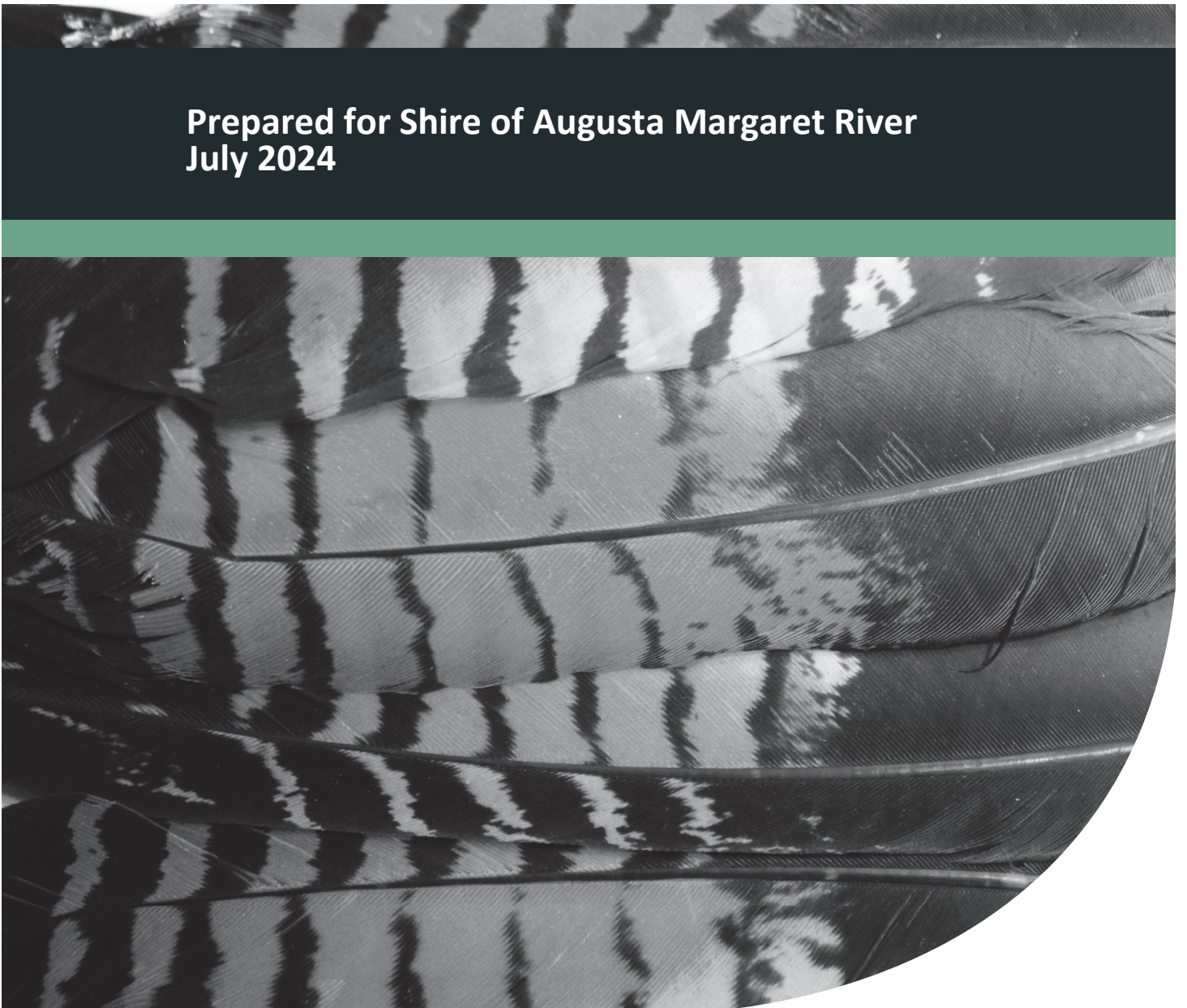


# Basic Fauna and Targeted Black Cockatoo Assessment

Part Lot 5011 Davis Road, Forest Grove

Project No: EP23-108(02)

**Prepared for Shire of Augusta Margaret River  
July 2024**



# Basic Fauna and Targeted Black Cockatoo Assessment

Part Lot 5011 Davis Road, Forest Grove



## Document Control

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# Basic Fauna and Targeted Black Cockatoo Assessment

Part Lot 5011 Davis Road, Forest Grove



## Executive Summary

The Shire of Augusta Margaret River engaged Emerge Associates to conduct a basic fauna and a targeted black cockatoo assessment within part of the Davis Road Waster Management Facility in lot 5011 Davis Road in Witchcliffe (referred to herein as the 'site').

