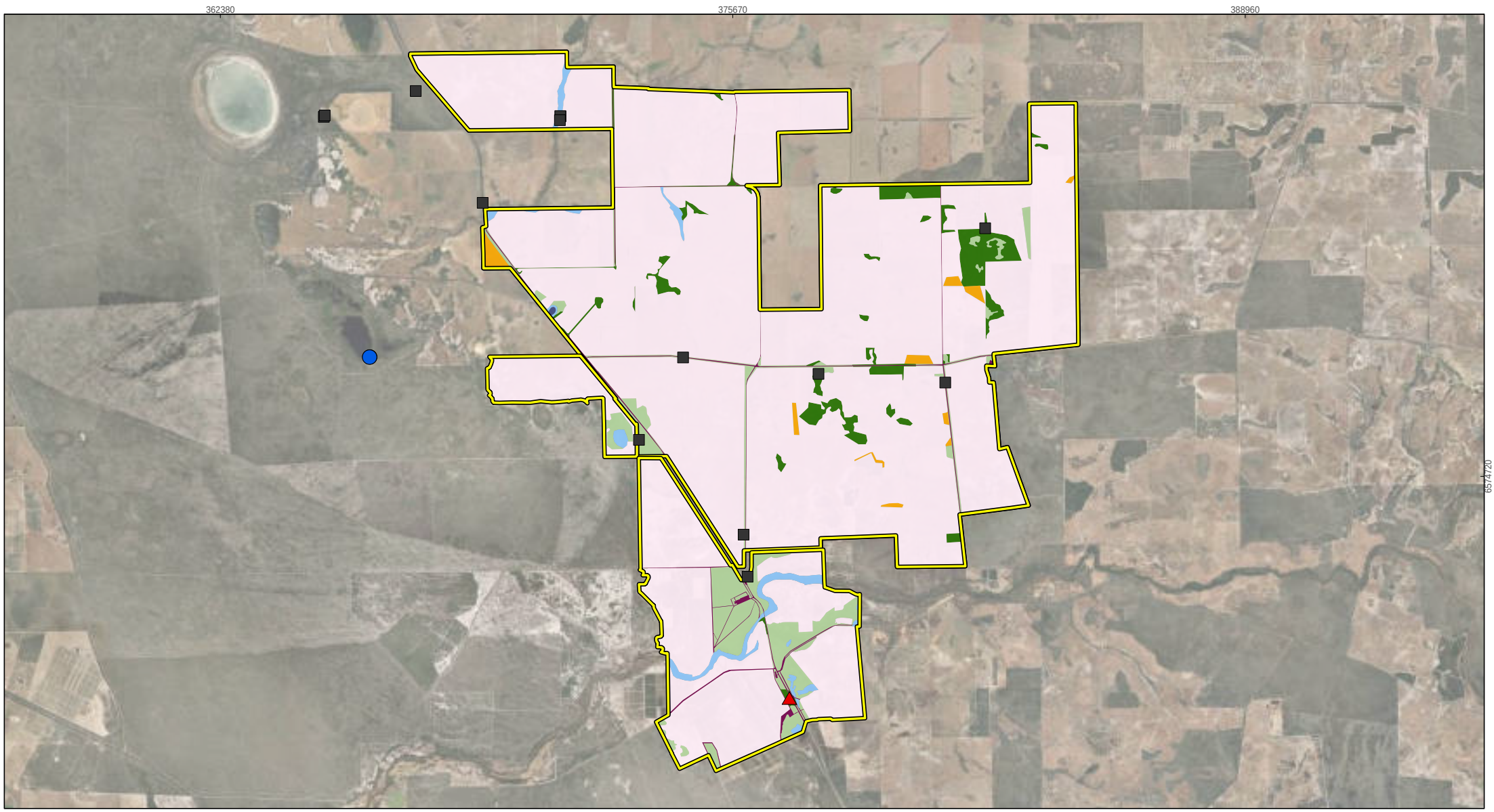
The Cleared habitat was the most widespread habitat type making up 89.8% (14,206.7 ha) of the study area. The remaining areas were made up of small patches of remnant native vegetation; *Banksia* heath and woodland made up 5.3% (834 ha), Drainage line and riparian zone made up 1.2% (195.5 ha), Open Jarrah-Marri woodland made up 3% (480.1 ha), and Wetlands made up <0.1% (3.4 ha). These habitats were restricted within the study area occurring only in pockets of agriculture areas and along drainage lines, connected by remnant roadside vegetation (Table 5-4; Figure 5-4). Pine plantations made up 0.7% (103.3 ha) of the study area (Table 5-4; Figure 5-4).

Table 5-4 Extent and description of each fauna habitat in the study area

Habitat type	Site/s	Description	Extent in study area and % of study area	Representative photograph
1. Cleared – agriculture and infrastructure	Site20, Site27, TL-06, TL-07, TL-09, TL-11, Opp06, Opp07, Opp08, Site29	Areas predominantly cleared for agricultural use, roads, or urban developments. Remnant isolated trees were found scattered in agricultural areas, providing foraging habitat and potential roosting/breeding habitat for CC (see Figure 5-6). Farm dams scattered in agricultural areas provide drinking habitat. The species is also known to forage on the seeds of introduced species including canola, which was present as a crop in the study area (DAWE 2022).	14,206.7 ha 89.8%	
2. *Banksia* heath and woodland	Site08, Site10, Site14, Site16, Site18, Site21, Site25, TL-04, TL-08, TL-10, TL-12, TL-13, TL-14, Opp01, Opp02, Opp03, Opp04, Opp05, Opp10	*Banksia* woodland/shrubland including *Acacia, Xanthorrhoea, and* woolly bush with scattered trees of eucalypts, *Nuytsia and Allocasuarina.* Provides foraging habitat for CC.	834 ha 5.3%	

Habitat type	Site/s	Description	Extent in study area and % of study area	Representative photograph
3. Open Jarrah-Marri woodland	Site06, Site09, Site11, Site12, Site15, Site26, TL-15, CBC01, CBC02, CBC03, CBC04, CBC05	Open eucalypt woodland over mixed trees and shrubs including eucalypt saplings, *Allocasuarina, Xanthorrhoea, Banksia, Acacia,* peas*, and Hakea.* Provides foraging habitat and potential roosting/breeding habitat for black cockatoos.	480.1 ha 3.0%	
4. Drainage line and riparian	Site07, Site17, Site19, Site28, TL-01, TL-02, TL-03, TL-05, TL-16, Opp09	Drainage line and riparian zones of wetlands composed of Eucalyptus, Marri and/or Melaleuca. Eucalyptus and Marri trees provide foraging habitat and potential roosting/breeding habitat for black cockatoos.	195.5 ha 1.2%	

Habitat type	Site/s	Description	Extent in study area and % of study area	Representative photograph
5. Pine plantations	Site05	Pine plantations lacking understory. Pine plantations provide foraging and roosting habitat for CC.	103.3 ha 0.7%	
6. Wetlands	Site01, Site02, Site03, Site04, Site13	Permanently and seasonally inundated areas. Provides drinking habitat for black cockatoos.	3.4 ha <0.1%	



Alinta Energy
Marri Wind Farm Project

Project No	1739
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Drawn by	JL
Map author	BQ

0 2.5 5
Kilometers

1:132,900 (at A4) GDA 1994 MGA Zone 50

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Study area

Species, status
- Blue-billed Duck, P4 (DBCA list)
- Carnaby's Cockatoo, EN (EPBC & BC Acts)
- Forest Red-tailed Black Cockatoo/ Karrak, VU (EPBC & BC Acts)

Fauna habitats
- Banksia heath and woodland
- Open Jarrah-Marri woodland
- Drainage line & riparian zone
- Wetland
- Pine plantation
- Cleared - infastructure
- Cleared - agriculture

Figure 5-4

Fauna habitats and significant fauna records from the field survey

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5.2.1.2 Recorded species

A total of 99 terrestrial vertebrate species representing 48 families was recorded during the field surveys including 8 amphibian, 7 reptile, 67 bird and 17 mammal species (Table 5-5; Appendix 3). The assemblage recorded during the survey included 90 native species and 9 introduced species. Evidence of 3 introduced predators (Red Fox, Cat and Dog) were also recorded during the survey at several sites.

Six species were recorded during the field survey that were not identified in the desktop review: Goat (*Capra hircus*), European Cattle (*Bos taurus*), South-western Long-necked Turtle (*Chelodina oblonga*), White-striped Free-tailed Bat (*Austronomus australis*), South-western Free-tailed Bat (*Mormopterus kitcheneri*) and Chocolate Wattled Bat (*Chalinolobus morio*).

Table 5-5 Number of vertebrate species recorded in survey in comparison to desktop results, by group

Group	No. species identified in desktop review	No. species recorded in survey
Amphibians	12	8
Reptiles	65	7
Birds	258 (inc. 6 introduced)	67 (inc. 1 introduced)
Mammals	35 (inc. 7 introduced)	17 (inc. 8 introduced)
Total	**370**	**99**

5.2.1.3 Recorded Significant vertebrate fauna

Two Threatened and one Priority vertebrate fauna species were recorded during the survey:

- Carnaby's Cockatoo, *Zanda latirostris* (EN EPBC & BC Acts) was recorded on 16 occasions during all surveys, both within and outside the study area (Table 5-6; Figure 5-4; Figure 5-5).
- Forest Red-tailed Black Cockatoo, *Calyptorhynchus banksii naso* (VU EPBC & BC Acts) foraging evidence on Marri fruit was recorded during trip 2 at site TL-15 (Table 5-6; Figure 5-4). Direct sightings of FRTBC have been made during the BBUS within the study area, reported on separately in Phoenix (in prep-b).
- Blue-billed Duck, *Oxyura australis* (P4) was recorded on 2 occasions during trip 1b at a regional BBUS site (Site13), located approximately 5 km outside the study area (Figure 5-4). The species was not recorded within the study area during the survey.

Threatened and Priority fauna records will be reported to DBCA via the licencing return system.

Table 5-6 Details of black cockatoos recorded during the field survey

Date	Site	No. of individuals	Comment
5/08/2024	Opp01	7	CC feeding in *Banksia* on the side of the road.
5/08/2024	Opp02	100	Large flock of CC likely over 100 feeding in *Banksia* and flying low over trees.
6/08/2024	Site14	1	CC heard calling.
7/08/2024	Opp05	56	Large flock of CC observed foraging in roadside strip in *Banksia*.
8/08/2024	Opp03	8	Four CC seen in roadside strip then flew up and joined another 4 in old stag eucalypt tree.
26/08/2024	Site17	2	At least 2 CC heard calling.
27/08/2024	Site21	1	One CC heard calling and seen flying south.
28/08/2024	Site17	3	Three CC seen perching in Marri and calling.
28/08/2024	Site18	2	Two CC seen flying overhead.
29/08/2024	CBC03	1	Foraging evidence of CC on *Banksia*.
29/08/2024	CBC04	1	CC heard calling in distance.
29/08/2024	Site17	30	Flock of 30 CC flying along drainage line.
29/08/2024	Site19	4	Four CC seen flying overhead.
30/08/2024	Site19	1	CC heard calling in distance.
13/08/2025	TL-13	2	Flock of CC heard calling in the distance towards river. Number unknown.
15/08/2025	Opp10	4	At least 4 CC seen perching in *Banksia* trees along verge side.
19/08/2025	TL-15	1	FRTBC foraging evidence on Marri nut

Figure 5-5 Carnaby's Cockatoo at Opp05

5.2.1.4 Likelihood of occurrence assessment

The likelihood of occurrence assessment (section 4.2.2.12) for the significant species identified in the desktop review (section 5.1) determined 9 significant species have been recorded within the study area (by this or a previous survey), 2 were likely to occur in the study area, 20 may possibly occur and 53 are unlikely to occur (Table 5-7). One species is classified as extinct (Table 5-7).

Table 5-7 Likelihood of occurrence for significant vertebrate fauna identified in the desktop review

Species	Status	Likelihood of occurrence	Comment	Habitats					
				Cleared	Jarrah-Marri woodland	Pine plantation	*Banksia* heath/ woodland	Drainage line	Wetland
Non-migratory birds (13)									
Aphelocephala leucopsis Southern Whiteface	VU (EPBC Act)	Possible	On boundary of known distribution, suitable woodland and Shrubland habitat, no records within desktop extent.		✓		✓	✓	
Botaurus poiciloptilus Australasian Bittern	EN (EPBC & BC Acts)	Unlikely	Outside known range, no recent records within desktop extent (only record from 1921).						✓
Calyptorhynchus banksii subsp. *naso* Forest Red-tailed Cockatoo	VU (EPBC & BC Acts)	**Recorded**	Distribution is known to be expanding northwards (Garnett & Baker 2021). Suitable habitat is present. It is possible breeding or roosting may occur within the study area.		✓		✓	✓	
Falco hypoleucos Grey Falcon	VU (EPBC & BC Acts)	Unlikely	Outside current known range of species. Occurs aerially over all habitats but confined to the arid and semi-arid zone of Australia.	✓	✓	✓	✓	✓	✓
Falco peregrinus Peregrine Falcon	OS (BC Act)	Likely	Within current known range, occurs aerially over all habitats, recorded twice within 25 km of the study area in 2020. Additionally, suitable breeding habitat is present within the study area (wooded watercourses).	✓	✓	✓	✓	✓	✓
Ixobrychus dubius Australian Little Bittern	P4 (DBCA list)	Possible	Within current known range, wetland habitat present, no recent records within desktop extent (only record from 1999).						✓

Species	Status	Likelihood of occurrence	Comment	Habitats					
				Cleared	Jarrah-Marri woodland	Pine plantation	*Banksia* heath/ woodland	Drainage line	Wetland
Leipoa ocellata Malleefowl	VU (EPBC & BC Acts)	Unlikely	Within known range, foraging, and dispersal habitat present, though likely to have suffered from habitat fragmentation and introduced predators. Given the lack of recent records they have likely become locally extinct. Recorded nearby in 1993, 1988, and 2005.		✓		✓	✓	
Ninox connivens subsp. *connivens* Barking Owl (southwest subpop.)	P3 (DBCA list)	Unlikely	Study area occurs on northern extent of known distribution, suitable habitat present, however lack of nearby records.		✓			✓	
Oxyura australis Blue-billed Duck	P4 (DBCA list)	**Recorded**	Recorded within the study area in 1977 and during the survey 5 km outside the study area in wetland habitat. May visit wetland habitat in the study area.						✓
Platycercus icterotis subsp. *xanthogenys* Western Rosella (inland)	P4 (DBCA list)	Unlikely	Outside known distribution of the inland subspecies.		✓			✓	
Rostratula australis Australian Painted Snipe	EN (EPBC & BC Acts)	Unlikely	Uncommon vagrant to the region, but within current known range, suitable wetland habitat present, no records within desktop extent.						✓
Zanda baudinii Baudin's Cockatoo	EN (EPBC & BC Acts)	Unlikely	Study area beyond northern boundary of modelled distribution.		✓		✓	✓	
Zanda latirostris Carnaby's Cockatoo	EN (EPBC & BC Acts)	**Recorded**	Within known foraging, roosting, and breeding range. Recorded during the survey within the study area.	✓	✓	✓	✓	✓	
Migratory birds (55)									
Actitis hypoleucos Common Sandpiper	Mig. (EPBC & BC Acts)	Possible	Study area within current known range, suitable wetland habitat present, however no recent nearby records.						✓

Species	Status	Likelihood of occurrence	Comment	Habitats					
				Cleared	Jarrah-Marri woodland	Pine plantation	*Banksia* heath/ woodland	Drainage line	Wetland
Anarhynchus bicinctus Double-banded Plover	Mig. (EPBC & BC Acts)	Unlikely	Study area within current known range, suitable wetland habitat present, however no recent nearby records.					✓	✓
Anous stolidus Common Noddy	Mig. (EPBC & BC Acts)	Unlikely	No coastal habitat present.						
Anous tenuirostris subsp. *melanops* Australian Lesser Noddy	VU (EPBC Act) EN (BC Act)	Unlikely	Outside current known range, no suitable coastal habitat present.						
Apus pacificus Fork-tailed Swift	Mig. (EPBC & BC Acts)	Possible	Not restricted by habitat. No nearby records.	✓	✓	✓	✓	✓	✓
Ardenna carneipes Flesh-footed Shearwater	VU/Mig. (BC Act)	Unlikely	A pelagic species.						
Ardenna pacifica Wedge-tailed Shearwater	Mig. (BC Act)	Unlikely	A pelagic species.						
Arenaria interpres Ruddy Turnstone	VU/Mig. (EPBC Act) Mig. (BC Act)	Unlikely	No coastal habitat present.						
Calidris acuminata Sharp-tailed Sandpiper	VU/Mig. (EPBC Act) Mig. (BC Act)	Possible	Study area within current known range, suitable wetland habitat present, however no recent nearby records.						✓
Calidris alba Sanderling	Mig. (EPBC & BC Acts)	Unlikely	No coastal habitat present.						
Calidris canutus Red Knot	VU/Mig. (EPBC Act) EN (BC Act)	Unlikely	No coastal habitat present.						

Species	Status	Likelihood of occurrence	Comment	Habitats					
				Cleared	Jarrah-Marri woodland	Pine plantation	*Banksia* heath/ woodland	Drainage line	Wetland
Calidris falcinellus Broad-billed Sandpiper	Mig. (EPBC & BC Acts)	Possible	Study area within current known range, wetland habitat present, however no recent nearby records.						✓
Calidris ferruginea Curlew Sandpiper	CR/Mig. (EPBC Act) CR (BC Act)	**Recorded**	Recorded within study area in 1978. Wetland habitat present.						✓
Calidris melanotos Pectoral Sandpiper	Mig. (EPBC & BC Acts)	Possible	Study area within current known range, wetland habitat present, however no recent nearby records.						✓
Calidris ruficollis Red-necked Stint	Mig. (EPBC & BC Acts)	**Recorded**	Recorded within the study area in 1978. Wetland habitat present.						✓
Calidris subminuta Long-toed Stint	Mig. (EPBC & BC Acts)	Possible	Study area within current known range, wetland habitat present, however no recent nearby records.						✓
Calidris tenuirostris Great Knot	VU/Mig. (EPBC Act) CR (BC Act)	Unlikely	No coastal habitat present.						
Charadrius cucullatus Hooded Plover/Dotterel	P4 (DBCA)	Unlikely	No suitable salt lake or coastal habitat present.						
Charadrius leschenaultii Greater Sand Plover	VU/Mig. (EPBC Act) VU (BC Act)	Unlikely	No coastal habitat present.						
Chlidonias leucopterus White-winged Black Tern	Mig. (EPBC & BC Acts)	Possible	Study area within current known range, wetland habitat present, however no recent nearby records.						✓
Diomedea amsterdamensis Amsterdam Albatross	EN/Mig. (EPBC Act) CR/Mig. (BC Act)	Unlikely	A pelagic species.						
Diomedea epomophora Southern Royal Albatross	VU/Mig. (EPBC & BC Acts)	Unlikely	A pelagic species.						

Species	Status	Likelihood of occurrence	Comment	Habitats					
				Cleared	Jarrah-Marri woodland	Pine plantation	*Banksia* heath/ woodland	Drainage line	Wetland
Diomedea exulans Wandering Albatross	VU/Mig. (EPBC & BC Acts)	Unlikely	A pelagic species.						
Halobaena caerulea Blue Petrel	VU (EPBC Act)	Unlikely	A pelagic species.						
Hydroprogne caspia Caspian Tern	Mig. (EPBC & BC Acts)	Possible	Study area within current known range, wetland habitat present, however no recent nearby records.						✓
Limosa lapponica subsp. *menzbieri* Bar-tailed Godwit (northern Siberian)	Mig. (EPBC & BC Acts)	Unlikely	No coastal habitat present.						
Limosa lapponica Bar-tailed Godwit	CR/Mig. (EPBC Act) EN (BC Act)	Unlikely	No coastal habitat present.						
Limosa limosa Black-tailed Godwit	EN/Mig. (EPBC Act) Mig. (BC Act)	Unlikely	No coastal habitat present.						
Macronectes giganteus Southern Giant Petrel	EN/Mig. (EPBC Act) Mig. (BC Act)	Unlikely	A pelagic species.						
Macronectes halli Northern Giant Petrel	VU/Mig. (EPBC Act) Mig. (BC Act)	Unlikely	A pelagic species.						
Motacilla cinerea Grey Wagtail	Mig. (EPBC & BC Acts)	Unlikely	No fast flowing streams or rivers present but may occur on mudflats around wetlands. Rare visitor to Australia, especially as far south as the study area. No recent nearby records.						✓

Species	Status	Likelihood of occurrence	Comment	Habitats					
				Cleared	Jarrah-Marri woodland	Pine plantation	*Banksia* heath/ woodland	Drainage line	Wetland
Numenius madagascariensis Eastern Curlew	CR/Mig. (EPBC Act) CR (BC Act)	Unlikely	No suitable mudflats or sandflats present.						
Numenius minutus Little Curlew	Mig. (EPBC & BC Acts)	Possible	Study area within current known range, wetland habitat present, however no recent nearby records.						✓
Onychoprion anaethetus Bridled Tern	Mig. (EPBC & BC Acts)	Unlikely	No coastal habitat present.						
Pachyptila turtur subantarctica Fairy Prion	VU (EPBC Act)	Unlikely	A pelagic species.						
Pandion haliaetus Osprey	Mig. (EPBC & BC Acts)	Possible	Study area within current known range, wetland habitat present, recorded within 1km of the study area in 2000, however, no recent nearby records.						✓
Phaethon rubricauda westralis Indian Ocean Red-tailed Tropicbird	EN/Mig. (EPBC & BC Act) P4 (DBCA list)	Unlikely	No coastal habitat present.						
Philomachus pugnax Ruff	Mig. (EPBC & BC Acts)	Possible	Study area within current known range, wetland habitat present, however no recent nearby records.						✓
Phoebetria fusca Sooty Albatross	VU/Mig. (EPBC Act) EN/Mig. (BC Act)	Unlikely	A pelagic species.						
Plegadis falcinellus Glossy Ibis	Mig. (EPBC & BC Acts)	Possible	Study area within current known range, wetland habitat present, however no recent nearby records. Recorded 1.6 km WNW in 1990 and 13.1 km S in 2004.						✓

Species	Status	Likelihood of occurrence	Comment	Habitats					
				Cleared	Jarrah-Marri woodland	Pine plantation	*Banksia* heath/ woodland	Drainage line	Wetland
Pluvialis fulva Pacific Golden Plover	Mig. (EPBC & BC Acts)	Possible	Study area within current known range, wetland habitat present, however no recent nearby records. May occur in wetland habitat. Recorded 1.6 km NWN in 1991.						✓
Pluvialis squatarola Grey Plover	VU/Mig. (EPBC Act) Mig. (BC Act)	Possible	Study area within current known range, wetland habitat present, however no recent nearby records.						✓
Pterodroma mollis Soft-plumaged Petrel	VU (EPBC Act)	Unlikely	A pelagic species.						
Sterna dougallii Roseate Tern	Mig. (EPBC & BC Acts)	Unlikely	A marine species.						
Sternula albifrons Little Tern	Mig. (EPBC & BC Acts)	Unlikely	No coastal habitat present.						
Sternula nereis subsp. *nereis* Fairy Tern	VU (EPBC & BC Acts)	Unlikely	No coastal habitat present.						
Thalassarche carteri Indian Yellow-nosed Albatross	VU/Mig. (EPBC Act) EN/Mig. (BC Act)	Unlikely	A pelagic species.						
Thalassarche cauta subsp. *cauta* Shy Albatross	EN/Mig. (BC Act)	Unlikely	A pelagic species.						
Thalassarche cauta subsp. *steadi* White-capped Albatross	VU/Mig. (BC Act)	Unlikely	A pelagic species.						
Thalassarche impavida Campbell Albatross	VU/Mig. (EPBC & BC Acts)	Unlikely	A pelagic species.						

Species	Status	Likelihood of occurrence	Comment	Habitats					
				Cleared	Jarrah-Marri woodland	Pine plantation	*Banksia* heath/ woodland	Drainage line	Wetland
Thalassarche melanophris Black-browed Albatross	VU/Mig. (EPBC Act) EN/Mig. (BC Act)	Unlikely	A pelagic species.						
Thalasseus bergii Crested Tern	Mig. (EPBC & BC Acts)	Unlikely	No coastal habitat present.						
Tringa brevipes Grey-tailed Tattler	Mig. (EPBC & BC Acts) P4 (DBCA list)	Unlikely	No coastal habitat present.						
Tringa glareola Wood Sandpiper	Mig. (EPBC & BC Acts)	**Recorded**	Previously recorded within the study area in 1977 and in 2003 (DBCA 2024b). Wetland habitat present.						✓
Tringa nebularia Common Greenshank	EN/Mig. (EPBC Act) Mig. (BC Act)	**Recorded**	Preciously recorded within the study area in wetland habitat in 2003 and 1977 (DBCA 2024b). May also occur in drainage line habitat.					✓	✓
Tringa stagnatilis Marsh Sandpiper	Mig. (EPBC & BC Acts)	Possible	Study area within current known range, wetland habitat present, however no recent nearby records.						✓
Mammals (12)									
Bettongia penicillata subsp. *ogilbyi* Woylie	EN/CR (EPBC/BC Act)	Unlikely	Study area outside current known range of species and is therefore locally extinct.		✓		✓	✓	
Dasyurus geoffroii Chuditch	VU (EPBC & BC Acts)	**Recorded**	On northern edge of the species projected distribution, suitable habitat present, however no recent records. Recorded within the study area in 2001.		✓		✓	✓	
Hydromys chrysogaster Water-rat	P4 (DBCA list)	Possible	Study area occurs on northern extent of species projected distribution. Drainage line habitat present. Moore River provides suitable habitat. No recent records nearby – most recently recorded at Moore River in 1972.					✓	

Species	Status	Likelihood of occurrence	Comment	Habitats					
				Cleared	Jarrah-Marri woodland	Pine plantation	*Banksia* heath/ woodland	Drainage line	Wetland
Isoodon fusciventer Quenda	P4 (DBCA list)	Possible	On northern edge of the species projected distribution. Closest record 24.6 km ESE in 2022.		✓		✓	✓	
Macroderma gigas Ghost Bat	VU (EPBC & BC Acts)	Unlikely	Outside current known range. Restricted to the Pilbara and Kimberley regions of WA.		✓		✓	✓	
Macrotis lagotis Bilby	VU (EPBC & BC Acts)	Unlikely	Outside current known range. Restricted to the Pilbara and Kimberley regions of WA.		✓		✓	✓	
Myrmecobius fasciatus Numbat	EN (EPBC & BC Acts)	Unlikely	Study area outside current known range of species.		✓			✓	
Notamacropus irma Western Brush Wallaby	P4 (DBCA list)	**Recorded**	Study area within current known range, suitable habitat present. Recorded within the study area in 1982 and within 10 km of the study area in 1989, 1978, and 1956. Also recorded 20 km from the study area in 2015.		✓		✓	✓	
Parantechinus apicalis Dibbler	EN (EPBC & BC Acts)	Unlikely	Outside current known range. Restricted to Fitzgerald River National Park and offshore islands near Jurian Bay.		✓		✓		
Phascogale calura Red-tailed Phascogale	VU/CD (EPBC Act; BC Act)	Unlikely	Study area outside current known range of species.		✓		✓		
Phascogale tapoatafa subsp. *wambenger* South-western Brush-tailed Phascogale	CD (BC Act)	Unlikely	Study area outside current known range of species.		✓				
Potorous platyops Broad-faced Potoroo	EX (EPBC & BC Acts)	NA	Extinct.						
Reptiles (4)									
Ctenotus lancelini Lancelin Island Skink	VU (EPBC & BC Acts)	Unlikely	Study area outside current known range of species.						

Species	Status	Likelihood of occurrence	Comment	Habitats					
				Cleared	Jarrah-Marri woodland	Pine plantation	*Banksia* heath/ woodland	Drainage line	Wetland
Egernia stokesii subsp. *badia* Western Spiny-tailed Skink	EN/VU (EPBC Act; BC Act)	Unlikely	Study area outside current known range of species.		✓				
Neelaps calonotos Black-striped Snake	P3 (DBCA list)	Likely	Study area within current known range of species, suitable habitat within study area.		✓		✓		
Pseudemydura umbrina Western Swamp Tortoise	CR (EPBC & BC Acts)	Possible	Re-introduced population at Moore River National Park which is located southwest of the study area.						✓

5.2.1.5 Black cockatoo habitat assessment

5.2.1.5.1 Potential nesting trees

A total of 1,609 PNTs were recorded within the study area (Figure 5-7), including 1,421 Marri, (*Corymbia calophylla*), 82 unidentified eucalypt trees, 43 Tuart (*Eucalyptus gomphocephala*), 35 River Gums (*Eucalyptus camaldulensis*), 11 Jarrah (*Eucalyptus marginata*), 9 Wandoo (*Eucalyptus wandoo*), 5 Blackbutt (*Eucalyptus todtiana*), and 3 Powderbark Wandoo (*Eucalyptus accedens*). Not all PNTs within the study area could be recorded due to restricted access to some properties and the presence of crops limiting the team's ability to survey all areas within the time available.

Of the 1,609 PNTs recorded, 101 were found to contain one or more hollows; however, 32 of these did not meet the criteria required to host breeding black cockatoos, i.e. hollow openings were not of suitable diameter or orientation. Of the 69 PNTs that had hollows meeting the required diameter and orientation, 4 were occupied by other species such as the European Honeybee, Galahs or Corellas. Hollows occupied by other species could potentially host black cockatoos if vacated. Of the remaining PNTs meeting the required size and orientation, 19 showed evidence of recent chew marks, 15 showed evidence of old chew marks, and the remaining 31 had no evidence of use (Figure 5-6). Chew marks alone do not confirm that a hollow has been used for breeding by black cockatoos and only indicate that the hollow has at least been inspected. In addition, other cockatoos and parrot species are known to chew around nesting hollows, such as Galahs or Corellas, which are known competitors with black cockatoos for suitable breeding sites. Without direct observation of the bird species responsible, chew marks could be attributed to any parrot or cockatoo species.

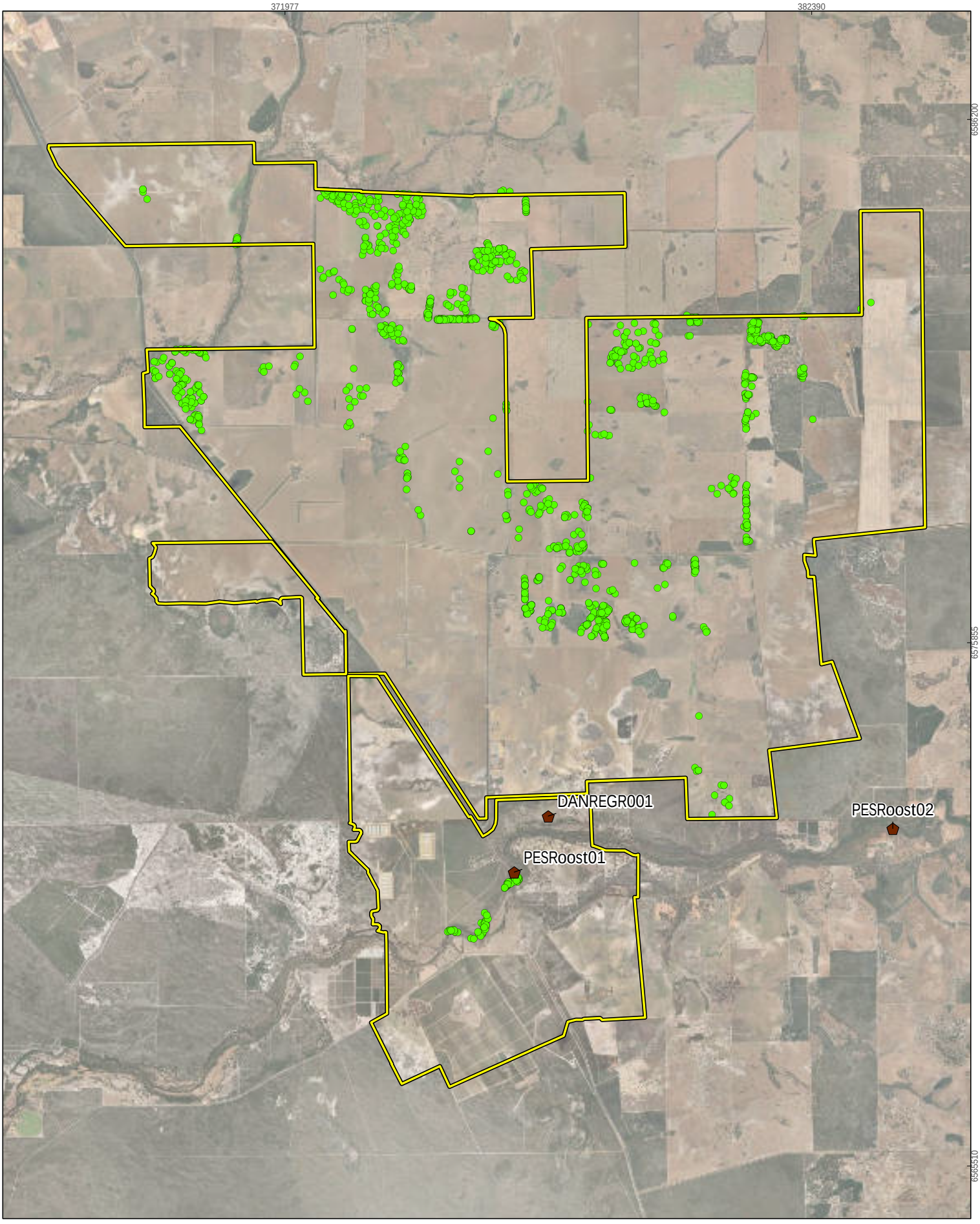
Further discussion and results on PNT values within the study area are reported on in Phoenix (in prep-b). Further survey work using a pole camera is proposed to be undertaken in November 2025, which will confirm if possibly suitable hollows are of suitable depth to host breeding black cockatoos, and may detect evidence of breeding black cockatoos which would result in the hollows being reassigned as suitable.

Figure 5-6 PNT: Remnant hollow bearing tree in agricultural area (left), small recently chewed hollow (middle) and large recently chewed hollow (right)

5.2.1.5.2 Roosting habitat

Both CC and FRTBC have been recorded roosting along Moore River during black cockatoo roost monitoring undertaken for the BBUS surveys (Phoenix in prep-a). To date, 2 roosts have been recorded within the study area (DANREGR001 and PESRoost01), and one is located 2.6 km south-east of the

study area (PESRoost02) (Figure 5-7). Further discussion and results on black cockatoo roosting values within the study area is reported on in Phoenix (in prep-b).



Alinta Energy
Marri Wind Farm Project

Project No	1739
Date	1/10/2025
Drawn by	JL
Map author	BQ

0 1.5 3
Kilometers

1:96,660 (at A4) GDA 1994 MGA Zone 50

Study area
PNT
Roost sites

Figure 5-7
PNTs recorded during the feld survey

PHOENIX ENVIRONMENTAL SCIENCES

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5.2.1.5.3 Foraging habitat for CC

Foraging HQS for CC are presented in Table 5-8 (Bamford 2021). The study area was within the modelled distribution and breeding range for CC (DAWE 2022); however, the patches of foraging habitat within the study area were small so received a context score of 2. CC have been recorded in the study area on multiple occasions, so a score of one was assigned to abundance, except for moderated habitat types (see section 4.2.2.7). One habitat type, (*Banksia* heath and woodland), was assessed as high quality (score of 8 or more) foraging habitat for CC (Table 5-8).

Table 5-8 CC foraging habitat quality score by habitat type

Habitat type	Extent of study area	Vegetation score (/6)	Context score (/3)	Abundance score (/1)	Total (/10)
Cleared - agriculture	89.8%	1	0*	1	2
Open Jarrah-Marri woodland	3.0%	3	2	1	6
Banksia health and woodland	5.3%	5	2	1	8
Pine plantations	0.7%	2**	1	1	5
Cleared - infrastructure	0.7%	0	0*	0	0
Drainage line and riparian	1.2%	2	1	1	4
Wetlands	<0.1%	0	0*	0	0

*Moderated from 2 to 0 due to low vegetation score

**trees are >30 years old

5.2.1.5.4 Foraging value for FRTBC

Foraging HQS for FRTBC are presented in Table 5-9. The study area occurs just outside the current northern boundary of the species modelled distribution and breeding range (DAWE 2022); however, FRTBC have been recorded within the study area on multiple occasions (Phoenix in prep-b), foraging evidence was present and the species is known to be returning to its former northern range (Garnett & Baker 2021) which encompasses the study area. As such, a score of one was issued to context and a score of one was issued to species abundance. Open Jarrah-Marri woodland was assessed as moderate-quality foraging habitat for FRTBC (Table 5-9).

Table 5-9 FRTBC foraging habitat quality score by habitat type

Habitat type	Extent of study area	Vegetation score (/6)	Context score (/3)	Abundance score (/1)	Total (/10)
Cleared - agriculture	90.8%	1	0*	0	1
Open Jarrah-Marri woodland	1.2%	3	1	1	5
Banksia health and woodland	5.3%	1	1	1	3
Pine plantations	0.7%	0	0*	0	0
Cleared - infrastructure	0.7%	0	0*	0	0
Drainage line and riparian	1.3%	2	1	1	4
Wetlands	<0.1%	0	0*	0	0

*Moderated from 2 to 0 due to low vegetation score

5.2.1.6 Malleefowl habitat assessment

Malleefowl habitat assessments were conducted at 36 sites within the study area (Table 5-10). Thirty-five out of the 36 sites were determined to be moderate (i) suitability (score 4 to 8) for Malleefowl, which is suitable for foraging and dispersal but not for breeding. The habitat attributes of these sites were commonly sand, loam and laterite on a flat/gentle slope which lacked suitable leaf litter abundance, canopy cover, vegetation screening, and/or vegetation assemblages, which are vital for mound construction and refuge from predators. One assessment site (Site26) was of high suitability for Malleefowl. This site had sandy substrate, a gentle slope, leaf litter, and low to high suitability for the remaining habitat variables.

Table 5-10 Malleefowl habitat assessment scores

Site	Habitat variable						Total score	Suitability rating
	Substrate	Slope	Leaf litter	Canopy cover	Veg. screening	Veg. type		
Site25	2	2	1	0	1	1	7	Moderate (i)
Site26	2	2	2	1	1	1	9	High
CBC01	2	2	0	0	0	0	4	Moderate (i)
CBC02	2	2	2	1	1	0	8	Moderate (i)
CBC03	2	2	1	1	1	0	7	Moderate (i)
CBC04	2	2	1	1	1	0	7	Moderate (i)
CBC05	2	2	0	1	0	0	5	Moderate (i)
Opp05	2	2	2	0	0	0	6	Moderate (i)
Site05	2	2	0	2	0	0	6	Moderate (i)
Site07	2	1	0	1	0	0	4	Moderate (i)
Site08	2	2	0	0	0	0	4	Moderate (i)
Site09	2	2	0	0	0	0	4	Moderate (i)
Site11	2	2	2	1	1	0	8	Moderate (i)
Site12	2	2	2	1	1	0	8	Moderate (i)
Site15	2	2	2	0	0	0	6	Moderate (i)
Site16	2	2	1	0	1	1	7	Moderate (i)
Site17	2	2	0	2	1	1	8	Moderate (i)
Site18	1	2	1	1	1	1	7	Moderate (i)
Site21	2	2	1	1	1	1	8	Moderate (i)
Site28	1	2	0	0	0	1	4	Moderate (i)
TL-01	1	2	1	1	1	1	7	Moderate (i)
TL-02	2	2	1	1	0	1	7	Moderate (i)
TL-03	2	2	1	0	1	1	7	Moderate (i)
TL-04	2	2	1	0	1	0	6	Moderate (i)
TL-05	2	1	1	1	1	2	9	Moderate (i)
TL-06	2	2	0	0	0	0	4	Moderate (i)
TL-07	2	2	0	0	0	0	4	Moderate (i)
TL-08	2	2	1	1	0	0	6	Moderate (i)

Site	Habitat variable						Total score	Suitability rating
	Substrate	Slope	Leaf litter	Canopy cover	Veg. screening	Veg. type		
TL-09	2	2	0	0	0	0	4	Moderate (i)
TL-10	2	2	0	0	0	0	4	Moderate (i)
TL-11	2	2	0	0	0	0	4	Moderate (i)
TL-12	2	2	0	0	0	0	4	Moderate (i)
TL-13	2	2	1	1	0	0	6	Moderate (i)
TL-14	2	2	0	0	0	0	4	Moderate (i)
TL-15	2	2	1	1	0	0	6	Moderate (i)
TL-16	2	0	0	1	0	1	4	Moderate (i)

*Suitability rating definitions provided in Section 4.2.2.8.

5.2.2 SRE invertebrates

5.2.2.1 SRE habitats

Three potential SRE habitats were identified within the study area (Table 5-11; Figure 5-8). These habitat types comprised of *Banksia* heath and woodland (5.3%), Open Jarrah-Marri woodland (3.0%), and Drainage line and riparian (1.2%). A further 90.5% of the study area was cleared, highly modified, or permanently inundated. All SRE habitats were considered to have low potential to harbour SREs (Table 5-11; Figure 5-8).

Table 5-11 Extent and description of each SRE habitat in the study area

Habitat type	Site/s	Description	Extent in study area and % of study area	SRE Potential
1. Cleared – agriculture and infrastructure	Site20, Site27, TL-06, TL-07, TL-09, TL-11, Opp06, Opp07, Opp08, Site29	Cleared areas provide no habitat for SREs.	14,206.7 ha 89.8%	None
2. *Banksia* heath and woodland	Site08, Site10, Site14, Site16, Site18, Site21, Site25, TL-04, TL-08, TL-10, TL-12, TL-13, TL-14, Opp01, Opp02, Opp03, Opp04, Opp05, Opp10	May support SREs in suitable microhabitats such as fallen logs and leaf litter.	834 ha 5.3%	Low
3. Open Jarrah-Marri woodland	Site06, Site09, Site11, Site12, Site15, Site26, TL-15, CBC01, CBC02, CBC03, CBC04, CBC05	May support SREs in suitable microhabitats such as fallen logs and leaf litter.	480.1 ha 3.0%	Low
4. Drainage line and riparian	Site07, Site17, Site19, Site28, TL-01, TL-02, TL-03, TL-05, TL-16, Opp09	Drainage line habitat cuts through extensive agricultural areas; thus, the resulting vegetation condition was degraded with the understory mostly removed and overrun by weeds.	195.5 ha 1.2%	Low
5. Pine plantations	Site05	Cleared areas provide no habitat for SREs.	103.3 ha 0.7%	None
6. Wetlands	Site01, Site02, Site03, Site04, Site13	Inundated areas provide no habitat for SREs.	3.4 ha <0.1%	None

5.2.2.2 SRE records

A total of 103 specimens from 22 taxa was collected within the study area (Figure 5-8; Table 5-12), including one pseudoscorpion, 3 scorpions, one harvestman, 4 centipedes, 4 millipedes and 9 isopods. Of these, 13 are Potential SREs, 2 are of Uncertain status and 7 are Widespread species and are not considered SREs.

Of the 22 taxa, 9 had significant divergence from their closest matches on GenBank and/or the Phoenix database and are considered a new species:

- Armadillidae `Phoenix0390` - collected at one site (TL-03) in Drainage line and riparian habitat
- *Austrochthonius* 'Ma01' – collected at 2 sites (Site19, TL-04) site in Drainage line and riparian, and *Banksia* heath and woodland habitat
- *Ballarra* `Phoenix0387` - collected at one site (TL-13) in *Banksia* heath and woodland habitat
- *Buddelundia* `Phoenix0388` - collected at one site (TL-15) in Open Jarrah-Marri woodland habitat
- Iulomorphidae 'Phoenix0384' – collected at 2 sites (Site21, TL-13) in *Banksia* heath and woodland habitat
- *Laevophiloscia* `Phoenix0389` - collected at 3 sites (TL-01, TL-04, TL-15) in Drainage line and riparian, *Banksia* heath and woodland and Open Jarrah-Marri woodland habitat
- Mecistocephalidae 'Phoenix0385' – collected at one site (Site21) in *Banksia* heath and woodland habitat
- *Sepedonophilus* `Phoenix0383` - collected at one site (TL-13) in *Banksia* heath and woodland habitat
- *Spherillo* 'Phoenix0386' – collected at 2 sites (Site16) in *Banksia* heath and woodland habitat

All new species were recorded in low Potential SRE habitat.

In addition to the new species, 5 taxa were collected during the survey that were not identified in the desktop review: Platyarthridae '4', *Antichiropus* 'DIP079', *Ommatoiulus moreletii* (an introduced species), *Geophilomorpha* sp. indet. and Henicopidae `sp. voucher NZ796_2023`.

No Threatened or Priority SRE taxa identified in the desktop review (section 5.1.2) were recorded in the survey. All the Threatened/Priority mygalomorph spiders from the desktop review are considered unlikely to occur in the study area as it is outside their known distributions (Table 5-13).

The land snail *Bothriembryon perobesus* (P1, Widespread) from the desktop review was not recollected in the survey. While there is potential for it to be present in the study area, the species has a Widespread distribution and therefore is beyond the scope of this survey.

While not part of the survey scope, likelihood of occurrence was also assessed for the 5 additional Threatened/Priority invertebrate species that are not from SRE target groups (Table 5-13). The katydid (*Throscodectes xederoides*) and the moth (*Synemon gratiosa*) are unlikely to occur as the study area is outside the current range for these species. The 2 bees (*Hylaeus globuliferus* and *Leioproctus contrarius*) may possibly occur but are both Widespread species.

The mussel (*Westralunio carteri*) has previously been recorded within the study area in 1971 and may still occur along Moore River (Figure 5-4). Other drainage lines in the study area are likely too degraded for this species.

Table 5-12 Specimens from SRE groups recorded in the field survey - rows highlighted grey represent previously unknown taxa

Higher order / family	Taxa	Site/s	Habitat/s	No. Specimens	SRE Status/ significance	Comments
Class Arachnida, Order Pseudoscorpions						
Chthoniidae	*Austrochthonius* 'Ma01'	Site19, TL-04	2, 4	2	Potential	This specimen is **12.8-13.7%** divergent from any species in the analysis and is thus a new species. In the absence of a clear match, it is considered a Potential SRE. Recorded outside and inside the study area.
Class Arachnida, Order Scorpiones						
Bothriuridae	*Cercophonius granulosus*	Site16, TL-13	2	6	Widespread	Molecular sequencing revealed these specimens are conspecific with *Cercophonius granulosus*.
Buthidae	*Lychas* 'austroccidentalis'	Site16	2	1	Widespread	This specimen is **0.3-6.3%** divergent with *Lychas* 'austroccidentalis', which is widespread in the SW of WA.
Urodacidae	*Urodacus* `SCO007, bullsbrook`	Site16	2	1	Potential	This specimen is **0.2-0.6%** divergent from *Urodacus* 'bullsbrook'. Currently known only from areas in WA around Lancelin and in the Bullsbrook area. Appears to require deep, pale, sandy soils. Patchy area of occupancy is likely to still make this a Potential SRE.
Class Arachnid, Order Opiliones						
Neopilionidae	*Ballarra* `Phoenix0387`	TL-13	2	1	Potential	This specimen is **11%** divergent from any species in the analysis and is thus considered a new species. Potential SRE owing to data deficiency. Recorded inside the study area.
Class Chilopoda, Order Geophilomorpha (soil centipede)						
-	*Geophilomorpha* sp. indet.	TL-03	4	1	Uncertain	Genetics failed. Group known to include SRE taxa, classified as Uncertain SRE.
Mecistocephalidae	Mecistocephalidae `Phoenix0385`	Site21	2	1	Potential	No matches therefore considered new species. Potential SRE owing to data deficiency. Distribution unknown. Recorded inside the study area.
Chilenophilidae	*Sepedonophilus* `Phoenix0383`	TL-13	2	1	Potential	This specimen is **15.1%** divergent from any species in the analysis and is thus considered a new species. Potential

Higher order / family	Taxa	Site/s	Habitat/s	No. Specimens	SRE Status/ significance	Comments
						SRE owing to data deficiency. Recorded inside the study area.
Class Chilopoda, Order Lithobiomorpha						
Henicopidae	Henicopidae `sp. voucher NZ796_2023`	TL-01, TL-13	2, 4	7	Widespread	Conspecific with taxa also known from New Zealand. Widespread species.
Class Diplopoda (millipedes)						
Julidae	*Ommatoiulus moreleti*	Site18, CBC04, TL-04, TL-13, TL-15	2, 3	29	Widespread	Introduced species. Native to the western Iberian Peninsula but now widespread in southwest WA.
Paradoxosomatidae	*Antichiropus whistleri*	Site26, Site08, Site11, Site14, Site16, Site17, Site21, Site25, TL-15	2, 3, 4	11	Widespread	Occurs from north of the Swan River up to Green Head in WA.
Paradoxosomatidae	*Antichiropus* 'DIP079'	Site11	3	1	Widespread	Occurs on the Swan Coastal Plain and the coastal band of the Wheatbelt and Geraldton Sandplain.
Iulomorphidae	Iulomorphidae `Phoenix0384`	Site21, TL-13	2	5	Potential	No matches thus considered new species. Potential SRE owing to data deficiency. Distribution unknown. Recorded inside the study area.
Order Isopoda (isopods)						
Armadillidae	Armadillidae `Phoenix0390`	TL-03	4	1	Potential	This specimen is **17.5%** divergent from any species in the analysis and is thus considered a new species. Potential SRE owing to data deficiency. Distribution unknown. Recorded inside the study area.
	Armadillidae`sp. indet`	TL-01, TL-02	4	8	Uncertain	Genetics failed. Group known to include SRE taxa, classified as Uncertain SRE.
	Buddelundia `Phoenix0388`	TL-15	3	1	Potential	This specimen is **16.4%** divergent from any species in the analysis and is thus considered a new species. Potential SRE owing to data deficiency. Distribution unknown. Recorded inside the study area.

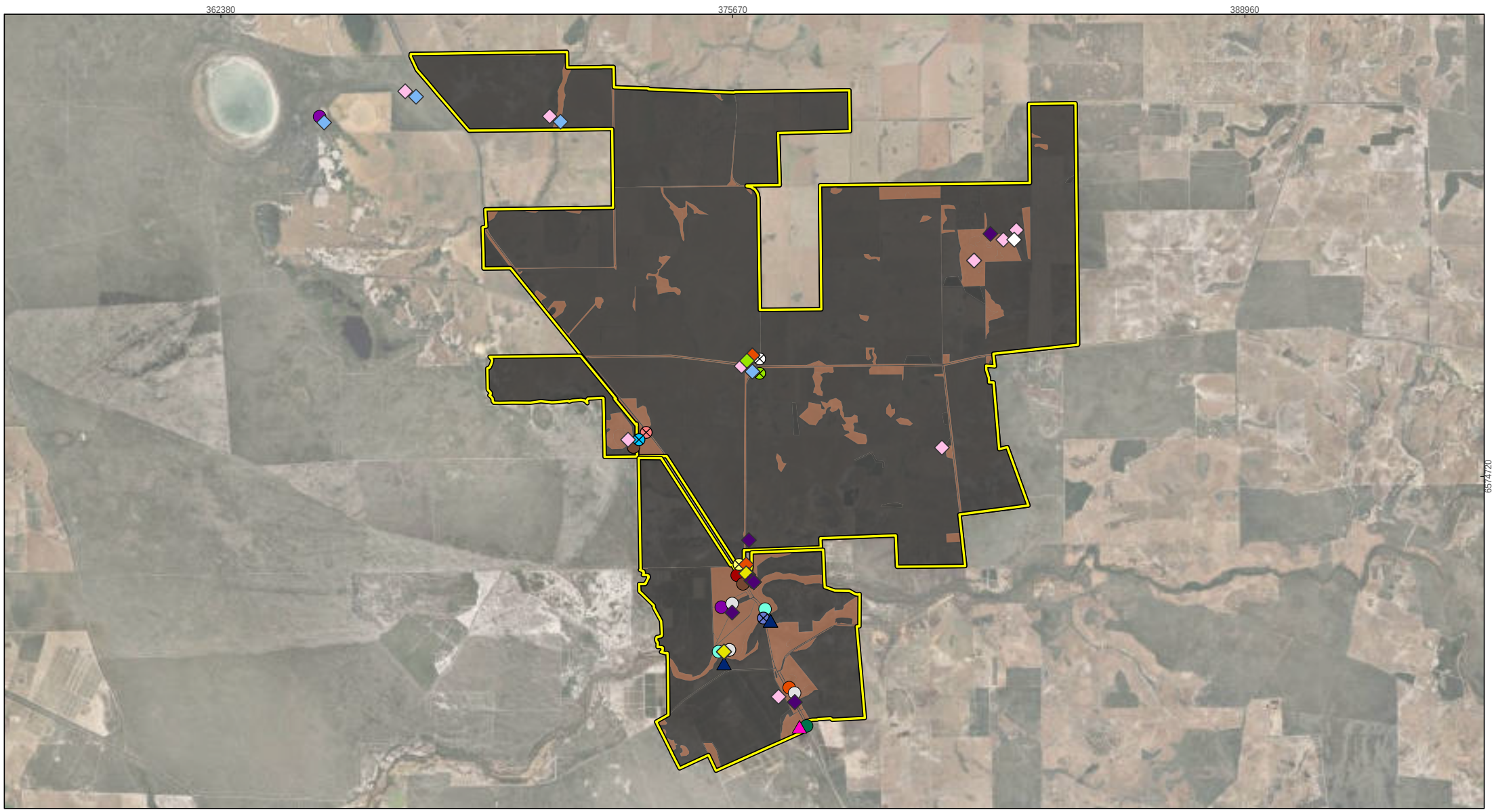
Higher order / family	Taxa	Site/s	Habitat/s	No. Specimens	SRE Status/ significance	Comments
	Spherillo `Phoenix0386`	Site16	2	1	Potential	No matches thus considered new species. Potential SRE owing to data deficiency. Distribution unknown. Recorded inside the study area.
Oniscidae	*Hanoniscus monodi*	TL-01, TL-02	4	5	Potential	Morphologically identified as *Hanoniscus monodi*. Potential SRE. Recorded inside the study area.
Philosciidae	*Laevophiloscia* '2'	Site14, Site16, Site17, Site19	2, 4	8	Widespread	Widespread in southwest WA.
	Laevophiloscia `Phoenix0389`	TL-01, TL-04, TL-15	4	9	Potential	This specimen is **18.3%** divergent from any species in the analysis and is thus considered a new species. Potential SRE owing to data deficiency. Distribution unknown. Recorded inside the study area.
Platyarthridae	Platyarthridae '4'	Site21	2	1	Potential	Potential SRE owing to data deficiency. Distribution unknown. Recorded inside the study area.
Styloniscidae	*Styloniscus* '1'	TL-02	4	2	Potential	Morphologically identified. Potential SRE as this taxa is a known species complex. Recorded inside the study area.