As part of the assessment a desktop review of relevant background information was completed and a field survey was undertaken between 15 April and 17 April 2024. During the field survey opportunistic sightings of fauna were recorded and an assessment was made on the fauna habitat within the site and its suitability to provide habitat for threatened, specially protected and priority fauna. A targeted black cockatoo survey was also undertaken to determine the presence of habitat for threatened black cockatoo species.

Outcomes of the basic fauna assessment include the following:

- The site consists of two broad habitat types:
  - **Bare ground** (0.27 ha): tracks and bare ground.
  - **Eucalypt forest** (2.75 ha): open forest of *Eucalyptus marginata* and *Corymbia calophylla* over native shrubland.
- A total of 18 native fauna species were recorded within the site.
- Three threatened species were recorded during the survey: Carnaby's black cockatoo (EN), Baudin's black cockatoo (EN) and forest red-tailed black cockatoo (VU).
- Despite not being recorded during the survey, the following species were considered to have a high or moderate likelihood of occurring within the site:
  - *Pseudocheirus occidentalis* (western ringtail possum) listed as critically endangered under the *Environmental Protection and Biodiversity Conservation Act* (EPBC Act) and *Biodiversity Conservation Act* (BC Act)
  - *Apus pacificus* (pacific swift) listed as migratory under the EPBC Act and BC Act
  - *Falco peregrinus* (peregrine falcon) listed as other specially protected in WA
  - *Phascogale tapoatafa wambenger* (south-western brush-tail phascogale) listed as conservation dependant in WA
  - *Tyto novaehollandiae novaehollandiae* (Australian masked owl) listed as priority three in WA
  - *Isoodon fusciventer* (quenda) listed as priority four (P4) in WA
  - *Notamacropus irma* (western brush wallaby) listed as P4 in WA.

Outcomes of the targeted black cockatoo survey include the following:

- Carnaby's black cockatoo, Baudin's black cockatoo and forest red-tailed black cockatoo were recorded during the field survey.
- The site occurs within the breeding distribution of Carnaby's black cockatoo, Baudin's black cockatoo and forest red-tailed black cockatoo.
- The site contains 168 habitat trees but none contain hollows suitable for use by black cockatoos for breeding. Therefore, the site does not currently provide suitable breeding habitat for any species of black cockatoo.
- No roosts or evidence of roosting by any species of black cockatoo was recorded within the site during the field survey. Tall native and non-native trees within the site represent suitable roosting habitat for species of black cockatoo.

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- A total of 2.75 ha of foraging habitat for Carnaby’s black cockatoo, Baudin’s black cockatoo and forest red-tailed black cockatoo was mapped within the site of which all is considered primary native foraging habitat.
- Additional areas of foraging habitat of similar or higher value occur adjacent to the site and in the wider local area.

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### Appendix A

Additional information

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Database search results

### Appendix C

Conservation significant species and likelihood of occurrence assessment

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## **Appendix D**

Black cockatoo foraging plants species list

## **Appendix E**

Black cockatoo roost counts

## **Appendix F**

Species list

## **Appendix G**

Black cockatoo habitat tree data

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## Abbreviation Tables

Table A1: Abbreviations – Organisations

Organisations	
ALA	Atlas of Living Australia
BoM	Bureau of Meteorology
EPA	Environmental Protection Authority
DAWE	Department of Agriculture, Water and the Environment (now DCCEEW)
DBCA	Department of Biodiversity, Conservation and Attractions
DCCEEW	Department of Climate Change, Energy, the Environment and Water
DoEE	Department of the Environment and Energy
DoW	Department of Water (now DWER)
DPaW	Department of Parks and Wildlife (now DBCA)
DPIRD	Department of Primary Industries and Regional Development
DWER	Department of Water and Environmental Regulation
WAM	Western Australian Museum
WALIA	Western Australian Land Information Authority