Table 5-13 Likelihood of occurrence for significant invertebrate fauna identified in the desktop review

Species	Status	Proximity to study area (km)	Habitat/ distribution	Likelihood of occurrence	Comment
Bee (2)					
Hylaeus globuliferus Woolybush Bee	P3, Widespread	8.0 SW	Known from north of Eneabba through to the southern Wheatbelt and the Swan Coastal plain, and along the south coast to Fitzgerald National Park. Associated with *Adenanthos cygnorum* and *Banksia attenuata*. All records in the desktop area are historical.	Possible	Within current known range, suitable habitat present, no recent records within the desktop extent. Species has a widespread distribution and very limited habitat in study area, therefore not of concern for the Proposal.
Leioproctus contrarius Short-tongued Bee	P3, Widespread	5.1 S	Known from Geraldton, Moore River, Melville, Forrestdale, Bullsbrook, Armadale, Gingin and Wanneroo. Associated with woodland and shrubland habitat on the coastal plain.	Possible	Within current known range, suitable habitat present, no recent records within the desktop extent. Species has a widespread distribution and very limited habitat in study area, therefore not of concern for the Proposal.
Katydid (1)					
Throscodectes xederoides Northern Throsco	P3, Potential, data deficient	15.4 E	Known from New Norcia and Mogumber. Associated with heath and grassland.	Unlikely	Outside current known range, no suitable habitat present, No recent records within the desktop extent.
Moth (1)					
Synemon gratiosa Graceful Sun Moth	P4, Widespread	27.2 W	Known to occur within the Swan, Southwest and Midwest regions, from Namburg National Park in the north to Mandurah in the south. Associated with coastal heathland on secondary Quindalup dunes with *Lomandra maritima*, and *Banksia* woodland on Spearwood and Bassendean dunes where *L. hermaphrodita* is present.	Unlikely	Outside current known range.
Mussel (1)					

Species	Status	Proximity to study area (km)	Habitat/ distribution	Likelihood of occurrence	Comment
Westralunio carteri Carter's Freshwater Muscle	VU, Widespread	Within study area	Known to occur in freshwater rivers and lakes between Moore River and Waychinicup River. Prefers slow flowing water where sediments are stable and soft enough to allow burrowing but may also occur in lentic systems including supply dams and on-stream farm dams.	Recorded (desktop only), Likely occurrence	On northern boundary of known distribution. Suitable habitat in Moore River. No recent records within search extent.
Mygalomorph spider (8)					
Euoplos inornatus	P3, Potential	72.7 km SE	Known to occur between Muchea in the north and Boddington in the south. Occurs in open Jarrah and Marri woodlands.	Unlikely	Outside current known range. Mygalomorph spiders targeted in SRE survey.
Idiosoma dandaragan	P2, Confirmed	23.5 km NE	Occurs along the easter margin of the Dandaragan Plateau, from New Norcia in the south to Watheroo National Park in the north.	Unlikely	Outside current known range. Mygalomorph spiders targeted in SRE survey.
Idiosoma gardneri	P2, Confirmed	85.7 km NW	Only known from Lesueur National Park in the southern Geraldton Sandplain bioregion.	Unlikely	Outside current known range. Mygalomorph spiders targeted in SRE survey.
Idiosoma kwongan	P1, Potential	86.3 km NW	Occurs from Eneabba south to Green Head and the Lesueur National Park.	Unlikely	Outside current known range. Mygalomorph spiders targeted in SRE survey.
Idiosoma mcclementsorum	P2, Confirmed	24.7 km E	Occurs from Chittering Lakes, Julimar and Tooday north to Gillingarra.	Unlikely	Outside current known range. Mygalomorph spiders targeted in SRE survey.
Idiosoma nigrum	EN/VU, Confirmed	52.6 km NE	Inhabits clay soils of eucalypt woodland and Acacia vegetation. Range corresponds to the polycgon demanrcated by Bolgart, New Norcia, Walebing and Bindi Bindi along the west, to Koorda along the north and Durokoppin and Kellerberrin along the east.	Unlikely	Outside current known range. Mygalomorph spiders targeted in SRE survey.
Idiosoma schoknechtorum	P3, Confirmed	82.4 km SE	Occurs from near Toodyay, Wongamine Nature Reserve and Meckering in the north to Jarrahdale and Westdale in the south.	Unlikely	Outside current known range. Mygalomorph spiders targeted in SRE survey.
Idiosoma sigillatum	P3, Potential	29.4 km SW	Occurs from Dalyellup north to Ledge Point and east to Gingin to Boyanup.	Unlikely	Outside current known range. Mygalomorph spiders targeted in SRE survey.

Species	Status	Proximity to study area (km)	Habitat/ distribution	Likelihood of occurrence	Comment
Snail (1)					
Bothriembryon perobesus	P1, Widespread	Within study area	Collected from *Banksia* woodlands and low shrublands on white sandy soils.	Recorded (desktop only), Possible occurrence	Within distribution. The species is not restricted to the study area and has a Widespread distribution. Old desktop record only. Land snails targeted in SRE survey and species was not recollected though it may occur due to presence of suitable habitat.



Alinta Energy
Marri Wind Farm Project

Project No	1739
Date	30/09/2025
Drawn by	JL
Map author	BQ

0 2.5 5
Kilometers

1:133,000 (at A4) GDA 1994 MGA Zone 50

P:\Data\Projects\Dandaragan Wind Farm\1739-DAN-AUR-FAUNA\GIS\Mapping\MapDocuments\Figures\1739maps\1739maps.aprx

Study area

SRE habitat rating
- Low
- None

Potential
- Armadillidae `Phoenix0390`
- *Austrochthonius* 'Ma01'
- *Ballarra* `Phoenix0387`
- *Buddelundia* `Phoenix0388`
- *Hanoniscus monodi*
- Iulomorphidae `Phoenix0384`
- *Laevophiloscia* `Phoenix0389`
- Mecistocephalidae `Phoenix0385`
- Platyarthridae '4'
- *Sepedonophilus* `Phoenix0383`
- *Spherillo* `Phoenix0386`
- *Styloniscus* '1'
- *Urodacus* 'bullsbrook'

Uncertain
- Armadillidae sp. indet.
- Geophilomorpha sp. indet.

Widespread
- *Antichiropus whistleri*
- *Cercophonius granulosus*
- Henicopidae `sp. voucher NZ796_2023`
- *Laevophiloscia* '2'
- *Lychas* 'austroccidentalis'
- *Ommatoiulus moreleti*
- *Antichiropus* 'DIP079'

Figure 5-8

SRE habitats and recorded SRE taxa

PHOENIX ENVIRONMENTAL SCIENCES

5.3 SURVEY LIMITATIONS

The limitations of the terrestrial fauna survey have been considered in accordance with EPA (EPA 2020) (Table 5-14).

Table 5-14 Consideration of potential survey limitations

Limitations	Limitation	Comments
Availability of contextual information at a regional and local scale	Partial	Database searches within the vicinity of the Proposal area provided a comprehensive species list for the region; however, records are mostly historical. Limited recent terrestrial fauna reports were available within the desktop review area.
Competency/experience of the team carrying out the survey	No	The survey team have extensive experience conducting fauna surveys in the Midwest region of WA.
Scope and completeness	No	The scope was sufficient for the size of the study area and the fauna habitats present, and the basic and targeted fauna survey is considered complete. Due to time constraints, ultrasonic bat recorders were deployed at TL-03 for only 2 nights during trip 2. However, this is not considered a limitation given the overall high survey effort undertaken for the Proposal for the BBUS (Phoenix in prep-a). Not all PNTs were recorded during the survey, as this was outside the scope of works for the basic and targeted terrestrial fauna survey (see section 1.1). Limitations to the PNT survey are outlined in Phoenix (in prep-b). Further monitoring is required for the BBUS; a further 3 bird-bat monitoring surveys are planned over the next year.
Proportion of flora and fauna recorded and/or collected, any identification issues	No	The fauna survey is considered adequate for a basic and targeted survey.
Access within the study area	Partial	The basic terrestrial fauna survey of the MWF was completed over 2 trips to ensure that all parts of the study area were accessible. The exclusion zones in Figure 1-1 were not surveyed, but Proposal related infrastructure will not be developed in these areas. Access to landholder properties within the TX footprint was restricted. However, all fauna habitat types present within the TX footprint could be sampled so in terms of the basic scope, this is not considered a limitation. Not all PNTs were recorded during the survey, as this was outside the scope of works for the basic and targeted terrestrial fauna survey (see section 1.1). Limitations to the PNT survey are outlined in Phoenix (in prep-b).
Timing, rainfall, season	No	The basic surveys were conducted during the optimal timing for amphibians (May-Aug) and SREs (May-Oct) and just shy of the optimal time for reptiles (spring) and birds. A further 3 bird-bat monitoring surveys are planned over the next 2 years to ensure this is not a limitation for the windfarm impact assessment. The weather conditions during all basic surveys were relatively warm and sunny, ensuring the survey of reptiles was not a

Limitations	Limitation	Comments
		limitation. There is no optimal survey timing for mammals (EPA 2016b, 2020). There are no seasonality or rainfall requirements for the completion of a PNT survey. However, to confirm if black cockatoos are utilising hollows, hollow checks will need to be completed within the breeding season.
Disturbance that may have affected the results of the survey	No	No disturbances occurred which could have significantly affected the results of the survey.

6 DISCUSSION

6.1 VERTEBRATE FAUNA

6.1.1 Habitats

The study area is mainly cleared farmland of little value to native fauna. The limited extent and fragmented nature of native habitats in the study area (comprising just 9.5% occurring as small patches in paddocks and roadside vegetation) is typical of agricultural areas in the Dandaragan Plateau subregion, within which the study area mainly occurs. The resulting assemblage of native fauna occupying the study area are therefore those that are able to survive despite habitat modification or are able to persist in small remnant patches of native vegetation.

The remnant roadside habitats, while narrow, still fulfill a role in promoting biodiversity in a highly cleared landscape, providing temporary and/or permanent refuge for native fauna and movement corridors between isolated remnants. Isolated remnant trees in paddocks may provide similar benefits (e.g. for birds).

6.1.2 Significant species

The desktop review identified that 85 conservation significant vertebrates occur in the desktop search extent, 8 of which have been recorded within the study area. During the field surveys, 2 Threatened species (CC and FRTBC) were recorded within the study area, and one Priority species (Blue-billed Duck) was recorded within ~5 km of the study area. Evidence of 3 introduced predators (Fox, Cat and Dog) were recorded during the survey at several sites.

6.1.2.1 CC and FRTBC (VU, Recorded)

During the surveys, CC was recorded on 16 occasions at 13 sites in *Banksia* heath and woodland, Open Jarrah-Marri woodland, Drainage line and riparian habitats and Wetland habitat. Of these sites, 9 were located within the study area (Opp05, Opp03, Opp10, Site17, Site21, Site18, CBC03, CBC04, TL-13) and 4 were located outside the study area (Opp01, Opp02, Site14, Site19). The occurrence of CC is consistent with their known distribution at a local and regional scale.

Most of the study area (90.5%) was assessed as providing low foraging value for CC as it consisted mainly of canola crop, which is a short-term seasonal food source, and sparsely scattered Marri. High quality foraging habitat was restricted to *Banksia* heath and woodland habitat. The remaining habitat types were assessed as having moderate foraging value to CC. Even though most of the study area received a low foraging value score, it is likely that CC and FRTBC will traverse lower scoring habitats to access higher value foraging areas within the study area and in the surrounding region. High value foraging areas for black cockatoos in the surrounding region include the extensive *Banksia* woodland and heathland habitat to the west of the study area, the wooded watercourses along Moore River and potentially the pine plantations scattered around the study area. Areas cleared for infrastructure and wetlands contained no known foraging plants for either species, so received a HQS of zero, although Wetlands may provide drinking habitat.

During the surveys, foraging evidence of FRTBC was recorded within the study area in Open Jarrah-Marri woodland habitat. Additionally, sightings of the species were made during the BBUS, and targeted black cockatoo works conducted for the Proposal (Phoenix in prep-a, b). The study area is located on the northern edge of the foraging distribution for FRTBC, but their distribution is known to be expanding northwards (Garnett & Baker 2021). This movement has been attributed to the scarcity

of foraging resources in the forest and a resulting adaption to new food sources in the northern extent of the Swan Coastal Plain (Garnett & Baker 2021).

Most of the study area (97.5%) was considered low value foraging habitat for FRTBC. Unlike CC, canola crop is not known to be a food source for FRTBC, thus a reduced score of one was allocated to agricultural habitat. Open Jarrah-Marri woodland, *Banksia* heath and woodland and Drainage line and riparian habitat was considered to have moderate foraging value to FRTBC as they contained suitable foraging species, but in reduced densities. Unlike CC, FRTBC are not known to forage on pine plantations so a HQS of zero was allocated to this habitat. Areas cleared for infrastructure and wetlands contained no known foraging plants for either species, so accordingly received a HQS of zero, although Wetlands may provide drinking habitat.

While narrow, roadside vegetation fulfills an important role in maintaining connectivity in a highly cleared landscape, providing foraging habitat for black cockatoos but also movement corridors between breeding habitat, night roosting habitat and foraging resources (DAWE 2022).

The desktop review identified that 25 confirmed and 10 potential breeding trees for black cockatoos are located within 5 km of the study area. Black cockatoos are known to forage in areas up to 12 km from their nest during the breeding season (DAWE 2022); therefore, if the known breeding trees are utilised during the breeding season, it is likely that breeding individuals will forage within the study area.

Both CC and FRTBC have been recorded roosting along Moore River within the study area. Further discussion of the significance of roosting and breeding habitat for CC and FRTBC is discussed in Phoenix (in prep-b).

6.1.2.2 Blue-billed Duck (P4, Recorded)

Blue-billed Duck is almost wholly aquatic, forming large flocks in winter and autumn on large, open freshwater dams and lakes surrounded by dense vegetation. They may also be found in large rivers and saline waterbodies.

Four Blue-billed Ducks was recorded over 2 occasions during the survey at one site (Site13) located approximately 5 km west of the study area. The species has also been recorded within the study area in 1977 (note this record has an error margin of up to 18 km). The occurrence of Blue-billed Duck is consistent with its known distribution. Although the study area does not include any large deep waterbodies suitable for breeding, it is possible that the species may visit the smaller wetlands within the study area to forage, or flyover in search of more suitable wetlands, such as those 5 km to the west of the study area.

6.1.2.3 Migratory shorebirds (Recorded – desktop records only)

Desktop records of 4 Migratory birds exist inside the study area: Curlew Sandpiper (*Calidris ferruginea*; CR/Mig.), Red-necked Stint (*Calidris ruficollis*; Mig.), Wood Sandpiper (*Tringa glareola*; Mig.) and Common Greenshank (*Tringa nebularia*; EN/Mig.).

Curlew Sandpiper and Common Greenshank are generally found in coastal habitat but are also known to occur on inland lakes, dams or other waterbodies. Red-necked Stints also prefer coastal areas but may be found in flooded paddocks. Wood Sandpipers prefer well-vegetated shallow freshwater wetlands such as swamps, billabongs, lakes and other waterbodies.

Within the study area, all 4 species have previously been recorded at a site located in an area cleared for agriculture. These records were noted having an error margin of up to 18 km (DBCA 2024b), therefore it is considered unlikely that these species were recorded at this precise location, but were instead made in the general area. Additional records of Common Greenshank have been made at a

small wetland located in the western portion of the study area on multiple occasions. In the desktop area, these migratory birds have generally been recorded in or around wetlands, drainage lines, or along the coast, but also less frequently in cleared areas where they may be flying over to more suitable habitat.

It is possible that wetlands in the study area may be used opportunistically by small numbers of Migratory birds during their time in Australia.

6.1.2.4 Western Brush Wallaby (P4, Recorded)

The Western Brush Wallaby is distributed across the south-west of WA from north of Kalbarri to Cape Arid. The species prefers open woodland or forest, open seasonally wet flats with low grasses and open scrubby thickets. It is also found in Mallee and heathland (DEC 2012d).

The desktop revealed that the species has been recorded in similar habitats within the study area near Moore River. Records outside the study area are generally concentrated in the west where suitable habitats are more extensive and continuous. The species is seen regularly around Cooljarloo Mine (located ~26.4 km northwest of the study area), particularly since feral fox control was implicated (Bamford 2015). Due to the proximity of records and presence of suitable habitat, it is possible the species may occur as occasional foraging visitors or to disperse but are unlikely to reside in the study area as their preferred habitat is highly restricted with the threat of feral predators high.

6.1.2.5 Chuditch (VU, Recorded)

The National Recovery Plan for Chuditch (DEC 2012b) defines habitat critical to the survival of important populations of the species as:

- areas currently occupied by Chuditch
- areas of natural vegetation in which Chuditch breed
- areas of natural vegetation in which Chuditch forage
- areas of natural vegetation that Chuditch use to move from one area to another
- areas of suitable vegetation within the recorded range in which undiscovered Chuditch populations may exist
- areas not currently occupied by Chuditch due to recent fire but are capable of supporting Chuditch populations when sufficiently recovered and
- areas previously occupied and that still provide suitable habitat into which Chuditch can be reintroduced.

The study area occurs on the northern extent of current known distribution of Chuditch (DEC 2012b), which is more commonly found south of the study area. No evidence of the species was recorded during the survey and records in the desktop review area were sparse and infrequent, with only 3 documented occurrences. These include a record of a carcass found within the study area near Moore River in 2001 and a record from 1987 located 600 m north of the study area. The scarcity of records may be attributed to limited survey efforts in the region coupled with the difficulty in detecting Chuditch as they naturally occur in low densities.

Due to the proximity of these records in the desktop, it is considered possible that the species may transit or forage within the study area; however, it is evident that native habitats are highly fragmented and restricted within the study area. Additionally, the evidence of introduced predators recorded during the survey would make it difficult for the species to persist. The limited evidence recorded in and around the study area suggests that there is not a permanent, resident population in

the study area but rather only likely to be infrequent dispersing individuals moving through. These individuals may use the study area for foraging and dispersal, and may utilise large, hollow logs, and tree hollows in the woodland and drainage line habitat for refuge.

6.1.2.6 Peregrine Falcon (OS, Likely)

No evidence of Peregrine Falcon was recorded during the survey. Peregrine Falcons are widespread yet rare and have large foraging ranges. The species has been recently recorded in the desktop review area, thus are considered likely to occasionally forage within and around the study area. Peregrine Falcons may nest in drainage lines or in suitable tall trees where old raptor or corvid nests are present.

6.1.2.7 Black-striped Snake (P3, Likely)

The Black-striped Snake is known from Perth to Lancelin with an outlying population near Port Denison. The species prefers heathland habitats near the coast, as well as *Banksia* woodlands further inland (He 2021).

The desktop identified that the species has been recorded within 10.7 km of the study area. The most recent record was made in 2015 located 18 km away in drainage line similar to that which occurs inside the study area. The species was not recorded within the study area; however, due to the occurrence of records in the desktop area and the presence of soft calcareous sand and *Banksia* sp. in open woodland and shrubland habitats in the study area, it is considered likely to occur.

6.1.2.8 Malleefowl (VU, Possible)

The presence of introduced predator species (Fox, Cat and Dog), coupled with the highly fragmented condition of the study area would make it difficult for species like Malleefowl to persist in the study area, as they are predominantly ground dwelling birds and require adequate vegetation cover to avoid predators (DCCEEW 2024a). Regardless, it cannot be ruled out that Malleefowl may forage or disperse in native vegetation present in the study area. It is also possible that Malleefowl may transit cleared or agricultural areas, particularly when crops are established enough to provide horizontal cover from predators, though it provides limited foraging opportunity or vertical cover to protect them from larger birds of prey.

6.2 SRE INVERTEBRATE FAUNA

6.2.1 Habitats

Three SRE habitat types were identified within the study area, including *Banksia* heath and woodland (834 ha; 5.3%), Open Jarrah-Marri woodland (480.1 ha; 3%), and Drainage line and riparian (195.5 ha; 1.2%).

Generally, drainage line habitat type is considered to be of high value to SREs as it occurs in low lying areas which receives water runoff, resulting in a higher incidence of moisture and usually denser vegetation. However, the drainage lines in the study area cut through an extensive agricultural area, resulting in degraded vegetation condition with the understorey mostly removed and overrun by weeds, and water affected by an influx of nutrient runoff from agricultural activities (eg. fertilisers or livestock manure) along the drainage line. As such, drainage line habitat was downgraded to low potential to harbour SREs. Riparian habitat, which was present around 2 small wetlands within the study area, one located on the western boundary of the study area and the other in the southern portion of the TX footprint, may be of higher value to SREs; however, the wetlands were either in the

exclusion zone (Figure 1-1), which will not be impacted by the Proposal, or extended outside the study area.

Banksia heath and woodland and Open Jarrah-Marri woodland habitats, although restricted in the study area, occur broadly across the Dandaragan Plateau subregion, particularly to the west and east of the study area. Consequently, these habitat types were considered to have low potential to harbour SREs but may still support SREs in suitable microhabitats if present; for example, woodlands tend to have extensive leaf litter and an abundance of fallen logs, which are likely to support a diverse assemblage of invertebrates. Similarly, the condition of these habitats varied from excellent to degraded, depending on the accessibility of livestock and/or level of historic clearing for agricultural purposes.

None of the SRE habitats were found to be restricted within the study area; all extend outside the study area and/or occur in the greater region.

6.2.2 SRE records

The desktop review identified a total of 27 Confirmed and 106 Potential SRE invertebrate taxa within 100 km of the study area. Records are generally concentrated around the Perth metropolitan area, likely due to accessibility, and proximity of urban development where surveys were likely to have been conducted for environmental approvals. To the north of the city, records are generally located in patches of remnant native vegetation or around mining developments.

The majority of Potential SRE records in the desktop review area are data deficient i.e. most are morphospecies or indeterminate species which have poorly resolved taxonomy and knowledge of their biology is lacking. Indeterminate and morphospecies may represent females, juveniles, damaged specimens, or specimens that have been identified as a new species via molecular techniques. Molecular identification is limited by the availability of reference sequences, reference sequences not always being publicly available, and poorly understood genetic relationships, often resulting in a potentially novel species. Many of the described taxa are known from only a few but widespread locations.

The survey results indicate that the study area supports a low diversity of invertebrate fauna from groups containing SRE members (22 taxa recorded), which included 7 Widespread ,13 Potential and 2 Uncertain SRE taxa. The assemblage was comprised of pseudoscorpions, scorpions, harvestman, centipedes, millipedes and isopods.

Of the 22 taxa recorded, 5 were collected during the survey that were not identified in the desktop review and 9 had no genetic or morphological matches and were considered new species that are data deficient, indicating this local region has been poorly surveyed for SREs. Of the new species, 8 taxa are only known from the study area: *Ballarra* `Phoenix0387`, *Sepedonophilus* `Phoenix0383`, Iulomorphidae 'Phoenix0384', Mecistocephalidae 'Phoenix0385', Armadillidae `Phoenix0390`, *Buddelundia* `Phoenix0388`, *Laevophiloscia* `Phoenix0389` and *Spherillo* 'Phoenix0298'. Given all taxa were recorded in habitat types that are widespread in the Dandaragan Plateau subregion (Open Jarrah-Marri woodland or *Banksia* heath and woodland), it is highly likely that they are represented outside the study area, although the distribution of each is difficult to predict as little taxonomic comparison is available for each group.

6.2.2.1 Pseudoscorpions

There is very little taxonomic understanding of most pseudoscorpions in WA, with subtle differences in morphology making morphological comparisons difficult. Until recently, most species were placed in complexes, groups of animals that are morphologically similar, however, molecular studies have

shown that they do not share a similar genetic code. Sequencing has not been common practice until recently, therefore there are few comparable sequences.

- *Austrochthonius* 'Ma01' – collected from 2 sites, one in riparian and *Banksia* heath and the other in woodland habitat. The closest relative to this specimen is 12.8-13.7% divergent. In the absence of a clear match this is a Potential SRE.

6.2.2.2 Scorpions

The genus *Urodacus* is endemic to mainland Australia, where it represents the largest radiation of scorpions on the continent (Koch 1977). Most species in this group live in deep burrows, which has enabled them to successfully persist in arid ecosystems (Buzatto *et al.* 2023).

- *Urodacus* `SCO007, bullsbrook` - collected from one site in *Banksia* heath and woodland habitat (low Potential SRE habitat). This species is currently only known from areas in WA around Lancelin and in the Bullsbrook area and appears to require deep, pale sandy soils. Given the proximity of the study area to Lancelin records and the presence of suitable soil types, it is not surprising that this species was recorded. Patchy occupancy is likely to still make this a Potential SRE owing to its soil requirements.

6.2.2.3 Harvestman

Harvestmen are one of the largest orders within the Arachnid class. The Neopilionidae family has a Gondwanan distribution with species found in Australia, South Africa and South America.

- *Ballarra* `Phoenix0387` - collected from one site in *Banksia* heath and woodland habitat (low potential SRE habitat). This specimen was 11% divergent from any species in the analysis and was thus considered a new species. Considered Potential SRE due to data deficiency.

6.2.2.4 Soil centipedes

Soil centipedes (Geophilomorpha) are infrequently collected from arid areas and are taxonomically very poorly understood. Because not much molecular data is available for comparison, distributions of species in this SRE group are not well understood, but they are believed to be SREs. No soil centipedes were recorded in the desktop review that were identified to a level higher than family. Two soil centipedes were collected during the field survey that are Potential SREs:

- Mecistocephalidae 'Phoenix0385' and *Sepedonophilus* `Phoenix0383 – both collected from one site in *Banksia* heath and woodland habitat (low potential SRE habitat). These species did not match to any other available molecular sequence, thus was considered new species. Both considered Potential SRE due to data deficiency.

6.2.2.5 Millipedes

Millipedes lack the waxy cuticle that protects other arthropods from desiccation and are reliant on moist environments for survival (Harvey 2002).

- Iulomorphidae 'Phoenix0384' – recorded from one site in *Banksia* heath and woodland habitat (low Potential SRE habitat). No taxa from this family were identified in the desktop review. No other taxa from the Iulomorphidae family were identified in the desktop review. This specimen did not match any other available molecular sequence, thus was considered a new species. Considered Potential SRE due to data deficiency.

6.2.2.6 Isopods

Isopods are commonly collected, however in arid areas they are usually in low numbers as they often rely on mesic habitats (Judd & Horwitz 2003). As Isopods have specific habitat requirements and poor dispersal capabilities they are often SREs (Judd 2004; Judd & Horwitz 2003).