Table A2: Abbreviations – Conservation codes

Conservation Codes	
CD	Conservation dependent
CR	Critically endangered
EN	Endangered
MI	Migratory
P3	Priority 3
P4	Priority 4
OS	Other specially protected
VU	Vulnerable

Table A3: Abbreviations – Legislation

Legislation	
BAM Act	<i>Biosecurity and Agriculture Management Act 2007</i>
BC Act	<i>Biodiversity Conservation Act 2016</i>
EBPC Act	<i>Environment Protection and Biodiversity Conservation Act 1999</i>

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*Table A4: Abbreviations – Units of measurement*

Units of measurement	
DBH	Diameter at breast height
cm	Centimetre
ha	Hectare
km	Kilometre
m	Metre
m AHD	m in relation to the Australian height datum

*Table A5: Abbreviations - General*

General terms	
AFD	Australian Faunal Database
DP (C3)	Category 3 Declared Pest
IBRA	Interim Biogeographic Regionalisation for Australia
MNES	Matters of National Environmental Significance
UFI	Unique Feature Identifier

# Basic Fauna and Targeted Black Cockatoo Assessment

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## 1 Introduction

### 1.1 Purpose

Emerge Associates (Emerge) were engaged by the Shire of Augusta Margaret River to conduct a basic fauna and targeted black cockatoo assessment within part of the Davis Road Waste Management Facility, which lies in lot 5011 Davis Road in Forest Grove, as shown in **Figure 1** (referred to herein as the 'site').

Fauna assessments are required to characterise fauna values and, in particular, confirm the presence or absence of values relevant to environmental approvals process, such as 'fauna habitat', 'threatened' fauna, 'specially protected' fauna and 'priority' fauna.

### 1.2 Legislation and policy

Fauna may be listed as threatened, extinct or specially protected under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) and the State *Biodiversity Conservation Act 2016* (BC Act). Threatened fauna are classified as either 'critically endangered' (CR), 'endangered' (EN) or 'vulnerable' (VU). Extinct species are classified as 'extinct' (EX) or 'extinct in the wild' (EW)<sup>1</sup>. Specially protected species are classified as 'migratory species' (MI), 'species of special conservation interest' (CD) or 'other specially protected' (OS). Commonwealth and/or State ministerial approval is required to impact threatened and specially protected fauna.

Native fauna that are not listed as threatened or specially protected, but are otherwise rare, under threat or poorly known, may be added to a Department of Biodiversity Conservation and Attractions (DBCA) priority list. Priority fauna are classified as either 'priority 1' (P1), 'priority 2' (P2), 'priority 3' (P3) or 'priority 4' (P4). Priority listing does not afford direct statutory protection. However, the classification of priority species is taken into account during State and Local government approval processes.

Introduced fauna that are regarded as having negative environmental or economic impacts may be listed as a 'declared pest' pursuant to the *State Biosecurity and Agriculture Management Act 2007* (BAM Act). Management of declared pests may be required during government approval processes.

Further information on legislation and policy relevant to fauna assessments is provided in **Appendix A**.

### 1.3 Scope of work

The scope of work was specifically to undertake a terrestrial vertebrate fauna assessment to the standard required of a 'basic' fauna survey and a 'targeted' black cockatoo survey with reference to the Environmental Protection Authority's (EPA's) technical guidance (EPA 2020) and the *Environment Protection and Biodiversity Conservation Act* black cockatoo referral guidelines (DAWE 2022).

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<sup>1</sup> Currently there are no threatened species listed as extinct in the wild in Western Australia.

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As part of this scope of work, the following tasks were undertaken:

- Desktop study to provide contextual information and determine the likelihood of occurrence of threatened, specially protected and priority fauna.
- Field survey to record fauna and fauna habitats, with a particular focus on habitat for threatened species of black cockatoo.
- Analysis and mapping of contextual information, fauna habitat and black cockatoo breeding, roosting and foraging (if present).
- Documentation of the desktop study, methods, results, discussion and conclusions.

# Basic Fauna and Targeted Black Cockatoo Assessment

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## 2 Desktop Study

### 2.1 Site context

#### 2.1.1 Location and extent

The site is located in the Shire of Augusta Margaret River in the South-West of Western Australia and extends over 3.02 hectares (ha) as shown in **Figure 1**. The site is bounded by cleared areas associated with the waste facility to the east and west and remnant forest to the north and south.