- Armadillidae `Phoenix0390` - recorded from one site in riparian habitat. The specimen could not be identified to genus using molecular techniques so remains at family level identification. May represent a new genus. Considered Potential SRE owing to data deficiency.
- *Buddelundia* `Phoenix0388` - recorded from one site in Open Jarrah-Marri woodland habitat. This specimen did not match any other available molecular sequence and was considered a new species. Considered Potential SRE owing to data deficiency.
- *Spherillo* 'Phoenix0386' – recorded from one site in Shrubland habitat (low Potential SRE habitat). One other taxa from this genus was identified from the desktop review, *Spherillo* `sp. 2 (Judd 2002)`, which is only known from the Perth metropolitan region, thus is unlikely to be conspecific. This specimen did not match any other available molecular sequence, therefore is considered a new species. Considered Potential SRE owing to data deficiency.
- *Hanoniscus monodi* – this species was recorded in Drainage line habitat within the study area but is also known from Geraldton and Toodyay. Desktop records indicate the species may be associated with creeks and wetlands. May be a species complex and therefore considered Potential SRE owing to taxonomic data deficiency.
- *Laevophiloscia* `Phoenix0389` - recorded from 3 sites from all SRE habitat types within the study area, indicating the species does not have a strong association with any habitat type. Considered a Potential SRE owing to data deficiency.
- Platyarthridae '4' – recorded from one site in *Banksia* heath and woodland habitat (low Potential SRE habitat). The species is also known from Bundarra Nature Reserve, Mount Byroomanning and White Horse Hill (Judd 2004). Although these records are a considerable distance apart, it is unclear if these populations are connected or isolated, thus the taxa is conservatively considered a Potential SRE owing to data deficiency.
- *Styloniscus* '1' – recorded from Drainage line habitat. This species was morphologically identified as *Styloniscus* '1', which is a known species complex, thus was considered a Potential SRE owing to taxonomic data deficiency.

6.3 CONCLUSION

Most of the study area was cleared farmland of little value to native fauna. Native vegetation comprised only 9.5% of the study area, restricted to bush plots and roadside vegetation. While narrow, roadside vegetation fulfills an important role in maintaining connectivity in a highly cleared landscape. Isolated remnant trees in paddocks may provide similar benefits (e.g. for birds).

CC and FRTBC have both been recorded within the study area. Although restricted, high quality foraging habitat for black cockatoo species occurs within the study area. Remnant roadside vegetation provides important movement corridors for black cockatoos between breeding habitat, night roosting habitat and foraging resources (DAWE 2022). Both black cockatoo species are known to roost in trees along Moore River. Additionally, given the occurrence of confirmed breeding trees within 5 km of the study area and PNT within the study area, it is possible that CC and FRTBC breed within or around the study area.

The desktop identified that Western Brush Wallaby and Chuditch have previously been recorded within the study area. It is possible both species may occur within the study area as occasional foraging visitors or to disperse, but are unlikely to reside in the study area as their preferred habitat types are highly restricted and the threat of feral predators high.

The remaining conservation significant species that have been recorded in the study area (Blue-billed Duck, Curlew Sandpiper, Red-necked Stint, Wood Sandpiper, Common Greenshank) may opportunistically use wetland habitat in the study area to forage, or flyover in search of more suitable wetlands such as those to the west of the study area.

Several other conservation significant species not recorded in the survey were considered likely to or possibly occur in the study area; however, the study area does not represent important or restricted habitat values for these species. Peregrine Falcon, and Black-striped Snake are considered likely to occur; of these, Black-striped Snake may be a resident within the study area and Peregrine Falcon may breed along wooded watercourses.

The results revealed a low diversity of SREs, a high proportion of which are new to science due to the paucity of regional sampling. All taxa were collected from low potential SRE habitat and are likely to be distributed well outside the study area. Although SRE habitats were limited in the study area (comprising 9.5%), all habitats occur broadly across the region, particularly to the west and east of the study area.

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Appendix 1 Survey site locations

Site name	Latitude	Longitude
CBC01	-30.8762	115.6996
CBC02	-30.8866	115.7453
CBC03	-30.9304	115.7219
CBC04	-30.8968	115.7677
CBC05	-30.8863	115.6991
Opp01	-30.775	115.4728
Opp02	-30.8622	115.3637
Opp03	-30.9264	115.6861
Opp04	-30.9259	115.6661
Opp05	-30.9331	115.7565
Opp06	-30.8808	115.6667
Opp07	-30.8734	115.6668
Opp08	-30.8712	115.6255
Opp09	-30.9961	115.7
Opp10	-30.8901	115.6309
Site01	-30.8133	115.5233
Site02	-30.8485	115.5985
Site03	-30.7953	115.7053
Site04	-30.77	115.6589
Site05	-30.9024	115.6314
Site06	-30.9816	115.7951
Site07	-30.988	115.7048
Site08	-30.9488	115.758
Site09	-30.9373	115.7228
Site10	-30.9167	115.8357
Site11	-30.9	115.7752
Site12	-30.8866	115.7508
Site13	-30.9255	115.6002
Site14	-30.8633	115.6135
Site15	-30.891	115.6878
Site16	-30.9293	115.7036

Site name	Latitude	Longitude
Site17	-30.8696	115.6527
Site18	-30.9682	115.701
Site19	-30.8691	115.5886
Site20	-30.8727	115.7246
Site21	-30.9455	115.6729
Site25	-30.8975	115.779
Site26	-30.9045	115.7677
Site27	-30.8727	115.6589
Site28	-30.8931	115.6852
Site29	-30.9613	115.7311
TL-01	-30.9959	115.6958
TL-02	-30.986	115.7082
TL-03	-31.0132	115.7157
TL-04	-30.9851	115.6963
TL-05	-30.9898	115.7311
TL-06	-30.9385	115.6678
TL-07	-30.9746	115.6802
TL-08	-30.9767	115.6924
TL-09	-31.0065	115.6853
TL-10	-30.9881	115.6929
TL-11	-30.9912	115.692
TL-12	-30.9837	115.7021
TL-13	-30.9782	115.7018
TL-14	-30.9995	115.7106
TL-15	-31.0062	115.7129
TL-16	-30.9956	115.6932

Site details			
Site	**CBC01**	**Position (WGS84)**	115.6999, -30.8763
Slope	gentle	**Topography**	undulating plain
Soil colour	yellow	**Soil texture**	sand
Rock cover (%)	0	**Rock type**	none

Sample and effort summary			
Visit	**Sample method**	**Date start**	**Date stop**
1	Site description	07 Aug 2024	07 Aug 2024
1	Birding	07 Aug 2024	07 Aug 2024

Site description - visit 1 (07 Aug 2024)			
Line of roadside trees between Canola plantations. Trees large Eucalyptus many with approximately 1m DBH, likely to support suitable size nest hollows.			
Habitat	open woodland		
Disturbance	current operations, historic clearing, large-scale clearing, vehicle tracks, weed infestation		
Vegetation condition	Completely Degraded	**Fire age**	not evident
Total veg. cover (%)	100	**Litter distribution**	
Tree cover (%)	1	**Litter depth (cm)**	20.0
Shrub cover (%)	0	**Litter cover (%)**	1
Grass cover (%)	99	**Herb cover (%)**	0

Site details			
Site	**CBC02**	**Position (WGS84)**	115.7452, -30.8866
Slope	gentle	**Topography**	undulating plain
Soil colour	brown, orange	**Soil texture**	sand
Rock cover (%)	0	**Rock type**	laterite

Sample and effort summary			
Visit	**Sample method**	**Date start**	**Date stop**
1	Site description	28 Aug 2024	28 Aug 2024

Site description - visit 1 (28 Aug 2024)			
Open Marri woodland over low mixed shrubs including Xanthorrea, Acacia, Peas, Prostrate Banksia and Eucalypts over grasses, reeds and herbs on sandy soils.			
Habitat	open woodland		
Disturbance	evidence of feral animals, historic clearing, litter, vehicle tracks		
Vegetation condition	Excellent	**Fire age**	relatively recent (1-5 years)
Total veg. cover (%)	50	**Litter distribution**	even/continuous
Tree cover (%)	15	**Litter depth (cm)**	1.0
Shrub cover (%)	20	**Litter cover (%)**	50
Grass cover (%)	10	**Herb cover (%)**	5

Site details			
Site	**CBC03**	**Position (WGS84)**	115.7219, -30.9306
Slope	gentle	**Topography**	undulating plain
Soil colour	brown, orange	**Soil texture**	laterite, sand
Rock cover (%)	2	**Rock type**	laterite

Sample and effort summary			
Visit	**Sample method**	**Date start**	**Date stop**
1	Site description	29 Aug 2024	29 Aug 2024
1	Opportunistic sighting	29 Aug 2024	29 Aug 2024

Site description - visit 1 (29 Aug 2024)			
Remnant native vegetation in paddock composed of open Marri woodland over mid-story Banksia over mixed shrubs over grasses and weeds. Understory mostly removed and now weeds. Potential foraging habitat, no big hollows.			
Habitat	open woodland		
Disturbance	historic clearing, large-scale clearing, vehicle tracks, weed infestation		
Vegetation condition	Very Good	**Fire age**	moderate (5-10 years)
Total veg. cover (%)	70	**Litter distribution**	under vegetation
Tree cover (%)	8	**Litter depth (cm)**	1.0
Shrub cover (%)	12	**Litter cover (%)**	8
Grass cover (%)	45	**Herb cover (%)**	5

Site details			
Site	**CBC04**	**Position (WGS84)**	115.7675, -30.8968
Slope	gentle	**Topography**	undulating plain
Soil colour	brown, grey, white	**Soil texture**	sand
Rock cover (%)	0	**Rock type**	none

Sample and effort summary			
Visit	**Sample method**	**Date start**	**Date stop**
1	Site description	29 Aug 2024	29 Aug 2024
1	Opportunistic sighting	29 Aug 2024	29 Aug 2024

Site description - visit 1 (29 Aug 2024)			
Remnant native vegetation patch in paddock with large Marri over low shrubs including Hakea, Xanthorrea, Acacia and Peas over reeds, grasses and Prostrate Banksia on sandy soils. Potential foraging habitat.			
Habitat	open woodland		
Disturbance	evidence of feral animals, grazing-medium, historic clearing, large-scale clearing, livestock tracks, vehicle tracks, weed infestation		
Vegetation condition	Very Good	**Fire age**	moderate (5-10 years)
Total veg. cover (%)	56	**Litter distribution**	under vegetation
Tree cover (%)	6	**Litter depth (cm)**	2.0
Shrub cover (%)	10	**Litter cover (%)**	8
Grass cover (%)	35	**Herb cover (%)**	5

Site details			
Site	**CBC05**	**Position (WGS84)**	115.6994, -30.8865
Slope	gentle	**Topography**	undulating plain
Soil colour	brown, orange	**Soil texture**	sandy loam
Rock cover (%)	0	**Rock type**	laterite

Sample and effort summary			
Visit	**Sample method**	**Date start**	**Date stop**
1	Site description	30 Aug 2024	30 Aug 2024

Site description - visit 1 (30 Aug 2024)			
Gravel road bounded by Marri trees with agricultural fields on the sides, Marri open woodland, mid-story of scattered mixed shrubs, under-story mostly removed some sparse mixed shrubs over exotic grasses and reeds, hollow bearing trees present			
Habitat	open woodland		
Disturbance	current operations, evidence of feral animals, litter, vehicle tracks, weed infestation		
Vegetation condition	Degraded	**Fire age**	long-unburnt (>10 years)
Total veg. cover (%)	75	**Litter distribution**	under vegetation
Tree cover (%)	40	**Litter depth (cm)**	4.0
Shrub cover (%)	3	**Litter cover (%)**	30
Grass cover (%)	30	**Herb cover (%)**	2

Site details			
Site	**Opp05**	**Position (WGS84)**	115.7563, -30.9330
Slope	gentle	**Topography**	undulating plain
Soil colour	whitish	**Soil texture**	sand
Rock cover (%)	0	**Rock type**	none

Sample and effort summary			
Visit	**Sample method**	**Date start**	**Date stop**
1	Site description	07 Aug 2024	07 Aug 2024
1	Opportunistic sighting	07 Aug 2024	07 Aug 2024

Site description - visit 1 (07 Aug 2024)			
Small corridor of remnant vegetation between crop fields containing mixture of Banksia over mixed shrubs			
Habitat	shrubland		
Disturbance	current operations, historic clearing, vehicle tracks, weed infestation		
Vegetation condition	Completely Degraded	**Fire age**	
Total veg. cover (%)	100	**Litter distribution**	
Tree cover (%)	40	**Litter depth (cm)**	
Shrub cover (%)	60	**Litter cover (%)**	0
Grass cover (%)	0	**Herb cover (%)**	0

Site details			
Site	**Site01**	**Position (WGS84)**	115.5233, -30.8133
Slope	gentle	**Topography**	seasonally wet area
Soil colour	white	**Soil texture**	sand
Rock cover (%)	0	**Rock type**	none

Sample and effort summary			
Visit	**Sample method**	**Date start**	**Date stop**
1	Site description	05 Aug 2024	05 Aug 2024
1	Ultrasonic recording	05 Aug 2024	08 Aug 2024
1	wind farm point count	05 Aug 2024	05 Aug 2024
1	Audio recording	05 Aug 2024	07 Aug 2024
1	wind farm point count	08 Aug 2024	08 Aug 2024
1	Opportunistic sighting	08 Aug 2024	08 Aug 2024
1	wind farm point count	08 Aug 2024	08 Aug 2024

Site description - visit 1 (05 Aug 2024)			
Large open body of water surrounded by Banksia woodland on low rolling hills of white sand and laterite.			
Habitat	waterhole		
Disturbance	evidence of feral animals, historic clearing, vehicle tracks		
Vegetation condition	Good	**Fire age**	not evident
Total veg. cover (%)	20	**Litter distribution**	sparse
Tree cover (%)	10	**Litter depth (cm)**	
Shrub cover (%)	0	**Litter cover (%)**	
Grass cover (%)	10	**Herb cover (%)**	0

Site details			
Site	**Site02**	**Position (WGS84)**	115.6055, -30.8460
Slope	moderate	**Topography**	hill slope
Soil colour	orange	**Soil texture**	laterite
Rock cover (%)	0	**Rock type**	none

Sample and effort summary			
Visit	**Sample method**	**Date start**	**Date stop**
1	Site description	05 Aug 2024	05 Aug 2024
1	Ultrasonic recording	05 Aug 2024	08 Aug 2024
1	Audio recording	05 Aug 2024	07 Aug 2024
1	wind farm point count	05 Aug 2024	05 Aug 2024
1	wind farm point count	08 Aug 2024	08 Aug 2024

Site description - visit 1 (05 Aug 2024)			
Banksia and Eucalyptus scrubland patch, surrounded by cleared fields. Hill slope leads down to large, likely permanent water body.			
Habitat	shrubland		
Disturbance	current operations, livestock		
Vegetation condition	Poor	**Fire age**	
Total veg. cover (%)	160	**Litter distribution**	
Tree cover (%)	30	**Litter depth (cm)**	
Shrub cover (%)	20	**Litter cover (%)**	60
Grass cover (%)	90	**Herb cover (%)**	20

Site details			
Site	**Site03**	**Position (WGS84)**	115.7052, -30.7953
Slope	gentle	**Topography**	creek
Soil colour	brown	**Soil texture**	clay loam and laterite
Rock cover (%)	0	**Rock type**	none

Sample and effort summary			
Visit	**Sample method**	**Date start**	**Date stop**
1	Site description	05 Aug 2024	05 Aug 2024
1	Ultrasonic recording	05 Aug 2024	08 Aug 2024
1	wind farm point count	05 Aug 2024	05 Aug 2024
1	Audio recording	05 Aug 2024	07 Aug 2024
1	wind farm point count	08 Aug 2024	08 Aug 2024

Site description - visit 1 (05 Aug 2024)			
Small isolated patches of trees separated by paddocks. Low-lying temporary water pooled along creekline			
Habitat	open woodland		
Disturbance	current operations, livestock tracks, vehicle tracks		
Vegetation condition	Poor	**Fire age**	not evident
Total veg. cover (%)	155	**Litter distribution**	sparse
Tree cover (%)	50	**Litter depth (cm)**	
Shrub cover (%)	0	**Litter cover (%)**	
Grass cover (%)	100	**Herb cover (%)**	5

Site details			
Site	**Site04**	**Position (WGS84)**	115.6588, -30.7700
Slope	gentle	**Topography**	depression
Soil colour	white	**Soil texture**	loamy sand
Rock cover (%)	0	**Rock type**	none

Sample and effort summary			
Visit	**Sample method**	**Date start**	**Date stop**
1	Site description	05 Aug 2024	05 Aug 2024
1	Ultrasonic recording	05 Aug 2024	08 Aug 2024
1	Audio recording	05 Aug 2024	07 Aug 2024
1	wind farm point count	05 Aug 2024	05 Aug 2024
1	wind farm point count	08 Aug 2024	08 Aug 2024

Site description - visit 1 (05 Aug 2024)			
Rolling hills of Canola with semi-permanent water at base of valley.			
Habitat	waterhole		
Disturbance	current operations, historic clearing, livestock tracks, vehicle tracks		
Vegetation condition	Poor	**Fire age**	
Total veg. cover (%)	110	**Litter distribution**	
Tree cover (%)	20	**Litter depth (cm)**	
Shrub cover (%)	10	**Litter cover (%)**	
Grass cover (%)	80	**Herb cover (%)**	0

Site details			
Site	**Site05**	**Position (WGS84)**	115.6314, -30.9024
Slope	gentle	**Topography**	undulating plain
Soil colour	grey	**Soil texture**	sand
Rock cover (%)	0	**Rock type**	none

Sample and effort summary			
Visit	**Sample method**	**Date start**	**Date stop**
1	Site description	05 Aug 2024	05 Aug 2024
1	Ultrasonic recording	05 Aug 2024	08 Aug 2024
1	Audio recording	05 Aug 2024	07 Aug 2024
1	wind farm point count	05 Aug 2024	05 Aug 2024
1	wind farm point count	08 Aug 2024	08 Aug 2024
1	Opportunistic sighting	08 Aug 2024	08 Aug 2024

Site description - visit 1 (05 Aug 2024)			
Pine plantation surrounded by grazed paddocks			
Habitat	woodland		
Disturbance			
Vegetation condition	Degraded	**Fire age**	not evident
Total veg. cover (%)	189	**Litter distribution**	
Tree cover (%)	90	**Litter depth (cm)**	
Shrub cover (%)	0	**Litter cover (%)**	10
Grass cover (%)	99	**Herb cover (%)**	0

Site details			
Site	**Site06**	**Position (WGS84)**	115.7952, -30.9816
Slope	gentle	**Topography**	undulating plain
Soil colour	orange	**Soil texture**	laterite
Rock cover (%)	0	**Rock type**	none

Sample and effort summary			
Visit	**Sample method**	**Date start**	**Date stop**
1	Site description	06 Aug 2024	06 Aug 2024
1	Ultrasonic recording	06 Aug 2024	09 Aug 2024
1	Audio recording	06 Aug 2024	07 Aug 2024
1	wind farm point count	06 Aug 2024	06 Aug 2024
1	wind farm point count	06 Aug 2024	06 Aug 2024

Site description - visit 1 (06 Aug 2024)			
Small isolated patches of scrub under hollow bearing Eucalyptus trees. Surrounded by large areas of cleared land containing paddocks with livestock.			
Habitat	open woodland		
Disturbance			
Vegetation condition	Poor	**Fire age**	not evident
Total veg. cover (%)	195	**Litter distribution**	under vegetation
Tree cover (%)	30	**Litter depth (cm)**	
Shrub cover (%)	70	**Litter cover (%)**	
Grass cover (%)	95	**Herb cover (%)**	0

Site details			
Site	**Site07**	**Position (WGS84)**	115.7048, -30.9878
Slope	moderate	**Topography**	creek
Soil colour	light-brown	**Soil texture**	laterite
Rock cover (%)	0	**Rock type**	none

Sample and effort summary			
Visit	**Sample method**	**Date start**	**Date stop**
1	Site description	06 Aug 2024	06 Aug 2024
1	wind farm point count	06 Aug 2024	06 Aug 2024
1	wind farm point count	08 Aug 2024	08 Aug 2024
1	Ultrasonic recording	06 Aug 2024	09 Aug 2024
1	Audio recording	06 Aug 2024	07 Aug 2024

Site description - visit 1 (06 Aug 2024)			
Wooded area adjacent to highway and creekline with running water. Hollow bearing trees present.			
Habitat	riparian zone		
Disturbance			
Vegetation condition	Degraded	**Fire age**	not evident
Total veg. cover (%)	120	**Litter distribution**	sparse
Tree cover (%)	70	**Litter depth (cm)**	
Shrub cover (%)	10	**Litter cover (%)**	
Grass cover (%)	30	**Herb cover (%)**	10

Site details			
Site	**Site08**	**Position (WGS84)**	115.7581, -30.9486
Slope	gentle	**Topography**	undulating plain
Soil colour	light-brown	**Soil texture**	laterite, sand
Rock cover (%)	0	**Rock type**	laterite

Sample and effort summary			
Visit	**Sample method**	**Date start**	**Date stop**
1	Site description	06 Aug 2024	06 Aug 2024
1	Audio recording	06 Aug 2024	07 Aug 2024
1	Ultrasonic recording	06 Aug 2024	09 Aug 2024
1	wind farm point count	06 Aug 2024	06 Aug 2024
1	wind farm point count	09 Aug 2024	09 Aug 2024
1	Foraging - SRE	30 Aug 2024	30 Aug 2024
1	Foraging - vertebrates	30 Aug 2024	30 Aug 2024
1	Birding	30 Aug 2024	30 Aug 2024
1	Litter sieve	30 Aug 2024	30 Aug 2024

Site description - visit 1 (06 Aug 2024)			
Small patch of scrubland between fields of canola plantations			
Habitat	shrubland		
Disturbance	current operations, vehicle tracks, weed infestation		
Vegetation condition	Degraded	**Fire age**	not evident
Total veg. cover (%)	96	**Litter distribution**	
Tree cover (%)	1	**Litter depth (cm)**	
Shrub cover (%)	60	**Litter cover (%)**	10
Grass cover (%)	5	**Herb cover (%)**	30

Site details			
Site	**Site09**	**Position (WGS84)**	115.7229, -30.9372
Slope	gentle	**Topography**	undulating plain
Soil colour	brown-grey	**Soil texture**	laterite, sand
Rock cover (%)	0	**Rock type**	none

Sample and effort summary			
Visit	**Sample method**	**Date start**	**Date stop**
1	Site description	06 Aug 2024	06 Aug 2024
1	wind farm point count	06 Aug 2024	06 Aug 2024
1	Ultrasonic recording	06 Aug 2024	09 Aug 2024
1	Audio recording	07 Aug 2024	09 Aug 2024
1	wind farm point count	09 Aug 2024	09 Aug 2024

Site description - visit 1 (06 Aug 2024)			
Crop fields with small patches of trees forming little glades			
Habitat	open woodland		
Disturbance	current operations, weed infestation		
Vegetation condition	Degraded	**Fire age**	not evident
Total veg. cover (%)	104	**Litter distribution**	
Tree cover (%)	5	**Litter depth (cm)**	
Shrub cover (%)	0	**Litter cover (%)**	
Grass cover (%)	99	**Herb cover (%)**	0

Site details			
Site	**Site10**	**Position (WGS84)**	115.8357, -30.9168
Slope	moderate	**Topography**	undulating plain
Soil colour	white	**Soil texture**	laterite, sand
Rock cover (%)	0	**Rock type**	none

Sample and effort summary			
Visit	**Sample method**	**Date start**	**Date stop**
1	Ultrasonic recording	06 Aug 2024	09 Aug 2024
1	Site description	06 Aug 2024	06 Aug 2024
1	wind farm point count	06 Aug 2024	06 Aug 2024
1	Opportunistic sighting	06 Aug 2024	06 Aug 2024
1	Audio recording	07 Aug 2024	09 Aug 2024
1	wind farm point count	09 Aug 2024	09 Aug 2024

Site description - visit 1 (06 Aug 2024)			
Well preserved patch of mixed shrubland between paddocks			
Habitat	shrubland		
Disturbance			
Vegetation condition	Excellent	**Fire age**	not evident
Total veg. cover (%)	190	**Litter distribution**	even/continuous
Tree cover (%)	20	**Litter depth (cm)**	
Shrub cover (%)	80	**Litter cover (%)**	
Grass cover (%)	10	**Herb cover (%)**	80

Site details			
Site	**Site11**	**Position (WGS84)**	115.7755, -30.8999
Slope	gentle	**Topography**	undulating plain
Soil colour	grey, whitish	**Soil texture**	sand
Rock cover (%)	0	**Rock type**	none

Sample and effort summary			
Visit	**Sample method**	**Date start**	**Date stop**
1	Site description	06 Aug 2024	06 Aug 2024
1	Ultrasonic recording	06 Aug 2024	09 Aug 2024
1	wind farm point count	06 Aug 2024	06 Aug 2024
1	Audio recording	07 Aug 2024	09 Aug 2024
1	wind farm point count	07 Aug 2024	07 Aug 2024
1	Foraging - SRE	07 Aug 2024	07 Aug 2024
1	Foraging - vertebrates	07 Aug 2024	07 Aug 2024
1	Litter sieve	07 Aug 2024	07 Aug 2024

Site description - visit 1 (06 Aug 2024)			
Isolated patch of woodland with dense mid story and understory. Surrounded by canola crops. Trees of suitable size to support hollows			
Habitat	open woodland		
Disturbance	firebreak, historic clearing, livestock tracks		
Vegetation condition	Good	**Fire age**	not evident
Total veg. cover (%)	240	**Litter distribution**	
Tree cover (%)	40	**Litter depth (cm)**	
Shrub cover (%)	80	**Litter cover (%)**	40
Grass cover (%)	40	**Herb cover (%)**	80

Site details			
Site	**Site12**	**Position (WGS84)**	115.7508, -30.8866
Slope	negligible	**Topography**	undulating plain
Soil colour	brown	**Soil texture**	sand
Rock cover (%)	0	**Rock type**	none

Sample and effort summary			
Visit	**Sample method**	**Date start**	**Date stop**
1	Site description	06 Aug 2024	06 Aug 2024
1	Ultrasonic recording	06 Aug 2024	09 Aug 2024
1	wind farm point count	06 Aug 2024	06 Aug 2024
1	Audio recording	07 Aug 2024	09 Aug 2024
1	wind farm point count	07 Aug 2024	07 Aug 2024

Site description - visit 1 (06 Aug 2024)			
Open woodland containing hollow bearing trees over mixed semi-open midstory and dense understory			
Habitat	open woodland		
Disturbance	vehicle tracks, weed infestation		
Vegetation condition	Excellent	**Fire age**	not evident
Total veg. cover (%)	190	**Litter distribution**	
Tree cover (%)	60	**Litter depth (cm)**	5.0
Shrub cover (%)	50	**Litter cover (%)**	50
Grass cover (%)	30	**Herb cover (%)**	50

Site details			
Site	**Site13**	**Position (WGS84)**	115.6002, -30.9255
Slope	gentle	**Topography**	floodplain
Soil colour	black, white	**Soil texture**	peat, sand
Rock cover (%)	0	**Rock type**	none

Sample and effort summary			
Visit	**Sample method**	**Date start**	**Date stop**
1	Site description	06 Aug 2024	06 Aug 2024
1	wind farm point count	06 Aug 2024	06 Aug 2024
1	Ultrasonic recording	27 Aug 2024	30 Aug 2024
1	Audio recording	27 Aug 2024	30 Aug 2024
1	wind farm point count	27 Aug 2024	27 Aug 2024
1	Birding	30 Aug 2024	30 Aug 2024

Site description - visit 1 (06 Aug 2024)			
Large lake surrounded by dense Allocasurina in a low-lying sand dune system. Dune tops lined with mixed Banksia over dense understory.			
Habitat	riparian zone		
Disturbance			
Vegetation condition	Very Good	**Fire age**	
Total veg. cover (%)	160	**Litter distribution**	
Tree cover (%)	80	**Litter depth (cm)**	
Shrub cover (%)	30	**Litter cover (%)**	
Grass cover (%)	40	**Herb cover (%)**	10

Site details			
Site	**Site14**	**Position (WGS84)**	115.6135, -30.8633
Slope	negligible	**Topography**	undulating plain
Soil colour	white	**Soil texture**	sand
Rock cover (%)	0	**Rock type**	none

Sample and effort summary			
Visit	**Sample method**	**Date start**	**Date stop**
1	Site description	06 Aug 2024	06 Aug 2024
1	Litter sieve	06 Aug 2024	06 Aug 2024
1	Foraging - SRE	06 Aug 2024	06 Aug 2024
1	Foraging - vertebrates	06 Aug 2024	06 Aug 2024
1	wind farm point count	06 Aug 2024	06 Aug 2024
1	Audio recording	27 Aug 2024	28 Aug 2024
1	Ultrasonic recording	27 Aug 2024	30 Aug 2024
1	wind farm point count	27 Aug 2024	27 Aug 2024

Site description - visit 1 (06 Aug 2024)			
Shrubland with Banksia and Wooly-bush dominant upperstory over soft white sand.			
Habitat	shrubland		
Disturbance	vehicle tracks		
Vegetation condition	Excellent	**Fire age**	not evident
Total veg. cover (%)	120	**Litter distribution**	concentrated in drifts
Tree cover (%)	30	**Litter depth (cm)**	5.0
Shrub cover (%)	80	**Litter cover (%)**	60
Grass cover (%)	0	**Herb cover (%)**	10

Site details			
Site	**Site15**	**Position (WGS84)**	115.6878, -30.8910
Slope	gentle	**Topography**	undulating plain
Soil colour	brown	**Soil texture**	sand
Rock cover (%)	0	**Rock type**	none

Sample and effort summary			
Visit	**Sample method**	**Date start**	**Date stop**
1	Audio recording	26 Aug 2024	27 Aug 2024
1	Ultrasonic recording	26 Aug 2024	29 Aug 2024
1	wind farm point count	26 Aug 2024	26 Aug 2024
1	Site description	26 Aug 2024	26 Aug 2024
1	wind farm point count	27 Aug 2024	27 Aug 2024

Site description - visit 1 (26 Aug 2024)			
Remnant native vegetation patch and Eucalyptus plantation over scattered Eucalyptus saplings over reeds and grasses on sandy soils. Mid and lower story mostly cleared and overrun by weeds.			
Habitat	open woodland		
Disturbance	historic clearing, large-scale clearing, vehicle tracks, weed infestation		
Vegetation condition	Degraded	**Fire age**	moderate (5-10 years)
Total veg. cover (%)	93	**Litter distribution**	even/continuous
Tree cover (%)	10	**Litter depth (cm)**	5.0
Shrub cover (%)	1	**Litter cover (%)**	80
Grass cover (%)	80	**Herb cover (%)**	2

Site details			
Site	**Site16**	**Position (WGS84)**	115.7034, -30.9292
Slope	gentle	**Topography**	undulating plain
Soil colour	orange, brown	**Soil texture**	sand
Rock cover (%)	0	**Rock type**	none

Sample and effort summary			
Visit	**Sample method**	**Date start**	**Date stop**
1	Audio recording	26 Aug 2024	27 Aug 2024
1	Site description	26 Aug 2024	26 Aug 2024
1	Ultrasonic recording	26 Aug 2024	29 Aug 2024
1	wind farm point count	26 Aug 2024	26 Aug 2024
1	Opportunistic sighting	26 Aug 2024	26 Aug 2024
1	wind farm point count	28 Aug 2024	28 Aug 2024
1	Foraging - SRE	28 Aug 2024	28 Aug 2024
1	Foraging - vertebrates	28 Aug 2024	28 Aug 2024
1	Litter sieve	28 Aug 2024	28 Aug 2024

Site description - visit 1 (26 Aug 2024)			
Low shrubland with scattered Eucalyptus and Nuytsia over low Xanthorrea, Banksia, Acacia and Allocasurina over reeds on sandy soils.			
Habitat	shrubland		
Disturbance	vehicle tracks, weed infestation		
Vegetation condition	Excellent	**Fire age**	moderate (5-10 years)
Total veg. cover (%)	63	**Litter distribution**	scattered
Tree cover (%)	4	**Litter depth (cm)**	2.0
Shrub cover (%)	45	**Litter cover (%)**	30
Grass cover (%)	10	**Herb cover (%)**	4

Site details			
Site	**Site17**	**Position (WGS84)**	115.6522, -30.8705
Slope	gentle	**Topography**	drainage line
Soil colour	brown	**Soil texture**	sand, sandy clay
Rock cover (%)	0	**Rock type**	none

Sample and effort summary			
Visit	**Sample method**	**Date start**	**Date stop**
1	Audio recording	26 Aug 2024	27 Aug 2024
1	Ultrasonic recording	26 Aug 2024	29 Aug 2024
1	Camera trap	26 Aug 2024	29 Aug 2024
1	Camera trap	26 Aug 2024	29 Aug 2024
1	wind farm point count	26 Aug 2024	26 Aug 2024
1	Site description	27 Aug 2024	27 Aug 2024
1	Foraging - vertebrates	28 Aug 2024	28 Aug 2024
1	Foraging - SRE	28 Aug 2024	28 Aug 2024
1	wind farm point count	28 Aug 2024	28 Aug 2024
1	Opportunistic sighting	29 Aug 2024	29 Aug 2024

Site description - visit 1 (27 Aug 2024)			
Drainage line composed of tall Eucalyptus over mid Melaleuca and Eucalyptus over low weeds and reeds on clay sand soils. Midstory mostly removed.			
Habitat	woodland		
Disturbance	historic clearing, large-scale clearing, vehicle tracks, weed infestation		
Vegetation condition	Good	**Fire age**	moderate (5-10 years)
Total veg. cover (%)	131	**Litter distribution**	sparse
Tree cover (%)	35	**Litter depth (cm)**	1.0
Shrub cover (%)	1	**Litter cover (%)**	10
Grass cover (%)	90	**Herb cover (%)**	5

Site details			
Site	**Site18**	**Position (WGS84)**	115.7010, -30.9681
Slope	gentle	**Topography**	undulating plain
Soil colour	brown,grey,orange	**Soil texture**	gravel,sand
Rock cover (%)	5	**Rock type**	laterite

Sample and effort summary			
Visit	**Sample method**	**Date start**	**Date stop**
1	Audio recording	27 Aug 2024	28 Aug 2024
1	Ultrasonic recording	27 Aug 2024	30 Aug 2024
1	wind farm point count	27 Aug 2024	27 Aug 2024
1	Site description	27 Aug 2024	27 Aug 2024
1	wind farm point count	28 Aug 2024	28 Aug 2024
	Opportunistic invertebrate sigthing	30 Aug 2024	30 Aug 2024

Site description - visit 1 (27 Aug 2024)			
Roadside native vegetation patch comprised of scattered Eucalyptus and Allocasurina over mid Acacia, Wolly-bush and Banksia over low reeds and grasses on sandy soils with laterite outcropping. Obvious signs of disturbance.			
Habitat	open woodland		
Disturbance	historic clearing, large-scale clearing, litter, vehicle tracks, weed infestation		
Vegetation condition	Very Good	**Fire age**	moderate (5-10 years)
Total veg. cover (%)	38	**Litter distribution**	scattered
Tree cover (%)	10	**Litter depth (cm)**	1.0
Shrub cover (%)	15	**Litter cover (%)**	10
Grass cover (%)	8	**Herb cover (%)**	5

Site details			
Site	**Site19**	**Position (WGS84)**	115.5888, -30.8687
Slope	gentle	**Topography**	seasonally wet area
Soil colour	white, brown	**Soil texture**	sand
Rock cover (%)	0	**Rock type**	none

Sample and effort summary			
Visit	**Sample method**	**Date start**	**Date stop**
1	Ultrasonic recording	27 Aug 2024	30 Aug 2024
1	Audio recording	27 Aug 2024	30 Aug 2024
1	Camera trap	27 Aug 2024	30 Aug 2024
1	Camera trap	27 Aug 2024	30 Aug 2024
1	wind farm point count	27 Aug 2024	27 Aug 2024
1	Site description	27 Aug 2024	27 Aug 2024
1	Opportunistic sighting	27 Aug 2024	27 Aug 2024
1	Foraging - vertebrates	29 Aug 2024	29 Aug 2024
1	Foraging - SRE	29 Aug 2024	29 Aug 2024
1	wind farm point count	29 Aug 2024	29 Aug 2024
1	Opportunistic sighting	30 Aug 2024	30 Aug 2024
1	Litter sieve	27 Aug 2024	27 Aug 2024

Site description - visit 1 (27 Aug 2024)			
Seasonally inundated depression surrounded by mid Meleluka with scattered tall Eucalyptus over Acacia over mixed grasses, herbs and weeds.			
Habitat	waterhole		
Disturbance	evidence of feral animals, vehicle tracks		
Vegetation condition	Very Good	**Fire age**	moderate (5-10 years)
Total veg. cover (%)	31	**Litter distribution**	sparse
Tree cover (%)	15	**Litter depth (cm)**	1.0
Shrub cover (%)	10	**Litter cover (%)**	3
Grass cover (%)	3	**Herb cover (%)**	3

Site details			
Site	**Site20**	**Position (WGS84)**	115.7246, -30.8727
Slope	gentle	**Topography**	undulating plain
Soil colour	orange	**Soil texture**	sand
Rock cover (%)	0	**Rock type**	none

Sample and effort summary			
Visit	**Sample method**	**Date start**	**Date stop**
1	Ultrasonic recording	27 Aug 2024	30 Aug 2024
1	Site description	27 Aug 2024	27 Aug 2024
1	wind farm point count	27 Aug 2024	27 Aug 2024
1	Audio recording	28 Aug 2024	30 Aug 2024
1	wind farm point count	30 Aug 2024	30 Aug 2024

Site description - visit 1 (27 Aug 2024)			
Eucalyptus plantation in Canola and Lupin field. Native vegetation minimal.			
Habitat	open woodland		
Disturbance	evidence of feral animals, historic clearing, large-scale clearing, livestock tracks, vehicle tracks		
Vegetation condition	Completely Degraded	**Fire age**	moderate (5-10 years)
Total veg. cover (%)	93	**Litter distribution**	under vegetation
Tree cover (%)	3	**Litter depth (cm)**	2.0
Shrub cover (%)	0	**Litter cover (%)**	5
Grass cover (%)	10	**Herb cover (%)**	80

Site details			
Site	**Site21**	**Position (WGS84)**	115.6729, -30.9459
Slope	gentle	**Topography**	undulating plain
Soil colour	white, brown	**Soil texture**	sand
Rock cover (%)	0	**Rock type**	none

Sample and effort summary			
Visit	**Sample method**	**Date start**	**Date stop**
1	Ultrasonic recording	27 Aug 2024	30 Aug 2024
1	wind farm point count	27 Aug 2024	27 Aug 2024
1	Site description	27 Aug 2024	27 Aug 2024
1	Audio recording	28 Aug 2024	30 Aug 2024
1	Foraging - vertebrates	28 Aug 2024	28 Aug 2024
1	Foraging - SRE	28 Aug 2024	28 Aug 2024
1	Litter sieve	28 Aug 2024	28 Aug 2024
1	wind farm point count	28 Aug 2024	28 Aug 2024
1	Opportunistic sighting	28 Aug 2024	28 Aug 2024

Site description - visit 1 (27 Aug 2024)			
Open mid Eucalyptus and Banksia woodland over Xanthorrea, Acacia and mixed shrubs over grasses, herbs and sparse weeds on sandy soils.			
Habitat	open woodland		
Disturbance	evidence of feral animals, vehicle tracks, weed infestation		
Vegetation condition	Excellent	**Fire age**	moderate (5-10 years)
Total veg. cover (%)	49	**Litter distribution**	under vegetation
Tree cover (%)	8	**Litter depth (cm)**	1.0
Shrub cover (%)	35	**Litter cover (%)**	10
Grass cover (%)	2	**Herb cover (%)**	4

Site details			
Site	**Site25**	**Position (WGS84)**	115.7791, -30.8974
Slope	gentle	**Topography**	undulating plain
Soil colour	brown-grey,white	**Soil texture**	laterite,sand
Rock cover (%)	1	**Rock type**	laterite

Sample and effort summary			
Visit	**Sample method**	**Date start**	**Date stop**
1	Site description	08 Aug 2024	08 Aug 2024
1	Litter sieve	08 Aug 2024	08 Aug 2024
1	Foraging - SRE	08 Aug 2024	08 Aug 2024
1	Foraging - vertebrates	08 Aug 2024	08 Aug 2024
1	Birding	08 Aug 2024	08 Aug 2024

Site description - visit 1 (08 Aug 2024)			
Remnant native vegetation patch consisting of scattered Eucalyptus, Nuytsia and Allocasurina over dense low shrubland including Acacia, Xanthorrea, Wooly-bush and Banksia over herbs and grass on sandy rise. Surrounded by agricultural paddocks.			
Habitat	shrubland		
Disturbance	litter, vehicle tracks, weed infestation		
Vegetation condition	Excellent	**Fire age**	relatively recent (1-5 years)
Total veg. cover (%)	92	**Litter distribution**	sparse
Tree cover (%)	2	**Litter depth (cm)**	1.0
Shrub cover (%)	75	**Litter cover (%)**	8
Grass cover (%)	5	**Herb cover (%)**	10

Site details			
Site	**Site26**	**Position (WGS84)**	115.7675, -30.9045
Slope	gentle	**Topography**	undulating plain
Soil colour	whitish	**Soil texture**	sand
Rock cover (%)	0	**Rock type**	none

Sample and effort summary			
Visit	**Sample method**	**Date start**	**Date stop**
1	Site description	08 Aug 2024	08 Aug 2024
1	Birding	08 Aug 2024	08 Aug 2024
1	Foraging - SRE	08 Aug 2024	08 Aug 2024
1	Litter sieve	08 Aug 2024	08 Aug 2024
1	Foraging - vertebrates	08 Aug 2024	08 Aug 2024

Site description - visit 1 (08 Aug 2024)			
Remnant patch of woodland surrounded by Canola crops. Some large hollow bearing Eucalyptus over mixed Banksia that form fairly open mid story over dense understory.			
Habitat	open woodland		
Disturbance	historic clearing, vehicle tracks		
Vegetation condition	Good	**Fire age**	long-unburnt (>10 years)
Total veg. cover (%)	140	**Litter distribution**	
Tree cover (%)	30	**Litter depth (cm)**	3.0
Shrub cover (%)	80	**Litter cover (%)**	50
Grass cover (%)	10	**Herb cover (%)**	20

Site details			
Site	**Site27**	**Position (WGS84)**	115.6589, -30.8727
Slope	gentle	**Topography**	undulating plain
Soil colour	red-orange,whitish	**Soil texture**	gravel,sand
Rock cover (%)	0	**Rock type**	laterite

Sample and effort summary			
Visit	**Sample method**	**Date start**	**Date stop**
1	Site description	29 Aug 2024	29 Aug 2024

Site description - visit 1 (29 Aug 2024)			
Farm paddock with crops or livestock. Occasional isolated scattered native trees present.			
Habitat	herbland / forbland		
Disturbance	evidence of feral animals, grazing-low, historic clearing, large-scale clearing, vehicle tracks		
Vegetation condition	Completely Degraded	**Fire age**	unsure
Total veg. cover (%)	85	**Litter distribution**	none
Tree cover (%)	0	**Litter depth (cm)**	0.0
Shrub cover (%)	0	**Litter cover (%)**	0
Grass cover (%)	0	**Herb cover (%)**	85

Site details			
Site	**Site28**	**Position (WGS84)**	115.6853, -30.8931
Slope	Flat	**Topography**	riparian zone
Soil colour	brown	**Soil texture**	loam, clay
Rock cover (%)	0	**Rock type**	none

Sample and effort summary			
Visit	**Sample method**	**Date start**	**Date stop**
1	Site description	29 Aug 2024	29 Aug 2024
1	Birding	29 Aug 2024	29 Aug 2024
1	Opportunistic sighting	29 Aug 2024	29 Aug 2024

Site description - visit 1 (29 Aug 2024)			
Riparian zone with scattered Eucalyptus trees over mid Meleluka shrubs over reeds and grasses. Seasonally inundated. Small farm dam.			
Habitat	riparian zone		
Disturbance	grazing-low, historic clearing, weed infestation		
Vegetation condition	Excellent	**Fire age**	
Total veg. cover (%)	56	**Litter distribution**	
Tree cover (%)	2	**Litter depth (cm)**	0.0
Shrub cover (%)	2	**Litter cover (%)**	0
Grass cover (%)	50	**Herb cover (%)**	2

Site details			
Site	**Site29**	**Position (WGS84)**	115.7312, -30.9619
Slope	gentle	**Topography**	undulating plain
Soil colour	white	**Soil texture**	sand
Rock cover (%)	0	**Rock type**	none

Sample and effort summary			
Visit	**Sample method**	**Date start**	**Date stop**
1	Site description	29 Aug 2024	29 Aug 2024
1	Opportunistic sighting	29 Aug 2024	29 Aug 2024

Site description - visit 1 (29 Aug 2024)			
Plantation of Cytisus proliferus in agricultural fields.			
Habitat	shrubland		
Disturbance	evidence of feral animals, grazing-low, historic clearing, large-scale clearing, weed infestation		
Vegetation condition	Completely Degraded	**Fire age**	long-unburnt (>10 years)
Total veg. cover (%)	35	**Litter distribution**	under vegetation
Tree cover (%)	0	**Litter depth (cm)**	1.0
Shrub cover (%)	15	**Litter cover (%)**	2
Grass cover (%)	15	**Herb cover (%)**	5

Site details			
Site	**TL-01**	**Position (WGS84)**	115.6958, -30.9959
Slope	moderate	**Topography**	drainage line
Soil colour	brown, yellow, brown-grey	**Soil texture**	clay loam, sand
Rock cover (%)	0	**Rock type**	none

Sample and effort summary			
Visit	**Sample method**	**Date start**	**Date stop**
1	Site description	11 Aug 2025	11 Aug 2025
1	Birding	11 Aug 2025	11 Aug 2025
1	Litter sieve	11 Aug 2025	11 Aug 2025
1	Foraging - SRE	11 Aug 2025	11 Aug 2025
1	Foraging - vertebrates	11 Aug 2025	11 Aug 2025
1	Ultrasonic recording	11 Aug 2025	14 Aug 2025
1	Audio recording	11 Aug 2025	14 Aug 2025
1	Camera trap	11 Aug 2025	14 Aug 2025

Site description - visit 1 (11 Aug 2025)			
Drainage line with tall Flooded gum and sparse Marri, over mid-story Melaleuca and scattered dense Acacia, over sparse mixed shrubs, over reeds and grasses. Dominated by weeds.			
Habitat	open woodland		
Disturbance	vehicle tracks, weed infestation, litter, evidence of feral animals		
Vegetation condition	Very Good	**Fire age**	old (5-10 years)
Total veg. cover (%)	105	**Litter distribution**	under vegetation
Tree cover (%)	40	**Litter depth (cm)**	1.0
Shrub cover (%)	5	**Litter cover (%)**	45
Grass cover (%)	50	**Herb cover (%)**	10

Site details			
Site	**TL-02**	**Position (WGS84)**	115.7081, -30.9861
Slope	gentle	**Topography**	drainage line
Soil colour	brown	**Soil texture**	clay loam
Rock cover (%)	0	**Rock type**	none

Sample and effort summary			
Visit	**Sample method**	**Date start**	**Date stop**
1	Birding	11 Aug 2025	11 Aug 2025
1	Foraging - vertebrates	11 Aug 2025	11 Aug 2025
1	Foraging - SRE	11 Aug 2025	11 Aug 2025
1	Litter sieve	11 Aug 2025	11 Aug 2025
1	Site description	11 Aug 2025	11 Aug 2025

Site description - visit 1 (11 Aug 2025)			
Drainage line with tall Flooded Gum over scattered mid-story Melaleuca and Acacia, over reeds and grasses. With a high density of weeds.			
Habitat	open woodland		
Disturbance	vehicle tracks, weed infestation		
Vegetation condition	Very Good	**Fire age**	long-unburnt (>10 years)
Total veg. cover (%)	129	**Litter distribution**	scattered
Tree cover (%)	45	**Litter depth (cm)**	1.0
Shrub cover (%)	2	**Litter cover (%)**	20
Grass cover (%)	80	**Herb cover (%)**	2

Site details			
Site	**TL-03**	**Position (WGS84)**	115.7157, -31.0132
Slope	gentle	**Topography**	undulating plain
Soil colour	white, brown-grey, brown	**Soil texture**	sand, sandy clay
Rock cover (%)	0	**Rock type**	none

Sample and effort summary			
Visit	**Sample method**	**Date start**	**Date stop**
1	Site description	12 Aug 2025	12 Aug 2025
1	Birding	12 Aug 2025	12 Aug 2025
1	Foraging - vertebrates	12 Aug 2025	12 Aug 2025
1	Audio recording	12 Aug 2025	14 Aug 2025
1	Ultrasonic recording	12 Aug 2025	14 Aug 2025
1	Litter sieve	12 Aug 2025	12 Aug 2025
1	Foraging - SRE	12 Aug 2025	12 Aug 2025

Site description - visit 1 (12 Aug 2025)			
Undulating plain, seasonally inundated depression with open Banksia woodlands over scattered mid-storey shrubs, over dense low-storey shrubs, over mixed grasses.			
Habitat	open woodland		
Disturbance	evidence of feral animals, vehicle tracks, historic clearing		
Vegetation condition	Excellent	**Fire age**	long-unburnt (>10 years)
Total veg. cover (%)	100	**Litter distribution**	under vegetation
Tree cover (%)	15	**Litter depth (cm)**	1.0
Shrub cover (%)	60	**Litter cover (%)**	30
Grass cover (%)	20	**Herb cover (%)**	5

Site details			
Site	**TL-04**	**Position (WGS84)**	115.6963, -30.9851
Slope	negligible	**Topography**	plain
Soil colour	yellow, brown	**Soil texture**	sand, sandy loam
Rock cover (%)	0	**Rock type**	none

Sample and effort summary			
Visit	**Sample method**	**Date start**	**Date stop**
1	Birding	12 Aug 2025	12 Aug 2025
1	Site description	12 Aug 2025	12 Aug 2025
1	Foraging - SRE	12 Aug 2025	12 Aug 2025
1	Foraging - vertebrates	12 Aug 2025	12 Aug 2025
1	Litter sieve	12 Aug 2025	12 Aug 2025

Site description - visit 1 (12 Aug 2025)			
Open Banksia woodland over sparse mid-story of mixed shrubs, over desnse low laying shrubs and mixed grasses.			
Habitat	open woodland		
Disturbance	evidence of feral animals, vehicle tracks, weed infestation, livestock tracks		
Vegetation condition	Excellent	**Fire age**	long-unburnt (>10 years)
Total veg. cover (%)	93	**Litter distribution**	under vegetation
Tree cover (%)	15	**Litter depth (cm)**	1.0
Shrub cover (%)	65	**Litter cover (%)**	30
Grass cover (%)	10	**Herb cover (%)**	3

Site details			
Site	**TL-05**	**Position (WGS84)**	115.7311, -30.9898
Slope	gentle	**Topography**	drainage line
Soil colour	brown	**Soil texture**	clay loam
Rock cover (%)	2	**Rock type**	laterite

Sample and effort summary			
Visit	**Sample method**	**Date start**	**Date stop**
1	Site description	12 Aug 2025	12 Aug 2025

Site description - visit 1 (12 Aug 2025)			
Seasonally inundated area with Maleluka over scattered mixed shrubs over dense reeds and grasses.			
Habitat	riparian zone		
Disturbance	litter, historic clearing		
Vegetation condition	Very Good	**Fire age**	not evident
Total veg. cover (%)	107	**Litter distribution**	under vegetation
Tree cover (%)	50	**Litter depth (cm)**	3.0
Shrub cover (%)	5	**Litter cover (%)**	20
Grass cover (%)	50	**Herb cover (%)**	2

Site details			
Site	**TL-06**	**Position (WGS84)**	115.6678, -30.9385
Slope	negligible	**Topography**	plain
Soil colour	yellow, whitish	**Soil texture**	sand, sandy loam
Rock cover (%)	0	**Rock type**	none

Sample and effort summary			
Visit	**Sample method**	**Date start**	**Date stop**
1	Site description	12 Aug 2025	12 Aug 2025

Site description - visit 1 (12 Aug 2025)			
Farm paddock with scattered remnant native vegations of scattered Banksia and Eucalyptus over mid mixed shrubs including Xanthorrea and Banksia on sandy plain with grass and weeds.			
Habitat	open woodland		
Disturbance	evidence of feral animals, grazing-high, historic clearing, large-scale clearing, livestock tracks, vehicle tracks, weed infestation		
Vegetation condition	Degraded	**Fire age**	not evident
Total veg. cover (%)	76	**Litter distribution**	sparse
Tree cover (%)	3	**Litter depth (cm)**	1.0
Shrub cover (%)	10	**Litter cover (%)**	2
Grass cover (%)	60	**Herb cover (%)**	3

Site details			
Site	**TL-07**	**Position (WGS84)**	115.6802, -30.9747
Slope	gentle	**Topography**	undulating plain
Soil colour	white	**Soil texture**	sand
Rock cover (%)	0	**Rock type**	none

Sample and effort summary			
Visit	**Sample method**	**Date start**	**Date stop**
1	Site description	12 Aug 2025	12 Aug 2025

Site description - visit 1 (12 Aug 2025)			
Undulating plain, farm paddock with sparse scattered remnant trees, over weedy shrubs and grasses.			
Habitat	grassland		
Disturbance			
Vegetation condition	Completely Degraded	**Fire age**	long-unburnt (>10 years)
Total veg. cover (%)	84	**Litter distribution**	none
Tree cover (%)	1	**Litter depth (cm)**	0.0
Shrub cover (%)	2	**Litter cover (%)**	0
Grass cover (%)	80	**Herb cover (%)**	1

Site details			
Site	**TL-08**	**Position (WGS84)**	115.6924, -30.9767
Slope	gentle	**Topography**	undulating plain
Soil colour	brown-grey, brown	**Soil texture**	sand
Rock cover (%)	0	**Rock type**	none

Sample and effort summary			
Visit	**Sample method**	**Date start**	**Date stop**
1	Site description	12 Aug 2025	12 Aug 2025

Site description - visit 1 (12 Aug 2025)			
Undulating plain, open Banksia woodland over scattered shrubs of Xanthorrhea sp. A recent fire with some regrowth of Banksia.			
Habitat	open woodland		
Disturbance	vehicle tracks, evidence of feral animals,		
Vegetation condition	Very Good	**Fire age**	recent (1 year)
Total veg. cover (%)	29	**Litter distribution**	under vegetation
Tree cover (%)	25	**Litter depth (cm)**	1.0
Shrub cover (%)	1	**Litter cover (%)**	15
Grass cover (%)	2	**Herb cover (%)**	1