#### 2.1.2 Climate

The SouthWest region of Western Australia experiences a Mediterranean climate of hot dry summers and cool wet winters (BoM 2024). Recent rainfall at the closest weather station to the site has been lower than long term averages, as shown in **Plate 1** (BoM 2024). Targeted surveys should be undertaken during the season that is most suitable for detection and identification of the targeted species (EPA 2020).

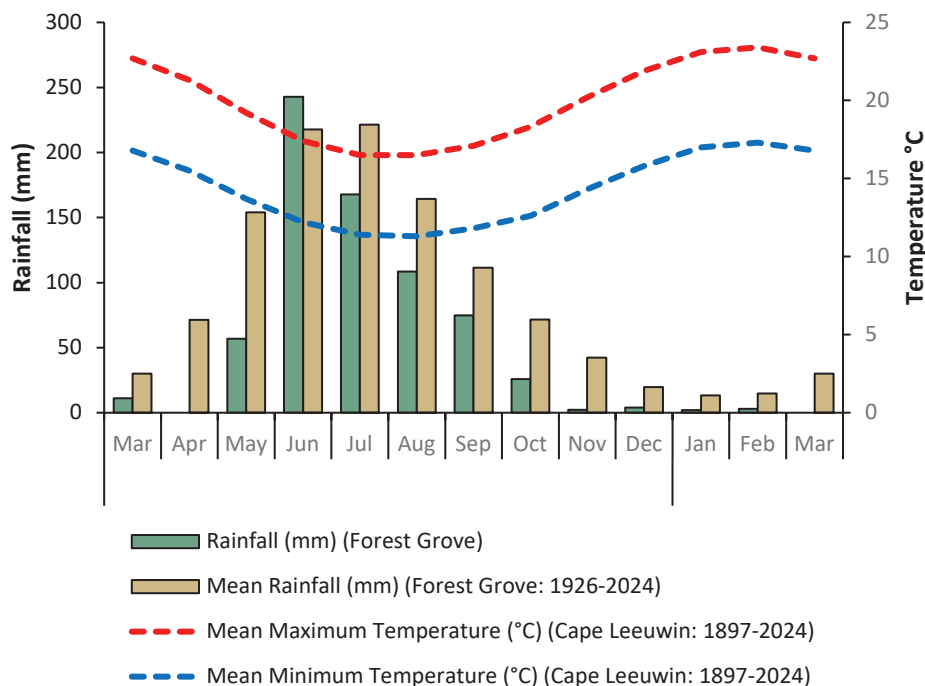


Plate 1: Recent rainfall and long-term mean temperature and rainfall

#### 2.1.3 Geomorphology and soils

Landform and soils influence fauna habitat and species at regional and local scales. The site lies within the Leeuwin Zone which is described as a 'moderately dissected lateritic plateau on granite (with) colluvial soils in the valleys.

Fine scale soil mapping by (DPIRD 2018) shows three units as occurring within the site, as described in **Table 1** and shown in **Figure 2**.

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Table 1. Soil landscape mapping units within the site (DPRID 2018)

Soil landscape unit	Location within site	Description
Cowaramup undifferentiated upland phase	North-west portion	Flats and gentle slopes with gravelly duplex and pale grey mottled soils.
Wilyabrup narrow valley floor phase	South-west portion	Narrow V-shaped drainage depressions.
Wilyabrup undifferentiated hillslope phase	Majority of site	Slopes with gradients generally 5-15% and gravelly soils

The site is not known to contain any restricted landforms or unique geological features.

## 2.1.4 Topography

The elevation of the site is relatively flat and ranges from approximately 70 m in relation to the Australian height datum (mAHD) on the southern side to 75 mAHD on the eastern and northern sides (WALIA 2024) (**Figure 2**).

## 2.1.5 Hydrology and wetlands

Wetlands are areas of seasonally, intermittently or permanently waterlogged land such as poorly drained soils, ponds, billabongs, lakes, swamps, tidal flats, estuaries, rivers and their tributaries (Wetlands Advisory Committee 1977). Many wetlands provide important fauna habitat and support high levels of fauna biodiversity and endemism.

Wetlands of national or international significance may be afforded special protection under Commonwealth or international agreements. Review of the *Ramsar List of Wetlands of International Importance* (DBCA 2017) and *A Directory of Important Wetlands in Australia – Western Australia* (DBCA 2018a) indicates that no Ramsar or listed ‘important wetlands’ are located within or near the site.

Examination of the Department of Water and Environmental Regulation (DWER) hydrography linear dataset (DWER 2018) shows the no wetland or water related features occur within the site.

The *Geomorphic Wetlands, Leeuwin Naturaliste Ridge and Donnybrook to Nannup* dataset maps geomorphic wetland features and classifies them based on their landform shape and water permanence (DBCA 2018b). A review of the *Geomorphic Wetlands, Leeuwin Naturaliste Ridge and Donnybrook to Nannup* dataset indicates that no wetland features occur within the site.

## 2.1.6 Regional vegetation

Vegetation types and resulting fauna habitats strongly influence the diversity and composition of fauna taxa present within an area. Native vegetation is described and mapped at different scales in order to illustrate patterns in its distribution. At a continental scale the *Interim Biogeographic Regionalisation of Australia* (IBRA) divides Australia into floristic subregions (Environment Australia 2000).

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The site lies within the Warren subregion which occurs along the coastline between Cape Naturaliste and Albany and comprises a variety of landforms including Holocene marine dunes, *Eucalyptus marginata* (jarrah) - *Corymbia calophylla* (marri) forest on laterite and *Eucalyptus diversicolor* (karri) forest on loamy soils (Beard 1990). The south-west of Western Australia is recognised as a biodiversity hotspot and contains a wide variety of endemic flora and vegetation types.

Variations in native vegetation can be further classified based on regional vegetation mapping. (DBCA 2019) mapping of the south-west forest region shows the site as comprising three vegetation complexes which are described in **Table 2**.

Table 2. Vegetation complex units mapped within the site (DBCA 2019)

Vegetation complex	Location within site	Description
Cowaramup C1	Northwest portion	Open to tall open forest of <i>Eucalyptus marginata</i> subsp. <i>marginata</i> - <i>Corymbia calophylla</i> - <i>Banksia grandis</i> on lateritic uplands in the hyperhumid zone.
Wilyabrup Ww1	Southwest portion	Tall open forest of <i>Eucalyptus diversicolor</i> - <i>Agonis flexuosa</i> - <i>Callistachys lanceolata</i> with some <i>Corymbia calophylla</i> on flats and valleys in the hyperhumid zone.
Wilyabrup W1	Majority of site	Tall open forest of <i>Eucalyptus diversicolor</i> - <i>Corymbia calophylla</i> - <i>Allocasuarina decussata</i> - <i>Agonis flexuosa</i> on deeply incised valleys in the hyperhumid zone'

## 2.1.7 Historic land use

Review of historical images available from 1971 onwards shows that the majority of the site has remained undisturbed. However portions of adjacent land were cleared prior to 1986 as part the waste management facility (WALIA 2024).

## 2.1.8 Ecological linkages

Ecological linkages are linear landscape elements that allow the movement of fauna, flora and genetic material between areas of remnant habitat. This exchange of genetic material between vegetation remnants improves the viability of those remnants by allowing greater access to breeding partners and food sources, refuge from disturbances such as fire and maintenance of genetic diversity of plant communities and populations. Ecological linkages are ideally continuous or near-continuous as the more fractured a linkage is, the less ease flora and fauna have in moving within the corridor (Alan Tingay and Associates 1998).

The South West Biodiversity Project identified and mapped ecological linkages within the South West region of Western Australia (Molloy *et al.* 2009).

No mapped ecological linkages intersect the site. However, ecological linkage no. 118 occurs approximately 700 m east of the site and aerial imagery indicates it connects to the site by a vegetated drainage line. Review of aerial imagery indicates that much of the vegetation within the site is connected to extensive areas of native vegetation within the local area.

## 2.1.9 Threatened, specially protected and priority fauna

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The Commonwealth Department of Climate Change, Energy, the Environment and Water (DCCEEW) has compiled various datasets relating to ‘matters of national environmental significance’ (MNES) (DCCEEW 2024b). The *Protected Matters Search Tool* provides general guidance on threatened and specially protected fauna listed under the EPBC Act that may occur within a location based on validated records and less reliable unvalidated habitat distribution modelling (DCCEEW 2024b).