Site details			
Site	**TL-09**	**Position (WGS84)**	115.6852, -31.0063
Slope	gentle	**Topography**	undulating plain
Soil colour	brown-grey	**Soil texture**	sandy loam
Rock cover (%)	0	**Rock type**	none

Sample and effort summary			
Visit	**Sample method**	**Date start**	**Date stop**
1	Site description	12 Aug 2025	12 Aug 2025

Site description - visit 1 (12 Aug 2025)			
Olive plantation and blueberry plantation in paddock.			
Habitat	grassland		
Disturbance	current operations, large-scale clearing, historic clearing, vehicle tracks, weed infestation		
Vegetation condition	Completely Degraded	**Fire age**	long-unburnt (>10 years)
Total veg. cover (%)	55	**Litter distribution**	none
Tree cover (%)	5	**Litter depth (cm)**	0.0
Shrub cover (%)	5	**Litter cover (%)**	0
Grass cover (%)	30	**Herb cover (%)**	15

Site details			
Site	**TL-10**	**Position (WGS84)**	115.6929, -30.9881
Slope		**Topography**	undulating plain
Soil colour	yellow	**Soil texture**	sand
Rock cover (%)	0	**Rock type**	none

Sample and effort summary			
Visit	**Sample method**	**Date start**	**Date stop**
1	Site description	13 Aug 2025	13 Aug 2025

Site description - visit 1 (13 Aug 2025)			
Scattered Banksia over Xanthorrhea and mixed shrubs on sandy soils.			
Habitat	shrubland		
Disturbance	livestock tracks, vehicle tracks, weed infestation, evidence of feral animals, grazing-low		
Vegetation condition	Excellent	**Fire age**	moderate (>5 years)
Total veg. cover (%)	68	**Litter distribution**	under vegetation
Tree cover (%)	5	**Litter depth (cm)**	1.0
Shrub cover (%)	50	**Litter cover (%)**	2
Grass cover (%)	10	**Herb cover (%)**	3

Site details			
Site	**TL-11**	**Position (WGS84)**	115.6920, -30.9912
Slope	negligible	**Topography**	undulating plain
Soil colour	yellow	**Soil texture**	sand
Rock cover (%)	0	**Rock type**	none

Sample and effort summary			
Visit	**Sample method**	**Date start**	**Date stop**
1	Site description	13 Aug 2025	13 Aug 2025

Site description - visit 1 (13 Aug 2025)			
Cleared land with current agriculture operations occuring.			
Habitat	grassland		
Disturbance	large-scale clearing, historic clearing, grazing-high, current operations, evidence of feral animals, livestock tracks, logging, vehicle tracks, weed infestation		
Vegetation condition	Completely Degraded	**Fire age**	long-unburnt (>10 years)
Total veg. cover (%)	88	**Litter distribution**	
Tree cover (%)	8	**Litter depth (cm)**	0.0
Shrub cover (%)	0	**Litter cover (%)**	0
Grass cover (%)	60	**Herb cover (%)**	20

Site details			
Site	**TL-12**	**Position (WGS84)**	115.7021, -30.9837
Slope	negligible	**Topography**	undulating plain
Soil colour	light-brown	**Soil texture**	sand
Rock cover (%)	0	**Rock type**	none

Sample and effort summary			
Visit	**Sample method**	**Date start**	**Date stop**
1	Site description	13 Aug 2025	13 Aug 2025

Site description - visit 1 (13 Aug 2025)			
Open Banksia with sparse Mallee Eucalyptus woodland over mid Xanthorrea and mixed shrubs over weeds and grasses. Recently burnt.			
Habitat	open woodland		
Disturbance	vehicle tracks, litter, evidence of feral animals		
Vegetation condition	Very Good	**Fire age**	relatively recent (1-5 years)
Total veg. cover (%)	123	**Litter distribution**	scattered
Tree cover (%)	15	**Litter depth (cm)**	1.0
Shrub cover (%)	20	**Litter cover (%)**	15
Grass cover (%)	83	**Herb cover (%)**	5

Site details			
Site	**TL-13**	**Position (WGS84)**	115.7018, -30.9782
Slope	negligible	**Topography**	undulating plain
Soil colour	light-brown	**Soil texture**	sand, loamy sand
Rock cover (%)	0	**Rock type**	none

Sample and effort summary			
Visit	**Sample method**	**Date start**	**Date stop**
1	Site description	13 Aug 2025	13 Aug 2025
1	Birding	13 Aug 2025	13 Aug 2025
1	Foraging - vertebrates	13 Aug 2025	13 Aug 2025
1	Foraging - SRE	13 Aug 2025	13 Aug 2025
1	Litter sieve	13 Aug 2025	13 Aug 2025
1	Opportunistic sighting	13 Aug 2025	13 Aug 2025

Site description - visit 1 (13 Aug 2025)			
Open banksia woodland over mid-story Banksia, over Acacia, Xanthorrea and mixed shrubs, over grasses on sandy soil.			
Habitat	open woodland		
Disturbance	litter, weed infestation, vehicle tracks, evidence of feral animals		
Vegetation condition	Excellent	**Fire age**	not evident
Total veg. cover (%)	76	**Litter distribution**	scattered
Tree cover (%)	20	**Litter depth (cm)**	1.0
Shrub cover (%)	45	**Litter cover (%)**	50
Grass cover (%)	8	**Herb cover (%)**	3

Site details			
Site	**TL-14**	**Position (WGS84)**	115.7106, -30.9995
Slope	gentle	**Topography**	undulating plain
Soil colour	white	**Soil texture**	sand
Rock cover (%)	0	**Rock type**	none

Sample and effort summary			
Visit	**Sample method**	**Date start**	**Date stop**
1	Site description	13 Aug 2025	13 Aug 2025

Site description - visit 1 (13 Aug 2025)			
Open Banksia woodland with scattered Marri, over Xanthorrhea and mixed native shrubs, over scattered grasses on sandy soils.			
Habitat	open woodland		
Disturbance	vehicle tracks, litter		
Vegetation condition	Excellent	**Fire age**	not evident
Total veg. cover (%)	67	**Litter distribution**	scattered
Tree cover (%)	10	**Litter depth (cm)**	1.0
Shrub cover (%)	50	**Litter cover (%)**	5
Grass cover (%)	5	**Herb cover (%)**	2

Site details			
Site	**TL-15**	**Position (WGS84)**	115.7129, -31.0062
Slope	gentle	**Topography**	undulating plain
Soil colour	brown	**Soil texture**	sandy loam
Rock cover (%)	0	**Rock type**	none

Sample and effort summary			
Visit	**Sample method**	**Date start**	**Date stop**
1	Site description	13 Aug 2025	13 Aug 2025
1	Birding	13 Aug 2025	13 Aug 2025
1	Foraging - vertebrates	13 Aug 2025	13 Aug 2025
1	Foraging - SRE	13 Aug 2025	13 Aug 2025
1	Litter sieve	13 Aug 2025	13 Aug 2025

Site description - visit 1 (13 Aug 2025)			
Open Marri woodland, over tall Acacia and Wooly-bush, over mixed shrubs including Xanthorrhea and Banksia on sandy loam soils.			
Habitat	open woodland		
Disturbance	litter, weed infestation, vehicle tracks		
Vegetation condition	Excellent	**Fire age**	not evident
Total veg. cover (%)	62	**Litter distribution**	even/continuous
Tree cover (%)	20	**Litter depth (cm)**	3.0
Shrub cover (%)	30	**Litter cover (%)**	60
Grass cover (%)	10	**Herb cover (%)**	2

Site details			
Site	**TL-16**	**Position (WGS84)**	115.6932, -30.9957
Slope	steep	**Topography**	river
Soil colour	brown	**Soil texture**	clay loam, sand
Rock cover (%)	5	**Rock type**	limestone

Sample and effort summary			
Visit	**Sample method**	**Date start**	**Date stop**
1	Site description	14 Aug 2025	14 Aug 2025
1	Birding	14 Aug 2025	14 Aug 2025

Site description - visit 1 (14 Aug 2025)			
River and riparian zone with mixed Eucalyptus and Paperbark along waterline, over mixed shrubs and reeds, over weedy grasses on sandy clay loam soils.			
Habitat	riparian zone		
Disturbance	evidence of feral animals, vehicle tracks, weed infestation		
Vegetation condition	Excellent	**Fire age**	long-unburnt (>10 years)
Total veg. cover (%)	72	**Litter distribution**	scattered
Tree cover (%)	25	**Litter depth (cm)**	1.0
Shrub cover (%)	20	**Litter cover (%)**	10
Grass cover (%)	25	**Herb cover (%)**	2

Appendix 3 Vertebrate fauna desktop and field survey results

Family	Species	Common name	Status	Introduced	BirdLife	Dandjoo	PM[1]	PES DB[2]	TFA	Unpubl. Report[3]	This survey
Amphibians											
Hylidae	*Litoria adelaidensis*	Slender Tree Frog				•					•
Hylidae	*Litoria moorei*	Motorbike Frog				•					•
Limnodynastidae	*Heleioporus albopunctatus*	Western Spotted Frog				•					
Limnodynastidae	*Heleioporus eyrei*	Moaning Frog				•				•	•
Limnodynastidae	*Heleioporus psammophilus*	Sand Frog				•				•	
Limnodynastidae	*Limnodynastes dorsalis*	Western Banjo Frog				•				•	•
Limnodynastidae	*Neobatrachus pelobatoides*	Humming Frog				•				•	
Myobatrachidae	*Crinia glauerti*	Clicking Frog				•					•
Myobatrachidae	*Crinia insignifera*	Squelching Froglet				•				•	•
Myobatrachidae	*Crinia pseudinsignifera*	Bleating Froglet				•					•
Myobatrachidae	*Myobatrachus gouldii*	Turtle Frog				•				•	
Myobatrachidae	*Pseudophryne guentheri*	Crawling Toadlet				•					•
Birds											
Accipitridae	*Aquila audax*	Wedge-tailed Eagle			•	•				•	•
Accipitridae	*Circus approximans*	Swamp Harrier			•	•				•	
Accipitridae	*Circus assimilis*	Spotted Harrier			•	•					
Accipitridae	*Elanus axillaris*	Black-shouldered Kite			•	•				•	•
Accipitridae	*Haliaeetus leucogaster*	White-bellied Sea-Eagle			•					•	
Accipitridae	*Haliastur sphenurus*	Whistling Kite			•	•					•
Accipitridae	*Hieraaetus morphnoides*	Little Eagle			•	•		•			

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Accipitridae	*Lophoictinia isura*	Square-tailed Kite			•						
Accipitridae	*Milvus migrans*	Black Kite			•						
Accipitridae	*Tachyspiza cirrocephala*	Collared Sparrowhawk			•	•					
Accipitridae	*Tachyspiza fasciata*	Brown Goshawk			•	•				•	
Pandionidae	*Pandion haliaetus*	Osprey	Mig. (EPBC & BC Acts)		•		K				
Anatidae	*Anas castanea*	Chestnut Teal			•	•					
Anatidae	*Anas gracilis*	Grey Teal			•	•				•	•
Anatidae	*Anas platyrhynchos*	Mallard			•						
Anatidae	*Anas superciliosa*	Pacific Black Duck			•	•				•	•
Anatidae	*Aythya australis*	Hardhead			•	•				•	•
Anatidae	*Biziura lobata*	Musk Duck			•	•				•	•
Anatidae	*Chenonetta jubata*	Australian Wood Duck			•	•				•	•
Anatidae	*Cygnus atratus*	Black Swan			•	•				•	
Anatidae	*Malacorhynchus membranaceus*	Pink-eared Duck			•	•				•	
Anatidae	*Oxyura australis*	Blue-billed Duck	P4 (DBCA list)		•				•	•	•
Anatidae	*Spatula rhynchotis*	Australasian Shoveler			•	•				•	•
Anatidae	*Stictonetta naevosa*	Freckled Duck			•	•				•	
Anatidae	*Tadorna tadornoides*	Australian Shelduck			•	•				•	•
Apodidae	*Apus pacificus*	Fork-tailed Swift	Mig. (EPBC & BC Acts)				L				
Aegothelidae	*Aegotheles cristatus*	Australian Owlet-nightjar			•	•					
Caprimulgidae	*Eurostopodus argus*	Spotted Nightjar				•					
Podargidae	*Podargus strigoides*	Tawny Frogmouth			•	•					•

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Charadriidae	*Anarhynchus bicinctus*	Double-banded Plover	Mig. (EPBC & BC Acts)							•	
Charadriidae	*Anarhynchus leschenaultii*	Greater Sand Plover	VU/Mig. (EPBC Act) VU (BC Act)		•		K				
Charadriidae	*Anarhynchus ruficapillus*	Red-capped Plover			•	•				•	
Charadriidae	*Charadrius cucullatus*	Hooded Plover/Dotterel	P4 (DBCA list)		•				•		
Charadriidae	*Charadrius melanops*	Black-fronted Dotterel			•	•					
Charadriidae	*Erythrogonys cinctus*	Red-kneed Dotterel			•	•				•	
Charadriidae	*Peltohyas australis*	Inland Dotterel				•					
Charadriidae	*Pluvialis fulva*	Pacific Golden Plover	Mig. (EPBC & BC Acts)		•				•	•	
Charadriidae	*Pluvialis squatarola*	Grey Plover	VU/Mig. (EPBC Act) Mig. (BC Act)		•				•	•	
Charadriidae	*Vanellus tricolor*	Banded Lapwing			•	•					
Haematopodidae	*Haematopus fuliginosus*	Sooty Oystercatcher			•						
Haematopodidae	*Haematopus longirostris*	Pied Oystercatcher			•	•					
Laridae	*Anous stolidus*	Common Noddy	Mig. (EPBC & BC Acts)		•		L		•		
Laridae	*Anous tenuirostris melanops*	Australian Lesser Noddy	VU/ EN (EPBC & BC Act)				M				
Laridae	*Chlidonias hybrida*	Whiskered Tern				•				•	
Laridae	*Chlidonias leucopterus*	White-winged Black Tern	Mig. (EPBC & BC Acts)						•		
Laridae	*Chroicocephalus novaehollandiae*	Silver Gull			•	•				•	
Laridae	*Hydroprogne caspia*	Caspian Tern	Mig. (EPBC & BC Acts)		•		K		•		
Laridae	*Larus pacificus*	Pacific Gull			•	•					
Laridae	*Onychoprion anaethetus*	Bridled Tern	Mig. (EPBC & BC Acts)		•		K		•		

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Laridae	*Onychoprion fuscatus*	Sooty Tern			•	•					
Laridae	*Sterna dougallii*	Roseate Tern	Mig. (EPBC & BC Acts)		•		K		•		
Laridae	*Sternula albifrons*	Little Tern	VU/Mig. (EPBC Act) Mig. (BC Act)				M				
Laridae	*Sternula nereis nereis*	Fairy Tern	VU (EPBC & BC Acts)		•	•	K				
Laridae	*Thalasseus bergii*	Greater Crested Tern	Mig. (EPBC & BC Acts)		•		K		•		
Recurvirostridae	*Cladorhynchus leucocephalus*	Banded Stilt			•	•				•	
Recurvirostridae	*Himantopus leucocephalus*	Pied Stilt			•	•				•	
Recurvirostridae	*Recurvirostra novaehollandiae*	Red-necked Avocet			•	•				•	
Rostratulidae	*Rostratula australis*	Australian Painted Snipe	EN (EPBC & BC Acts)				L				
Scolopacidae	*Actitis hypoleucos*	Common Sandpiper	Mig. (EPBC & BC Acts)		•		K		•	•	
Scolopacidae	*Arenaria interpres*	Ruddy Turnstone	VU/Mig. (EPBC Act) Mig. (BC Act)		•				•		
Scolopacidae	*Calidris acuminata*	Sharp-tailed Sandpiper	VU/Mig. (EPBC Act) Mig. (BC Act)		•		M		•	•	
Scolopacidae	*Calidris alba*	Sanderling	Mig. (EPBC & BC Acts)		•				•		
Scolopacidae	*Calidris canutus*	Red Knot	VU/Mig. (EPBC Act) EN (BC Act)				K				
Scolopacidae	*Calidris falcinellus*	Broad-billed Sandpiper	Mig. (EPBC & BC Acts)							•	
Scolopacidae	*Calidris ferruginea*	Curlew Sandpiper	CR/Mig. (EPBC Act) CR (BC Act)		•		L		•	•	
Scolopacidae	*Calidris melanotos*	Pectoral Sandpiper	Mig. (EPBC & BC Acts)		•		M		•	•	
Scolopacidae	*Calidris pugnax*	Ruff	Mig. (EPBC & BC Acts)		•				•		

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Scolopacidae	*Calidris ruficollis*	Red-necked Stint	Mig. (EPBC & BC Acts)		•				•	•	
Scolopacidae	*Calidris subminuta*	Long-toed Stint	Mig. (EPBC & BC Acts)		•				•	•	
Scolopacidae	*Calidris tenuirostris*	Great Knot	CR/Mig. (EPBC Act) CR (BC Act)							•	
Scolopacidae	*Limosa lapponica*	Bar-tailed Godwit	Mig. (EPBC & BC Acts)		•		K		•	•	
Scolopacidae	*Limosa lapponica* subsp. *menzbieri*	Bar-tailed Godwit (northern Siberian)	CR/Mig. (EPBC Acts) EN (BC Act)				K				
Scolopacidae	*Limosa limosa*	Black-tailed Godwit	EN/Mig. (EPBC Act) Mig. (BC Act)		•					•	
Scolopacidae	*Numenius madagascariensis*	Eastern Curlew	CR/Mig. (EPBC Act) CR (BC Act)				M				
Scolopacidae	*Numenius minutus*	Little Curlew	Mig. (EPBC & BC Acts)		•				•		
Scolopacidae	*Tringa brevipes*	Grey-tailed Tattler	Mig. (EPBC & BC Acts) P4 (DBCA list)		•						
Scolopacidae	*Tringa glareola*	Wood Sandpiper	Mig. (EPBC & BC Acts)						•		
Scolopacidae	*Tringa nebularia*	Common Greenshank	EN/Mig. (EPBC Act) Mig. (BC Act)		•		L		•	•	
Scolopacidae	*Tringa stagnatilis*	Marsh Sandpiper	Mig. (EPBC & BC Acts)							•	
Ardeidae	*Ardea alba*	Great Egret (Eastern Great Egret)			•	•				•	
Ardeidae	*Ardea pacifica*	White-necked Heron			•	•				•	
Ardeidae	*Botaurus poiciloptilus*	Australasian Bittern	EN (EPBC & BC Acts)				K		•		
Ardeidae	*Egretta novaehollandiae*	White-faced Heron			•	•				•	•
Ardeidae	*Egretta sacra*	Eastern Reef Egret			•						

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Ardeidae	*Ixobrychus dubius*	Australian Little Bittern	P4 (DBCA list)		•						
Ardeidae	*Nycticorax caledonicus*	Rufous Night Heron			•	•					
Threskiornithidae	*Platalea flavipes*	Yellow-billed Spoonbill			•	•				•	
Threskiornithidae	*Platalea regia*	Royal Spoonbill			•						
Threskiornithidae	*Plegadis falcinellus*	Glossy Ibis	Mig. (EPBC & BC Acts)		•				•		
Threskiornithidae	*Threskiornis molucca*	Australian White Ibis			•	•				•	•
Threskiornithidae	*Threskiornis spinicollis*	Straw-necked Ibis			•	•		•		•	
Columbidae	*Columba livia*	Rock Dove		•	•						
Columbidae	*Ocyphaps lophotes*	Crested Pigeon			•	•		•		•	•
Columbidae	*Phaps chalcoptera*	Common Bronzewing			•	•					•
Columbidae	*Phaps elegans*	Brush Bronzewing			•	•					
Columbidae	*Streptopelia chinensis*	Spotted Dove		•	•						
Columbidae	*Streptopelia senegalensis*	Laughing Dove		•	•	•		•			
Halcyonidae	*Dacelo novaeguineae*	Laughing Kookaburra		•	•	•		•			•
Halcyonidae	*Todiramphus pyrrhopygius*	Red-backed Kingfisher				•					
Halcyonidae	*Todiramphus sanctus*	Sacred Kingfisher			•	•					
Meropidae	*Merops ornatus*	Rainbow Bee-eater			•	•		•			
Cuculidae	*Cacomantis flabelliformis*	Fan-tailed Cuckoo			•	•		•			
Cuculidae	*Chalcites basalis*	Horsfield's Bronze Cuckoo			•	•		•		•	•
Cuculidae	*Chalcites lucidus*	Shining Bronze Cuckoo			•	•					•
Cuculidae	*Chalcites osculans*	Black-eared Cuckoo			•	•					
Cuculidae	*Heteroscenes pallidus*	Pallid Cuckoo			•			•			•

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Falconidae	*Falco berigora*	Brown Falcon			•	•					
Falconidae	*Falco cenchroides*	Australian Kestrel			•	•		•		•	•
Falconidae	*Falco hypoleucos*	Grey Falcon	VU (EPBC & BC Acts)				M				
Falconidae	*Falco longipennis*	Australian Hobby			•	•					•
Falconidae	*Falco peregrinus*	Peregrine Falcon	OS (BC Act)		•				•		
Megapodiidae	*Leipoa ocellata*	Malleefowl	VU (EPBC & BC Acts)		•		K		•		
Phasianidae	*Coturnix pectoralis*	Stubble Quail			•	•					•
Phasianidae	*Synoicus ypsilophorus*	Brown Quail			•	•					
Otididae	*Ardeotis australis*	Australian Bustard			•						
Rallidae	*Fulica atra*	Eurasian Coot			•	•				•	
Rallidae	*Gallinula tenebrosa*	Dusky Moorhen			•	•					
Rallidae	*Hypotaenidia philippensis*	Buff-banded Rail			•						
Rallidae	*Porphyrio melanotus*	Australasian Swamphen			•	•					
Rallidae	*Porzana fluminea*	Australian Spotted Crake				•					
Rallidae	*Tribonyx ventralis*	Black-tailed Native-hen			•	•					
Rallidae	*Zapornia pusilla*	Baillon's Crake				•					
Rallidae	*Zapornia tabuensis*	Spotless Crake			•	•					
Acanthizidae	*Acanthiza apicalis*	Inland Thornbill			•	•					
Acanthizidae	*Acanthiza chrysorrhoa*	Yellow-rumped Thornbill			•	•				•	•
Acanthizidae	*Acanthiza inornata*	Western Thornbill			•	•				•	
Acanthizidae	*Acanthiza uropygialis*	Chestnut-rumped Thornbill			•	•					
Acanthizidae	*Aphelocephala leucopsis*	Southern Whiteface	VU (EPBC Act)				M				

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Acanthizidae	*Calamanthus campestris*	Rufous Fieldwren			•	•				•	
Acanthizidae	*Gerygone fusca*	Western Gerygone			•	•		•		•	•
Acanthizidae	*Calamanthus cautus*	Shy Heathwren			•						
Acanthizidae	*Pyrrholaemus brunneus*	Redthroat				•					
Acanthizidae	*Sericornis maculatus*	Spotted Scrubwren			•	•				•	•
Acanthizidae	*Smicrornis brevirostris*	Weebill			•	•		•			•
Artamidae	*Artamus cinereus*	Black-faced Woodswallow			•	•		•		•	•
Artamidae	*Artamus cyanopterus*	Dusky Woodswallow			•					•	
Artamidae	*Artamus personatus*	Masked Woodswallow			•	•					
Artamidae	*Cracticus nigrogularis*	Pied Butcherbird			•	•		•			•
Artamidae	*Cracticus torquatus*	Grey Butcherbird			•	•					•
Artamidae	*Gymnorhina tibicen*	Australian Magpie			•	•		•		•	•
Artamidae	*Strepera versicolor*	Grey Currawong			•	•					
Campephagidae	*Coracina maxima*	Ground Cuckoo-shrike				•					
Campephagidae	*Coracina novaehollandiae*	Black-faced Cuckoo-shrike			•	•		•		•	•
Campephagidae	*Lalage tricolor*	White-winged Triller			•	•				•	
Climacteridae	*Climacteris rufus*	Rufous Treecreeper			•	•					
Corvidae	*Corvus bennetti*	Little Crow			•	•					
Corvidae	*Corvus coronoides*	Australian Raven			•	•		•			•
Dicaeidae	*Dicaeum hirundinaceum*	Mistletoebird			•	•					
Dicruridae	*Grallina cyanoleuca*	Magpie-lark			•	•		•			•
Dicruridae	*Myiagra inquieta*	Restless Flycatcher			•						

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Dicruridae	*Rhipidura albiscapa*	Grey Fantail			•	•		•			•
Dicruridae	*Rhipidura leucophrys*	Willie Wagtail			•	•		•		•	•
Estrildidae	*Taeniopygia castanotis*	Zebra Finch				•					
Hirundinidae	*Cheramoeca leucosterna*	White-backed Swallow			•	•					
Hirundinidae	*Hirundo neoxena*	Welcome Swallow			•	•					•
Hirundinidae	*Petrochelidon ariel*	Fairy Martin			•	•					
Hirundinidae	*Petrochelidon nigricans*	Tree Martin			•	•				•	•
Locustellidae	*Cincloramphus cruralis*	Brown Songlark			•	•					
Locustellidae	*Cincloramphus mathewsi*	Rufous Songlark			•	•		•		•	
Locustellidae	*Poodytes gramineus*	Little Grassbird			•	•					
Maluridae	*Malurus assimilis*	Purple-backed Fairy-wren			•	•				•	•
Maluridae	*Malurus elegans*	Red-winged Fairy-wren			•						
Maluridae	*Malurus leucopterus*	White-winged Fairy-wren			•	•		•		•	
Maluridae	*Malurus pulcherrimus*	Blue-breasted Fairy-wren			•	•					
Maluridae	*Malurus splendens*	Splendid Fairy-wren			•	•		•		•	•
Maluridae	*Stipiturus malachurus*	Southern Emu-wren			•	•				•	
Maluridae	*Stipiturus ruficeps*	Rufous-crowned Emu-wren				•					
Meliphagidae	*Acanthagenys rufogularis*	Spiny-cheeked Honeyeater			•	•					
Meliphagidae	*Acanthorhynchus superciliosus*	Western Spinebill			•	•					•
Meliphagidae	*Anthochaera carunculata*	Red Wattlebird			•	•		•		•	•
Meliphagidae	*Anthochaera lunulata*	Western Little Wattlebird			•	•				•	•
Meliphagidae	*Certhionyx variegatus*	Pied Honeyeater			•						

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Meliphagidae	*Epthianura albifrons*	White-fronted Chat			•	•					
Meliphagidae	*Epthianura tricolor*	Crimson Chat			•	•					
Meliphagidae	*Gavicalis virescens*	Singing Honeyeater			•	•		•			•
Meliphagidae	*Gliciphila melanops*	Tawny-crowned honeyeater			•	•				•	
Meliphagidae	*Lichmera indistincta*	Brown Honeyeater			•	•		•		•	•
Meliphagidae	*Manorina flavigula*	Yellow-throated Miner			•	•					•
Meliphagidae	*Melithreptus brevirostris*	Brown-headed Honeyeater			•	•					
Meliphagidae	*Melithreptus chloropsis*	Western White-naped Honeyeater			•						
Meliphagidae	*Nesoptilotis leucotis*	White-eared Honeyeater			•	•					
Meliphagidae	*Phylidonyris niger*	White-cheeked Honeyeater			•	•				•	•
Meliphagidae	*Phylidonyris novaehollandiae*	New Holland Honeyeater			•	•		•			•
Meliphagidae	*Ptilotula keartlandi*	Grey-headed Honeyeater				•					
Meliphagidae	*Ptilotula ornata*	Yellow-plumed Honeyeater			•	•					
Meliphagidae	*Ptilotula plumula*	Grey-fronted Honeyeater				•					
Meliphagidae	*Purnella albifrons*	White-fronted Honeyeater			•					•	
Meliphagidae	*Sugomel nigrum*	Black Honeyeater			•						
Motacillidae	*Anthus australis*	Australian Pipit			•	•		•			•
Motacillidae	*Motacilla cinerea*	Grey Wagtail	Mig. (EPBC & BC Acts)				M				
Neosittidae	*Daphoenositta chrysoptera*	Varied Sittella			•	•				•	
Pachycephalidae	*Colluricincla harmonica*	Grey Shrike-thrush			•	•		•			•
Pachycephalidae	*Oreoica gutturalis*	Crested Bellbird			•	•				•	
Pachycephalidae	*Pachycephala fuliginosa*	Western Whistler			•	•					

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Pachycephalidae	*Pachycephala rufiventris*	Rufous Whistler			•	•		•		•	•
Pardalotidae	*Pardalotus punctatus*	Spotted Pardalote			•	•					•
Pardalotidae	*Pardalotus striatus*	Striated Pardalote			•	•				•	•
Petroicidae	*Eopsaltria griseogularis*	Western Yellow Robin			•						
Petroicidae	*Melanodryas cucullata*	Hooded Robin			•	•					
Petroicidae	*Microeca fascinans*	Jacky Winter			•	•					
Petroicidae	*Petroica boodang*	Scarlet Robin			•	•					•
Petroicidae	*Petroica goodenovii*	Red-capped Robin			•	•					
Petroicidae	*Quoyornis georgianus*	White-breasted Robin			•						
Pomatostomidae	*Pomatostomus superciliosus*	White-browed Babbler			•	•					
Sylviidae	*Acrocephalus australis*	Australian Reed Warbler			•	•					
Zosteropidae	*Zosterops lateralis*	Silvereye			•	•				•	•
Anhingidae	*Anhinga novaehollandiae*	Australasian Darter			•	•				•	•
Pelecanidae	*Pelecanus conspicillatus*	Australian Pelican			•	•				•	
Phaethontidae	*Phaethon rubricauda westralis*	Indian Ocean Red-tailed Tropicbird	EN/Mig. (EPBC Act; BC Act) P4 (DBCA list)				M				
Phalacrocoracidae	*Microcarbo melanoleucos*	Little Pied Cormorant			•	•				•	
Phalacrocoracidae	*Phalacrocorax carbo*	Great Cormorant			•	•				•	
Phalacrocoracidae	*Phalacrocorax sulcirostris*	Little Black Cormorant			•	•				•	
Phalacrocoracidae	*Phalacrocorax varius*	Pied Cormorant			•	•					
Sulidae	*Morus serrator*	Australasian Gannet			•						
Podicipedidae	*Podiceps cristatus*	Great Crested Grebe			•	•				•	

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Podicipedidae	*Poliocephalus poliocephalus*	Hoary-headed Grebe			•	•				•	
Podicipedidae	*Tachybaptus novaehollandiae*	Australasian Grebe			•	•					•
Diomedeidae	*Diomedea amsterdamensis*	Amsterdam Albatross	EN/Mig. (EPBC Act) CR/Mig. (BC Act)				M				
Diomedeidae	*Diomedea epomophora*	Southern Royal Albatross	VU/Mig. (EPBC & BC Acts)				M				
Diomedeidae	*Diomedea exulans*	Wandering Albatross	VU/Mig. (EPBC & BC Acts)				L				
Diomedeidae	*Phoebetria fusca*	Sooty Albatross	VU/Mig. (EPBC Act) EN/Mig. (BC Act)				M				
Diomedeidae	*Thalassarche carteri*	Indian Yellow-nosed Albatross	VU/Mig. (EPBC Act) EN/Mig. (BC Act)				L				
Diomedeidae	*Thalassarche cauta* subsp. *cauta*	Shy Albatross	EN/Mig. (BC Act)				M				
Diomedeidae	*Thalassarche cauta* subsp. *steadi*	White-capped Albatross	VU/Mig. (BC Act)				M				
Diomedeidae	*Thalassarche impavida*	Campbell Albatross	VU/Mig. (EPBC & BC Acts)				M				
Diomedeidae	*Thalassarche melanophris*	Black-browed Albatross	VU/Mig. (EPBC Act) EN/Mig. (BC Act)				L				
Oceanitidae	*Pelagodroma marina*	White-faced Storm Petrel				•					
Procellariidae	*Ardenna carneipes*	Flesh-footed Shearwater	VU/Mig. (BC Act)		•		L				
Procellariidae	*Ardenna pacifica*	Wedge-tailed Shearwater	Mig. (BC Act)		•		K				
Procellariidae	*Halobaena caerulea*	Blue Petrel	VU (EPBC Act)				M				
Procellariidae	*Macronectes giganteus*	Southern Giant Petrel	EN/Mig. (EPBC Act) Mig. (BC Act)				M		•		

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Procellariidae	*Macronectes halli*	Northern Giant Petrel	VU/Mig. (EPBC Act) Mig. (BC Act)				L				
Procellariidae	*Pachyptila turtur subantarctica*	Fairy Prion (southern)	VU (EPBC Act)				L				
Procellariidae	*Pterodroma mollis*	Soft-plumaged Petrel	VU (EPBC Act)				M				
Cacatuidae	*Cacatua pastinator*	Western Long-billed Corella			•	•					•
Cacatuidae	*Cacatua sanguinea*	Little Corella			•	•		•		•	•
Cacatuidae	*Cacatua tenuirostris*	Eastern Long-billed Corella		•	•						
Cacatuidae	*Calyptorhynchus banksii naso*	Forest Red-tailed Black Cockatoo	VU (EPBC & BC Acts)		•		M		•		•
Cacatuidae	*Calyptorhynchus/Zanda sp.*	Black cockatoo species	EN-VU (EPBC & BC Acts)							•	
Cacatuidae	*Eolophus roseicapilla*	Galah			•	•		•		•	•
Cacatuidae	*Zanda baudinii*	Baudin's Cockatoo	EN (EPBC & BC Acts)		•						
Cacatuidae	*Zanda latirostris*	Carnaby's Cockatoo	EN (EPBC & BC Acts)		•		K	•	•		•
Cacatuidae	*Zanda sp.*	White-tailed black cockatoo species	EN (EPBC & BC Acts)		•				•		
Psittaculidae	*Barnardius zonarius*	Australian Ringneck			•	•		•		•	•
Psittaculidae	*Melopsittacus undulatus*	Budgerigar			•	•					
Psittaculidae	*Neophema elegans*	Elegant Parrot			•					•	
Psittaculidae	*Neophema petrophila*	Rock Parrot			•	•					
Psittaculidae	*Parvipsitta porphyrocephala*	Purple-crowned Lorikeet			•	•					
Psittaculidae	*Platycercus icterotis*	Western Rosella			•	•					
Psittaculidae	*Platycercus icterotis* subsp. *xanthogenys*	Western Rosella (inland)	P4 (DBCA list)						•		
Psittaculidae	*Polytelis anthopeplus*	Regent Parrot			•	•					

Family	Species	Common name	Status	Introduced	BirdLife	Dandjoo	PM[1]	PES DB[2]	TFA	Unpubl. Report[3]	This survey
Psittaculidae	*Psephotellus varius*	Mulga Parrot				•					
Psittaculidae	*Purpureicephalus spurius*	Red-capped Parrot			•	•				•	•
Psittaculidae	*Trichoglossus moluccanus*	Rainbow Lorikeet		•	•						
Strigidae	*Ninox boobook*	Boobook Owl			•	•					•
Strigidae	*Ninox connivens* subsp. *connivens*	Barking Owl (southwest subpop.)[4]	P3 (DBCA list)		•						
Tytonidae	*Tyto javanica*	Eastern Barn Owl			•	•					•
Dromaiidae	*Dromaius novaehollandiae*	Emu			•	•				•	•
Turnicidae	*Turnix varius*	Painted Button-quail			•	•					
Turnicidae	*Turnix velox*	Little Button-quail			•	•					
Mammals											
Bovidae	*Bos taurus*	European Cattle		•							•
Bovidae	*Capra hircus*	Goat		•							•
Bovidae	*Ovis aries*	Sheep				•					•
Suidae	*Sus scrofa*	Pig		•				•			•
Canidae	*Canis familiaris*	Dog		•		•					•
Canidae	*Vulpes vulpes*	Red Fox		•		•		•			•
Felidae	*Felis catus*	Cat		•				•			•
Megadermatidae	*Macroderma gigas*	Ghost Bat	VU (EPBC & BC Acts)				M				
Molossidae	*Austronomus australis*	White-striped Free-tailed Bat									•
Molossidae	*Ozimops kitcheneri*	South-western Free-tailed Bat									•
Vespertilionidae	*Chalinolobus gouldii*	Gould's Wattled Bat				•					•
Vespertilionidae	*Chalinolobus morio*	Chocolate Wattled Bat									•

Family	Species	Common name	Status	Introduced	BirdLife	Dandjoo	PM[1]	PES DB[2]	TFA	Unpubl. Report[3]	This survey
Vespertilionidae	*Nyctophilus geoffroyi*	Lesser Long-eared Bat				•					•
Vespertilionidae	*Nyctophilus holtorum*	Holt's Long-eared Bat				•					
Vespertilionidae	*Vespadelus regulus*	Southern Forest Bat				•					•
Dasyuridae	*Antechinus flavipes*	Mardo, Yellow-footed Antechinus				•					
Dasyuridae	*Dasyurus geoffroii*	Chuditch	VU (EPBC & BC Acts)				K		•		
Dasyuridae	*Parantechinus apicalis*	Dibbler	EN (EPBC & BC Acts)				M				
Dasyuridae	*Phascogale calura*	Red-tailed Phascogale	VU/CD (EPBC Act; BC Act)				L				
Dasyuridae	*Phascogale tapoatafa wambenger*	South-western Brush-tailed Phascogale	CD (BC Act)						•		
Dasyuridae	*Sminthopsis crassicaudata*	Fat-tailed Dunnart				•					
Dasyuridae	*Sminthopsis dolichura*	Little long-tailed Dunnart				•				•	
Dasyuridae	*Sminthopsis fuliginosa*	Grey-bellied Dunnart				•				•	
Dasyuridae	*Sminthopsis gilberti*	Gilbert's Dunnart				•					
Dasyuridae	*Sminthopsis granulipes*	White-tailed Dunnart				•				•	
Myrmecobiidae	*Myrmecobius fasciatus*	Numbat	EN (EPBC & BC Acts)				M				
Macropodidae	*Macropus fuliginosus*	Western Grey Kangaroo				•		•			•
Macropodidae	*Notamacropus irma*	Western Brush Wallaby	P4 (DBCA list)						•		
Potoroidae	*Bettongia penicillata ogilbyi*	Woylie, Brush-tailed Bettong	EN/CR (EPBC Act; BC Act)				L				
Potoroidae	*Potorous platyops*	Broad-faced Potoroo	EX (EPBC & BC Acts)						•		
Tarsipedidae	*Tarsipes rostratus*	Honey Possum				•				•	
Leporidae	*Oryctolagus cuniculus*	Rabbit		•		•		•			•

Family	Species	Common name	Status	Introduced	BirdLife	Dandjoo	PM[1]	PES DB[2]	TFA	Unpubl. Report[3]	This survey
Tachyglossidae	*Tachyglossus aculeatus*	Short-beaked Echidna				•				•	•
Peramelidae	*Isoodon fusciventer*	Quenda	P4 (DBCA list)						•		
Thylacomyidae	*Macrotis lagotis*	Bilby	VU (EPBC & BC Acts)						•		
Muridae	*Hydromys chrysogaster*	Water-rat	P4 (DBCA list)						•		
Muridae	*Mus musculus*	House Mouse		•		•				•	
Muridae	*Pseudomys albocinereus*	Noodji, Ash-grey Mouse				•				•	
Muridae	*Rattus fuscipes*	Moodit, Western Bush Rat				•				•	
Muridae	*Rattus rattus*	Black Rat		•		•					•
Reptiles											
Agamidae	*Ctenophorus adelaidensis*	Southern Heath Dragon				•				•	
Agamidae	*Pogona minor*	Dwarf Bearded Dragon				•				•	•
Diplodactylidae	*Crenadactylus ocellatus*	South-western Clawless Gecko				•					
Diplodactylidae	*Diplodactylus granariensis*	Western Stone Gecko				•					
Diplodactylidae	*Diplodactylus polyophthalmus*	Spotted Sandplain Gecko				•				•	
Diplodactylidae	*Lucasium alboguttatum*	White-spotted Ground Gecko				•				•	
Diplodactylidae	*Strophurus spinigerus*	South-western Spiny-tailed Gecko				•				•	
Elapidae	*Brachyurophis fasciolatus*	Narrow-banded Shovel-nosed Snake				•					
Elapidae	*Brachyurophis semifasciatus*	Southern Shovel-nosed Snake				•					
Elapidae	*Demansia reticulata*	Reticulated Whipsnake				•					
Elapidae	*Echiopsis curta*	Bardick				•					•
Elapidae	*Hydrophis platurus*	Yellow-bellied Seasnake				•					
Elapidae	*Neelaps bimaculatus*	Black-naped Snake				•					

Family	Species	Common name	Status	Introduced	BirdLife	Dandjoo	PM[1]	PES DB[2]	TFA	Unpubl. Report[3]	This survey
Elapidae	*Neelaps calonotos*	Black-striped Snake	P3 (DBCA list)						•		
Elapidae	*Notechis scutatus*	Tiger Snake				•					
Elapidae	*Pseudechis australis*	Mulga Snake				•					
Elapidae	*Pseudonaja affinis*	Dugite				•					
Elapidae	*Pseudonaja mengdeni*	Western Brown Snake				•					
Elapidae	*Pseudonaja modesta*	Ringed Brown Snake				•					
Elapidae	*Simoselaps bertholdi*	Jan's Banded Snake				•					
Elapidae	*Suta gouldii*	Gould's Hooded Snake				•				•	
Elapidae	*Suta nigriceps*	Black-backed Hooded Snake				•					
Gekkonidae	*Christinus marmoratus*	Marbled Gecko				•					
Gekkonidae	*Gehyra variegata*	Variegated gehyra				•					
Pygopodidae	*Aprasia repens*	Sand-plain Worm-lizard				•					
Pygopodidae	*Delma australis*	Marble-faced Delma				•					
Pygopodidae	*Delma concinna*	Javelin Legless Lizard				•					
Pygopodidae	*Delma fraseri*	Fraser's Legless Lizard				•					•
Pygopodidae	*Delma grayii*	Side-barred Delma				•					
Pygopodidae	*Lialis burtonis*	Burton's Legless Lizard				•		•			
Pygopodidae	*Pletholax gracilis*	Keeled Legless Lizard				•				•	
Pygopodidae	*Pygopus lepidopodus*	Common Scaly-foot				•		•		•	•
Pythonidae	*Morelia imbricata*	South-west Carpet Python				•					
Scincidae	*Acritoscincus trilineatus*	Western Three-lined Skink				•					
Scincidae	*Cryptoblepharus buchananii*	Buchanan’s Snake-eyed Skink				•				•	•

Family	Species	Common name	Status	Introduced	BirdLife	Dandjoo	PM[1]	PES DB[2]	TFA	Unpubl. Report[3]	This survey
Scincidae	*Cryptoblepharus plagiocephalus*	Peron's Snake-eyed Skink				•					
Scincidae	*Ctenotus australis*	West Coast Long-tailed Ctenotus				•		•			
Scincidae	*Ctenotus fallens*	West Coast Ctenotus				•				•	
Scincidae	*Ctenotus gemmula*	Jewelled South-west Ctenotus								•	
Scincidae	*Ctenotus impar*	South-western Odd-striped Ctenotus				•				•	
Scincidae	*Ctenotus lancelini*	Lancelin Island Skink	VU (EPBC & BC Acts)				K		•		
Scincidae	*Ctenotus pantherinus*	Leopard Ctenotus				•					
Scincidae	*Ctenotus schomburgkii*	Barred Wedge-snout Ctenotus				•					
Scincidae	*Cyclodomorphus celatus*	Western Slender Blue-tongue				•					
Scincidae	*Egernia kingii*	King's Skink				•					
Scincidae	*Egernia napoleonis*	Southwestern Crevice-skink				•				•	
Scincidae	*Egernia stokesii* subsp. *badia*	Western Spiny-tailed Skink	EN/VU (EPBC Act; BC Act)				M				
Scincidae	*Hemiergis quadrilineata*	Two-toed Earless Skink				•					
Scincidae	*Lerista christinae*	Bold-striped Slider				•					
Scincidae	*Lerista distinguenda*	South-western Four-toed Slider				•					
Scincidae	*Lerista elegans*	Elegant Slider				•				•	
Scincidae	*Lerista lineopunctulata*	Line-spotted Robust Slider				•					
Scincidae	*Lerista praepedita*	West-coast Worm-slider				•				•	
Scincidae	*Liopholis multiscutata*	Bull Skink				•					
Scincidae	*Menetia greyii*	Common Dwarf Skink				•				•	
Scincidae	*Morethia lineoocellata*	West Coast Pale-flecked Morethia				•					

Family	Species	Common name	Status	Introduced	BirdLife	Dandjoo	PM[1]	PES DB[2]	TFA	Unpubl. Report[3]	This survey
Scincidae	*Morethia obscura*	Shrubland Pale-flecked Morethia				•				•	
Scincidae	*Tiliqua occipitalis*	Western Blue-tongue				•					
Scincidae	*Tiliqua rugosa*	Bobtail				•		•			•
Typhlopidae	*Anilios australis*	Southern Blind Snake				•				•	
Typhlopidae	*Anilios pinguis*	Rotund Blind Snake				•					
Typhlopidae	*Anilios waitii*	Beaked Blind Snake				•					
Varanidae	*Varanus gouldii*	Bungarra or Sand Monitor				•				•	
Varanidae	*Varanus tristis*	Racehorse Monitor				•					
Chelidae	*Chelodina oblonga*	South-western Long-necked Turtle									•
Chelidae	*Pseudemydura umbrina*	Western Swamp Tortoise	CR (EPBC & BC Acts)				K		•		

[1] PM – Protected Matters Database. Protected Matters ranks: K = Known, L = Likely, M = May. PES DB – Phoenix database.

[2]Phoenix Environmental Science Database

[3]Unpublished reports are listed in Table 4-2.

[4]Likely a misidentified Boobook or Masked Owl

Appendix 4 SRE invertebrate desktop results

Higher taxon, Family	Taxon	SRE status	Proximity to study area/ comment
Aquatic invertebrates			
Bivalve			
Hyriidae	*Westralunio carteri*	VU (BC & EPBC Act)/ Widespread	Inhabits fresh water. Recorded within study area.
Sphaeriidae	*Musculium kendricki*	Widespread	Inhabits brackish to fresh water. Outside study area.
Terrestrial invertebrates			
Class: Chilopoda (Centipede)			
Chilenophilidae	Chilenophilidae `sp. indet.`	Uncertain	Outside study area.
Chilenophilidae	*Ribautia repanda*	Potential	Outside study area.
Cryptopidae	*Cryptops* `sp. indet.`	Uncertain	Outside study area.
Geophilidae	Geophilidae `sp. indet.`	Uncertain	Outside study area.
Henicopidae	*Henicops dentatus*	Widespread	Outside study area. Restricted - not typical SRE
Mecistocephalidae	Mecistocephalidae `sp. indet.`	Uncertain	Outside study area.
Mecistocephalidae	*Mecistocephalus* `sp. indet.`	Uncertain	Outside study area.
Oryidae	*Orphnaeus brevilabiatus*	Widespread	Outside study area.
Oryidae	Oryidae `sp. indet.`	Uncertain	Outside study area.
Harvestman			
Caddidae	Caddidae `sp. indet.`	Uncertain	Outside study area.
Neopilionidae	*Ballarra longipalpus*	Potential	Outside study area.
Neopilionidae	*Megalopsalis* `sp. indet.`	Uncertain	Outside study area.
Neopilionidae	*Megalopsalis tanisphyros*	Widespread	Outside study area.
Neopilionidae	Neopilionidae `sp. indet.`	Uncertain	Outside study area.
Neopilionidae	*Tercentenarium linnaei*	Potential	Outside study area.
Samoidae	*Bindoona glauerti*	Potential	Data deficient. Outside study area.
Triaenonychidae	*Nunciella* `sp. 8` complex	Potential	Outside study area.

Higher taxon, Family	Taxon	SRE status	Proximity to study area/ comment
Triaenonychidae	*Nunciella* `sp. indet.`	Uncertain	Outside study area.
Triaenonychidae	*Nunciella aspera*	Widespread	Outside study area.
Triaenonychidae	Triaenonychidae `sp. indet.`	Uncertain	Outside study area.
Class: Insecta			
Colletidae	*Hylaeus globuliferus*	P3 (DBCA)/ Widespread	Outside study area.
Colletidae	*Leioproctus contrarius*	P3 (DBCA)/ Widespread	Outside study area.
Castniidae	*Synemon gratiosa*	P4 (DBCA)/ Widespread	Outside study area.
Tettigoniidae	*Throscodectes xederoides*	P3 (DBCA)/ Confirmed	Outside study area.
Class: Malacostraca, Order: Isopoda (slater)			
Actaeciidae	*Actaecia pallida*	Widespread	Outside study area.
Armadillidae	*Acanthodillo* `sp. 2 (Judd 2002)`	Potential	Outside study area.
Armadillidae	*Acanthodillo* `sp. B08`	Potential	Outside study area.
Armadillidae	*Acanthodillo* `sp. B09`	Potential	Outside study area.
Armadillidae	*Buddelundia* `sp. 4 (Judd 2002)`	Potential	Outside study area.
Armadillidae	*Buddelundia* `sp. 7 (Judd 2002)`	Potential	Outside study area.
Armadillidae	*Buddelundia* `sp. B38`	Potential	Outside study area.
Armadillidae	*Buddelundia* `sp. B39`	Potential	Outside study area.
Armadillidae	*Buddelundia* `sp. indet.`	Uncertain	Outside study area.
Armadillidae	*Buddelundia cinerascens*	Potential	Outside study area.
Armadillidae	*Buddelundia inaequalis*	Potential	Outside study area.
Armadillidae	*Buddelundia nigripes*	Potential	Outside study area.
Armadillidae	*Buddelundia nitidissima*	Widespread	Outside study area.
Armadillidae	*Buddelundia opaca*	Potential	Outside study area.
Armadillidae	*Buddelundia* 'sp. 16'	Potential	Outside study area.
Armadillidae	*Cubaris* `sp. 2 (Judd 2002)`	Potential	Outside study area.

Higher taxon, Family	Taxon	SRE status	Proximity to study area/ comment
Armadillidae	*Pseudodiploexochus* `sp. 1 (Judd 2002)`	Potential	Outside study area.
Armadillidae	*Pseudodiploexochus* `sp. 2 (Judd 2002)`	Potential	Outside study area.
Armadillidae	*Spherillo* `sp. 2 (Judd 2002)`	Potential	Outside study area.
Armadillidiidae	*Armadillidium vulgare*	Widespread	Outside study area.
Detonidae	*Armadilloniscus nichollsi* sp. nov.	Potential	Outside study area.
Oniscidae	*Hanoniscus* `sp. B08`	Potential	Outside study area.
Oniscidae	*Hanoniscus* `sp. B09`	Potential	Outside study area.
Oniscidae	*Hanoniscus monodi*	Potential	Outside study area.
Philosciidae	*Haloniscus stepheni*	Potential	Outside study area.
Philosciidae	*Laevophiloscia* `1`	Widespread	Outside study area.
Philosciidae	*Laevophiloscia* `2`	Widespread	Outside study area.
Philosciidae	*Laevophiloscia* `sp. indet.`	Uncertain	Outside study area.
Philosciidae	*Laevophiloscia* cf. *yalgoonensis*	Potential	Outside study area.
Philosciidae	Philosciidae `sp. 1 (Judd 2002)`	Potential	Outside study area.
Philosciidae	Philosciidae `sp. B23`	Potential	Outside study area.
Philosciidae	Philosciidae `sp. B24`	Potential	Outside study area.
Philosciidae	Philosciidae `sp. B25`	Potential	Outside study area.
Platyarthridae	Platyarthridae `sp. 1 (Judd 2002)`	Potential	Outside study area.
Platyarthridae	*Trichorhina* `sp. B14`	Potential	Outside study area.
Platyarthridae	*Trichorhina* `sp. indet.`	Uncertain	Outside study area.
Porcellionidae	*Porcellio laevis*	Widespread	Outside study area.
Porcellionidae	*Porcellio scaber*	Widespread	Outside study area.
Porcellionidae	*Porcellionides pruinosus*	Widespread	Outside study area.
Styloniscidae	Styloniscidae `sp. indet.`	Uncertain	Outside study area.
Styloniscidae	*Styloniscus* `1`	Potential	Outside study area.

Higher taxon, Family	Taxon	SRE status	Proximity to study area/ comment
Class: Gastropoda, Superorder: Eupulmonata (Land snail)			
Bothriembryontidae	*Bothriembryon* `sp. indet.`	Uncertain	Recorded within study area.
Bothriembryontidae	*Bothriembryon bulla*	Widespread	Outside study area.
Bothriembryontidae	*Bothriembryon* cf. *bulla*	Potential	Outside study area.
Bothriembryontidae	*Bothriembryon* cf. *kendricki*	Potential	Outside study area.
Bothriembryontidae	*Bothriembryon* cf. *onslowi*	Potential	Outside study area.
Bothriembryontidae	*Bothriembryon* cf. *perobesus*	Potential	Outside study area.
Bothriembryontidae	*Bothriembryon* cf. *sedgwicki*	Potential	Outside study area.
Bothriembryontidae	*Bothriembryon* cf. *serpentinus*	Potential	Outside study area.
Bothriembryontidae	*Bothriembryon indutus*	Widespread	Outside study area.
Bothriembryontidae	*Bothriembryon kendricki*	Potential	Outside study area.
Bothriembryontidae	*Bothriembryon perobesus*	P1 (DBCA)/ Widespread	Recorded within study area.
Punctidae	*Magilaoma* `sp. indet.`	Uncertain	Outside study area.
Punctidae	*Westralaoma* `sp. indet.`	Uncertain	Outside study area.
Succineidae	*Succinea* `sp. indet.`	Uncertain	Outside study area.
Succineidae	*Succinea* contenta	Confirmed	Outside study area.
Class: Diplopoda (Millipede)			
Dalodesmidae	*Sphaerotrichopus* `sp. indet.`	Uncertain	Outside study area.
Iulomorphidae	Atelomastix `sp. indet.`	Uncertain	Outside study area.
Iulomorphidae	*Dinocambala* `sp. indet.`	Uncertain	Outside study area.
Iulomorphidae	*Dinocambala ingens*	Potential	Outside study area. Mainly occurs on Darling Scarp adjacent Jarrah forests.
Iulomorphidae	*Podykipus* `cf. leptoiuloides`	Potential	Outside study area.
Iulomorphidae	*Podykipus* `sp. indet.`	Uncertain	Outside study area.
Iulomorphidae	*Podykipus leptoiuloides*	Potential	Outside study area.
Julidae	*Cylindroiulus latestriatus*	Widespread	Outside study area.

Higher taxon, Family	Taxon	SRE status	Proximity to study area/ comment
Julidae	*Ommatoiulus moreleti*	Widespread	Introduced. Outside study area.
Paradoxosomatidae	*Akamptogonus novarae*	Widespread	Native to Australia, introduced to WA. Outside study area.
Paradoxosomatidae	*Antichiropus* `DIP016, watheroo`	Confirmed	Outside study area.
Paradoxosomatidae	*Antichiropus* `DIP057, cooljarloo`	Confirmed	Outside study area.
Paradoxosomatidae	*Antichiropus* `DIP062, darling`	Confirmed	Outside study area.
Paradoxosomatidae	*Antichiropus* `DIP078`	Confirmed	Outside study area.
Paradoxosomatidae	*Antichiropus* `DIP093, hamatus`	Confirmed	Outside study area.
Paradoxosomatidae	*Antichiropus* `DIP102, minnivale 1`	Confirmed	Outside study area.
Paradoxosomatidae	*Antichiropus* `DIP106, mt lesueur1`	Confirmed	Outside study area.
Paradoxosomatidae	*Antichiropus* `DIP107, Mt Lesueur2, ML2`	Confirmed	Outside study area.
Paradoxosomatidae	*Antichiropus* `DIP115, PM1`	Confirmed	Outside study area.
Paradoxosomatidae	*Antichiropus* `DIP130, WB1`	Confirmed	Outside study area.
Paradoxosomatidae	*Antichiropus* `DIP144`	Confirmed	Outside study area.
Paradoxosomatidae	*Antichiropus* `DIP161 WHI`	Confirmed	Outside study area.
Paradoxosomatidae	*Antichiropus* `DIP168`	Confirmed	Outside study area.
Paradoxosomatidae	*Antichiropus* `DIP169`	Confirmed	Outside study area.
Paradoxosomatidae	*Antichiropus* `DIP184, condylus, minnivale`	Confirmed	Outside study area.
Paradoxosomatidae	*Antichiropus* `DIP200`	Confirmed	Outside study area.
Paradoxosomatidae	*Antichiropus* `DIP225`	Confirmed	Outside study area.
Paradoxosomatidae	*Antichiropus* `sp. indet.`	Uncertain	Outside study area.
Paradoxosomatidae	*Antichiropus sulcatus*	Confirmed	Outside study area.
Paradoxosomatidae	*Antichiropus variabilis*	Widespread	Outside study area.
Paradoxosomatidae	*Antichiropus whistleri*	Widespread	Outside study area.
Paradoxosomatidae	*Oxidus gracilis*	Widespread	Introduced. Outside study area.
Paradoxosomatidae	Paradoxosomatidae `DIPAAL` `DIP240`	Potential	Outside study area.

Higher taxon, Family	Taxon	SRE status	Proximity to study area/ comment
Paradoxosomatidae	Paradoxosomatidae `sp. indet.`	Uncertain	Outside study area.
Paradoxosomatidae	*Solaenodolichopus* `sp. indet.`	Uncertain	Outside study area.
Paradoxosomatidae	*Solaenodolichopus pruvoti*	Widespread	Native exotic. Outside study area.
Polyxenidae	*Unixenus attemsi*	Widespread	Outside study area.
Polyxenidae	*Unixenus mjoebergi*	Widespread	Outside study area.
Siphonotidae	Siphonotidae `DIPAAK` `DIP215, lesueuri`	Potential	Outside study area.
Synxenidae	Synxenidae `sp. indet.`	Uncertain	Outside study area.
Mygalomorph spider			
Actinopodidae	*Missulena* `black chelicerae`	Potential	Outside study area.
Actinopodidae	*Missulena* `MYG046`	Potential	Outside study area.
Actinopodidae	*Missulena* `MYG047`	Potential	Outside study area.
Actinopodidae	*Missulena* `MYG265`	Potential	Outside study area.
Actinopodidae	*Missulena* `sp 1`	Potential	Outside study area.
Actinopodidae	*Missulena* `sp 3`	Potential	Outside study area.
Actinopodidae	*Missulena* `sp. indet.`	Uncertain	Outside study area.
Actinopodidae	*Missulena granulosa*	Widespread	Outside study area.
Actinopodidae	*Missulena hoggi*	Widespread	Distribution covers approximately 12,000km2, mostly in Jarrah forest, and Darling Scarp (likely mostly disappeared form the scarp). Outside study area.
Actinopodidae	*Missulena insignis*	Widespread	Outside study area.
Actinopodidae	*Missulena occatoria*	Widespread	Outside study area.
Actinopodidae	*Missulena pinguipes*	Potential	Outside study area.
Anamidae	*Aname* `false black wish-bone`	Potential	Outside study area.
Anamidae	*Aname* `mainae` complex	Potential	Outside study area.
Anamidae	*Aname* `MYG184`	Potential	Outside study area.
Anamidae	*Aname* `MYG383`	Potential	Outside study area.

Higher taxon, Family	Taxon	SRE status	Proximity to study area/ comment
Anamidae	*Aname* `MYG496`	Potential	Outside study area.
Anamidae	*Aname* `MYG633`	Potential	Outside study area.
Anamidae	*Aname* `sp. indet.`	Uncertain	Outside study area.
Anamidae	*Aname* `UBS Cat sp. 126`	Potential	Outside study area.
Anamidae	*Aname* `UBS sp. 2`	Potential	Outside study area.
Anamidae	*Aname mccleeryorum*	Widespread	Outside study area.
Anamidae	*Aname tepperi*	Widespread	Outside study area.
Anamidae	Anamidae `sp. indet.`	Uncertain	Outside study area.
Anamidae	*Chenistonia* `maculata?`	Potential	Outside study area.
Anamidae	*Kwonkan* `MYG060`	Potential	Outside study area.
Anamidae	*Kwonkan* `sp. indet.`	Uncertain	Outside study area.
Anamidae	*Kwonkan* `UBS Cat sp. 124`	Potential	Outside study area.
Anamidae	*Kwonkan wonganensis*	Confirmed	Outside study area.
Anamidae	*Proshermacha* `MYG490`	Potential	Outside study area.
Anamidae	*Proshermacha* `sp. indet.`	Uncertain	Outside study area.
Anamidae	*Proshermacha telaporta*	Potential	Recorded within study area.
Anamidae	*Proshermacha tepperi*	Widespread	Outside study area.
Anamidae	*Teyl* `Merredinia``kwonganensis`	Potential	Outside study area.
Anamidae	*Teyl* `MYG249`	Potential	Outside study area.
Anamidae	*Teyl* `sp. 1`	Potential	Outside study area.
Anamidae	*Teyl* `sp. 2`	Potential	Outside study area.
Anamidae	*Teyl* `sp. indet.`	Uncertain	Outside study area.
Anamidae	*Teyl* `waldockae`	Potential	Outside study area.
Anamidae	*Teyl* `walebingensis`	Potential	Outside study area.
Anamidae	*Teyl luculentus*	Widespread	Outside study area.

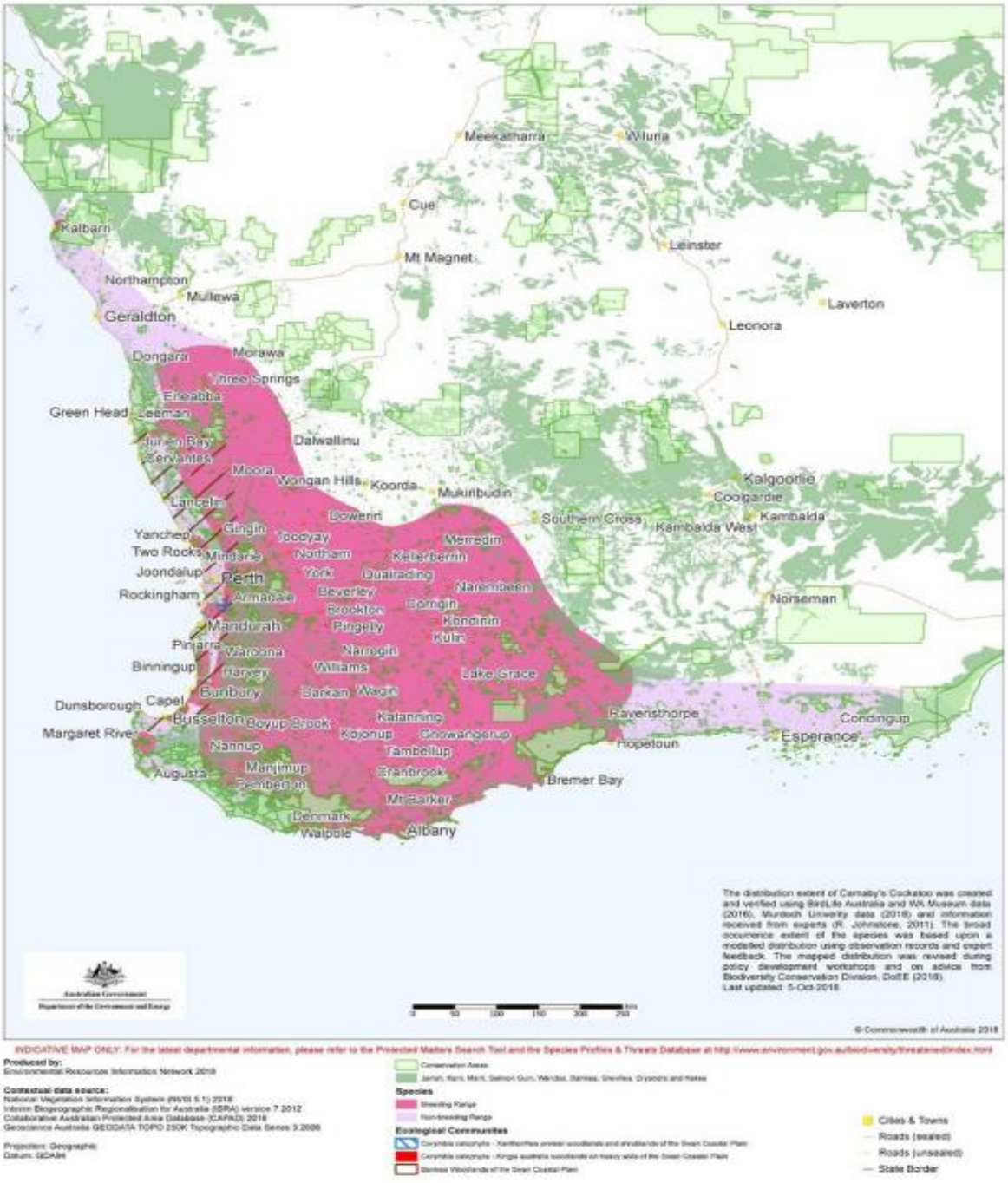
Higher taxon, Family	Taxon	SRE status	Proximity to study area/ comment
Barychelidae	*Aurecocrypta* `sp. indet.`	Uncertain	Outside study area.
Barychelidae	*Aurecocrypta lugubris*	Widespread	Outside study area.
Barychelidae	Barychelidae `sp. indet.`	Uncertain	Outside study area.
Barychelidae	*Idiommata* `cf. blackwalli`	Potential	Outside study area.
Barychelidae	*Idiommata* `sp. indet.`	Uncertain	Outside study area.
Barychelidae	*Idiommata blackwalli*	Widespread	Outside study area.
Barychelidae	*Synothele* `rastelloides?`	Potential	Outside study area.
Barychelidae	*Synothele* `sp. indet.`	Uncertain	Outside study area.
Barychelidae	*Synothele durokoppin*	Widespread	Outside study area.
Barychelidae	*Synothele howi*	Widespread	Outside study area.
Barychelidae	*Synothele lowei*	Potential	Outside study area.
Barychelidae	*Synothele michaelseni*	Widespread	Outside study area.
Barychelidae	*Synothele mullaloo*	Potential	Outside study area.
Barychelidae	*Synothele taurus*	Potential	Outside study area.
Euagridae	*Cethegus* `sp. indet.`	Uncertain	Outside study area.
Idiopidae	*Bungulla banksia*	Potential	Outside study area.
Idiopidae	*Bungulla disrupta*	Widespread	Outside study area.
Idiopidae	*Bungulla riparia*	Confirmed	Outside study area.
Idiopidae	*Eucyrtops* `gilingara (fragments)`	Potential	Outside study area.
Idiopidae	*Eucyrtops* `MYG142`	Potential	Outside study area.
Idiopidae	*Eucyrtops* `MYG146`	Potential	Outside study area.
Idiopidae	*Euoplos* `sp. indet.`	Uncertain	Outside study area.
Idiopidae	*Euoplos ballidu*	Potential	Outside study area.
Idiopidae	*Euoplos inornatus*	P3 (DBCA)/ Potential	Outside study area.
Idiopidae	*Euoplos mcmillani*	Potential	Outside study area.

Higher taxon, Family	Taxon	SRE status	Proximity to study area/ comment
Idiopidae	*Gaius villosus*	Widespread	Outside study area.
Idiopidae	Idiopidae `sp. indet.`	Uncertain	Outside study area.
Idiopidae	*Idiosoma* `ballidu`	Potential	Outside study area.
Idiopidae	*Idiosoma* `MYG074`	Potential	Outside study area.
Idiopidae	*Idiosoma* `MYG188`	Potential	Outside study area.
Idiopidae	*Idiosoma* `MYG221`	Potential	Outside study area.
Idiopidae	*Idiosoma* `MYG758`	Potential	Outside study area.
Idiopidae	*Idiosoma* `rhaphiduca` complex	Potential	Outside study area.
Idiopidae	*Idiosoma* `simplex`	Potential	Outside study area.
Idiopidae	*Idiosoma* `sp. indet.`	Uncertain	Outside study area.
Idiopidae	*Idiosoma* `walebingensis`	Potential	Outside study area.
Idiopidae	*Idiosoma* `wongaminensis`	Potential	Outside study area.
Idiopidae	*Idiosoma cupulifex*	Potential	Outside study area.
Idiopidae	*Idiosoma dandaragan*	P2 (DBCA)/ Confirmed	Outside study area.
Idiopidae	*Idiosoma gardneri*	P2 (DBCA)/ Confirmed	Outside study area.
Idiopidae	*Idiosoma jarrah*	Widespread	Outside study area.
Idiopidae	*Idiosoma kwongan*	P1 (DBCA)/ Potential	Outside study area.
Idiopidae	*Idiosoma mcclementsorum*	P2 (DBCA)/ Confirmed	Outside study area.
Idiopidae	*Idiosoma nigrum*	EN/VU (BC & EPBC Act)/ Confirmed	Outside study area.
Idiopidae	*Idiosoma schoknechtorum*	P3 (DBCA)/ Confirmed	Outside study area.
Idiopidae	*Idiosoma sigillatum*	P3 (DBCA)/ Potential	Outside study area.
Pseudoscorpion			
Atemnidae	*Oratemnus* `sp. indet.`	Uncertain	Recorded within study area.
Atemnidae	*Oratemnus curtus*	Widespread	Outside study area.
Cheliferidae	*Protochelifer* `sp. indet.`	Uncertain	Outside study area.

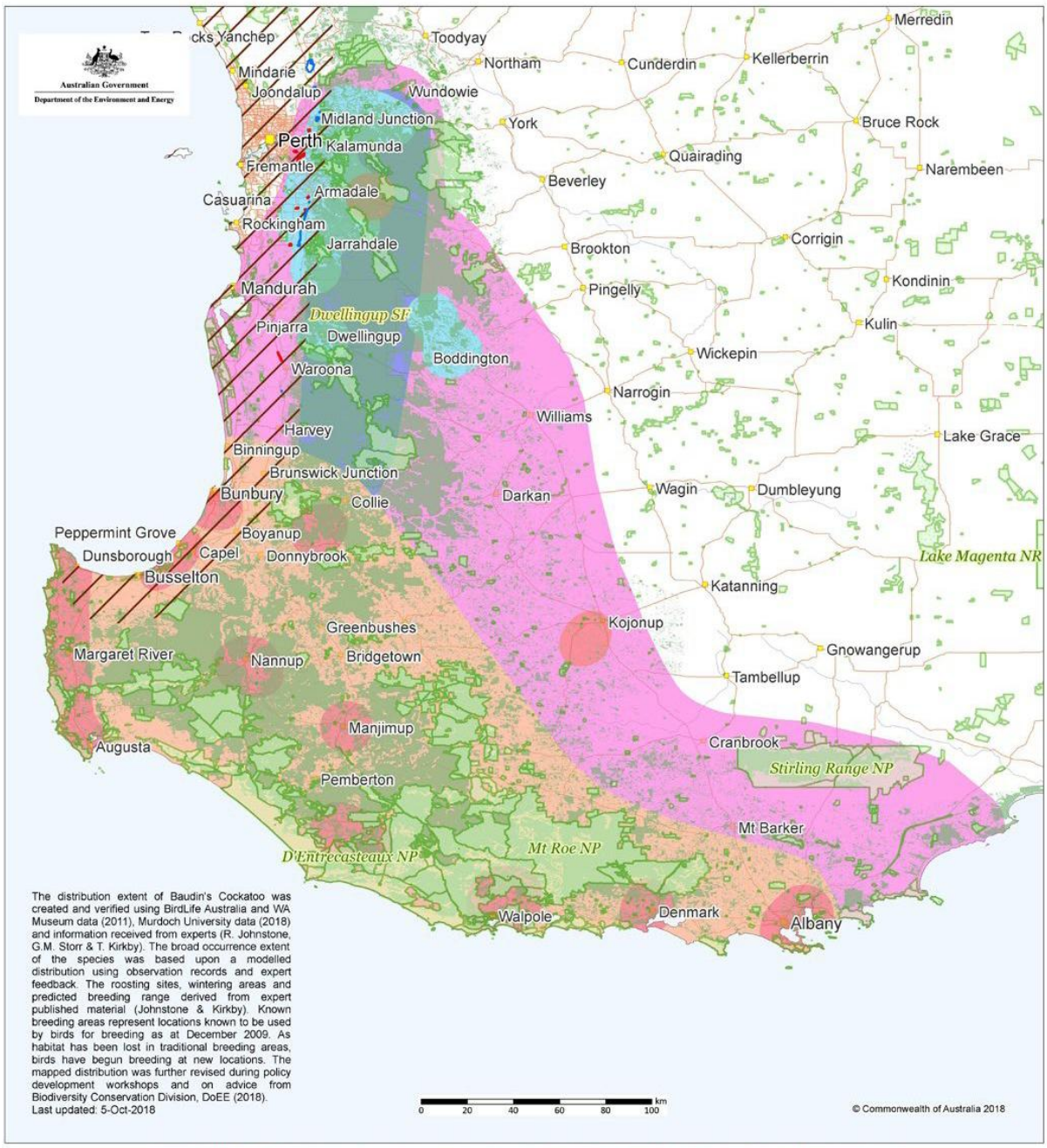
Higher taxon, Family	Taxon	SRE status	Proximity to study area/ comment
Chernetidae	*Austrochernes dewae*	Widespread	Recorded in nests of hollow-nesting birds. Outside study area.
Chernetidae	*Balgachernes occultus*	Potential	Outside study area.
Chernetidae	*Chernetinae* `PSEAAF` `PSE130`	Potential	Outside study area.
Chernetidae	*Chernetinae* `PSEAAF` `PSE131`	Potential	Outside study area.
Chernetidae	*Chernetinae* `PSEAAF` `sp. indet.`	Uncertain	Outside study area.
Chthoniidae	*Austrochthonius* `PSE135, pilbara`	Widespread	Outside study area.
Chthoniidae	*Austrochthonius* `PSE188, similis`	Widespread	Outside study area.
Chthoniidae	*Austrochthonius* `PSE190, duchaci?`	Potential	Outside study area.
Chthoniidae	*Austrochthonius* `PSE191, grandis`	Widespread	Outside study area.
Chthoniidae	*Austrochthonius* `PSE192, lesueuri`	Potential	Outside study area.
Chthoniidae	*Austrochthonius* `sp. indet.`	Uncertain	Outside study area.
Chthoniidae	*Austrochthonius australis*	Widespread	Outside study area.
Chthoniidae	*Lagynochthonius australicus*	Widespread	Outside study area.
Chthoniidae	*Tyrannochthonius* `sp. indet.`	Uncertain	Outside study area.
Garypidae	*Synsphyronus* `sp. indet.`	Uncertain	Outside study area.
Garypidae	*Synsphyronus callus*	Widespread	Outside study area.
Garypinidae	*Solinus* `sp. indet.`	Uncertain	Outside study area.
Geogarypidae	*Geogarypus taylori*	Widespread	Outside study area.
Olpiidae	*Austrohorus exsul*	Potential	Outside study area.
Olpiidae	*Beierolpium* `sp. 8/4`	Potential	Outside study area.
Olpiidae	*Beierolpium* `sp. indet.`	Uncertain	Outside study area.
Olpiidae	*Indolpium* `sp. indet.`	Uncertain	Outside study area.
Olpiidae	Olpiidae `sp. indet.`	Uncertain	Outside study area.
Selenopidae spider			
Selenopidae	*Karaops ellenae*	Widespread	Outside study area.

Higher taxon, Family	Taxon	SRE status	Proximity to study area/ comment
Selenopidae	*Karaops jarrit*	Widespread	Outside study area.
Scorpion			
Bothriuridae	*Cercophonius* `sp. indet.`	Uncertain	Outside study area.
Bothriuridae	*Cercophonius granulosus*	Widespread	Outside study area.
Bothriuridae	*Cercophonius sulcatus*	Widespread	Outside study area.
Buthidae	Buthidae `sp. indet.`	Uncertain	Outside study area.
Buthidae	*Isometroides* `sp. indet.`	Uncertain	Outside study area.
Buthidae	*Isometroides* `vescus`	Widespread	Outside study area.
Buthidae	*Lychas* `adonis`	Widespread	Outside study area.
Buthidae	*Lychas* `austroccidentalis`	Widespread	Outside study area.
Buthidae	*Lychas* `sp. indet.`	Uncertain	Recorded within study area.
Buthidae	*Lychas* `splendens`	Widespread	Synonomous with 'subsplendens'. Outside study area.
Urodacidae	*Urodacus* `armatus`	Widespread	Outside study area.
Urodacidae	*Urodacus* `SCO007, bullsbrook`	Potential	Scrublands on limestone habitat. Outside study area.
Urodacidae	*Urodacus* `sp. indet.`	Uncertain	Outside study area.
Urodacidae	*Urodacus* `woodwardii`	Potential	Outside study area.
Urodacidae	*Urodacus hartmeyeri*	Widespread	Recorded within study area.
Urodacidae	*Urodacus hoplurus*	Widespread	Outside study area.
Urodacidae	*Urodacus novaehollandiae*	Widespread	Outside study area.
Urodacidae	*Urodacus planimanus*	Confirmed	Appears to be restricted to 2 IBRA subregions: North Jarrah forest subregion and eastern margin of Perth subregion. Outside study area.
Velvet worm			
Peripatopsidae	*Occiperipatoides gilesii*	Widespread	Outside study area.

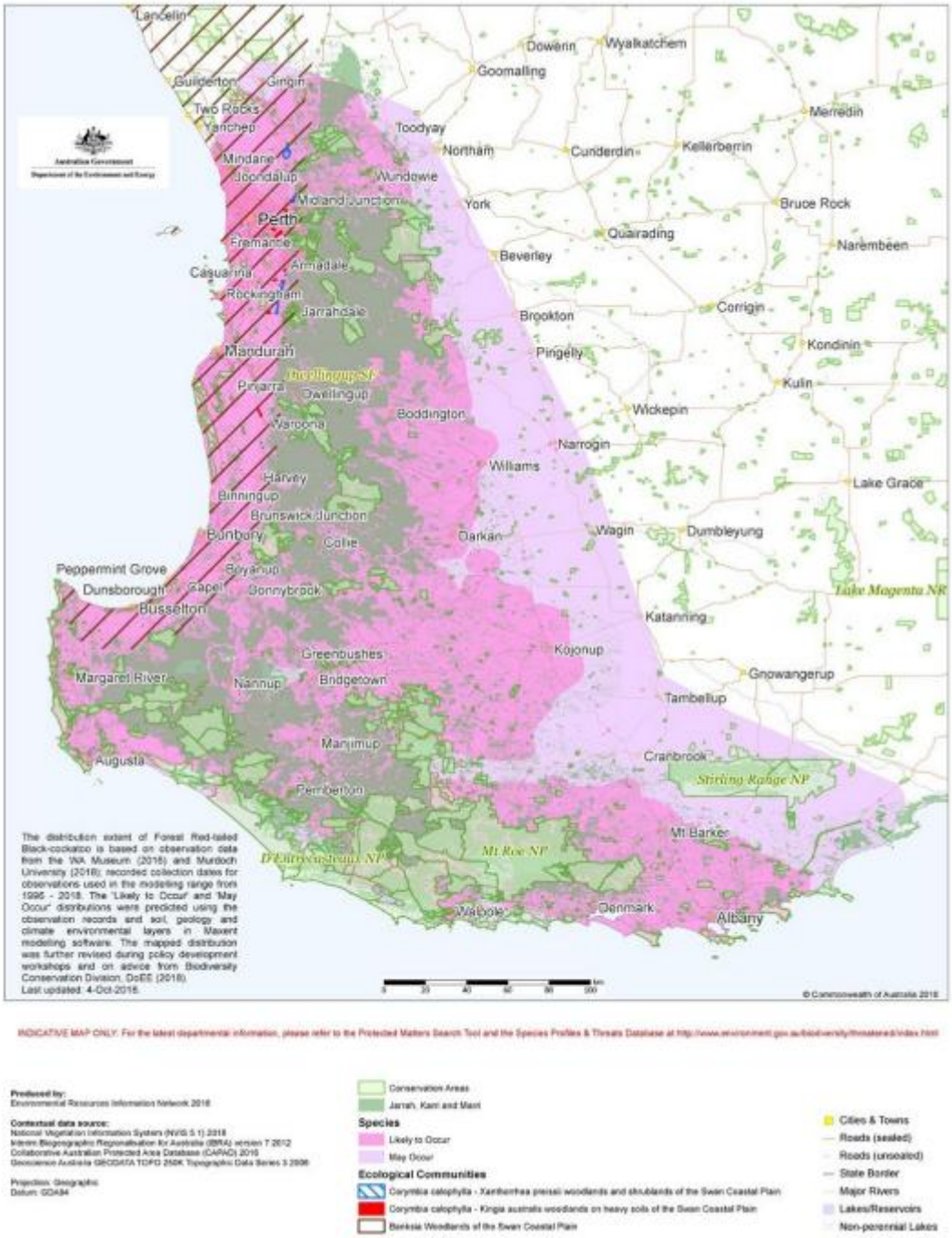
Appendix 5 Modelled distribution maps for the 3 Black Cockatoo species, retrieved form Appendix C from DAWE (2022)



CC distribution map



Baudin's Cockatoo distribution map



FRTBC distribution map