DBCA’s *Threatened and Priority Fauna* database and *NatureMap* database, as well as the spatial portal of the Atlas of Living Australia (ALA) contain records of threatened specially protected and priority fauna in Western Australia (ALA 2024; DBCA 2024b). Searches of these databases provide point data for threatened, specially protected and priority fauna within a location, comprising validated and historical unvalidated records.

A search was conducted for fauna species that have been recorded within a 10 km radius of the site using the *Protected Matters Search Tool* (DCCEEW 2024b), *Danjoo* (DBCA 2024a), DBCA’s conservation significant fauna database (reference no. 01-0424FA), *Atlas of Living Australia* (ALA 2024) and literature references.

A total of 254 fauna species were identified from database searches as occurring or potentially occurring within 10 km of the site<sup>2</sup> as listed in **Appendix B**.

## 2.1.10 Pest fauna

The term ‘pest fauna’ can refer to any animal that requires some form of action to reduce its effect on the economy, the environment, human health and amenity. Pest fauna species are generally not native but some Australian or Western Australian fauna may also be considered pests.

A particularly invasive or detrimental pest species may be listed as a ‘declared pest’ pursuant to Western Australia’s *Biosecurity and Agriculture Management Act 2007* (BAM Act), indicating that it warrants special management to limit its spread. Current pest status and control categories for Western Australia are provided in the *Western Australian Organism List* (DPIRD 2022). Further information on categories of declared pests is provided in **Appendix A**.

## 2.1.11 Previous surveys

No previous fauna surveys are known to have been undertaken over the site.

## 2.2 Likelihood of occurrence

The distribution and habitat preferences of the threatened and priority fauna species listed in **Appendix B** was reviewed against site context information described in **Section 2.1**. Likelihood of occurrence of threatened, specially protected and priority fauna species within the site was classified as ‘high’, ‘moderate’, ‘low’, ‘negligible’ or ‘nil’ as outlined in **Table 3**.

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<sup>2</sup> Includes native and non-native species



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Table 3: Likelihood of occurrence assessment categories and definitions

		Reliable record <sup>1</sup>		Unreliable record <sup>2</sup>
		Access to site not impeded	Access to site impeded	
Habitat	Suitable	High	Low	Nil
	Potentially suitable	Moderate		
	Unsuitable	Negligible		

<sup>1</sup>Reliable record defined as DBCA or validated ALA record from the last ~20 years, <sup>2</sup>Unreliable record defined as record >20 years old or PMST prediction.

Four threatened, three specially protected and three priority species were classified as having a 'high' or 'moderate' likelihood of occurrence. The legislative or policy status and habitat preferences of these species are shown in **Table 3**.

The remainder of the conservation significant fauna species identified in the desktop assessment (55 species) were considered as having a 'low', 'negligible' or 'nil' likelihood of occurrence. Refer to **Table 4** and **Appendix C** for detail on individual species likelihood of occurrence.

Table 4: Summary of conservation significant fauna species with potential to occur in the site

Species name	Common name	Status		Habitat description
		WA	EPBC Act	
<b>Birds</b>				
<i>Apus pacificus</i>	Pacific swift	MI	MI	Aerial, migratory species that is most often seen over inland plains and sometimes above open areas, foothills or in coastal areas. Sometimes occurs over settled areas, including towns, urban areas and cities.
<i>Calyptorhynchus banksii naso</i>	Forest red-tailed black cockatoo	VU	VU	Eucalypt and <i>Corymbia</i> forests, often in hilly interior. More recently also observed in more open agricultural and suburban areas including Perth metropolitan area. Attracted to seeding <i>Corymbia calophylla</i> , <i>Eucalyptus marginata</i> , introduced <i>Melia azedarach</i> and <i>Eucalyptus</i> spp. trees.
<i>Falco peregrinus</i>	Peregrine falcon	OS	-	Mainly found around cliffs along coasts, rivers, ranges and around wooded watercourses and lakes.
<i>Tyto novaehollandiae novaehollandiae</i>	Australian masked owl	P3	-	Forests, open woodlands, farmlands with large trees. E.g. river red gums, adjacent cleared country, timbered watercourses, paperbark woodlands and caves.
<i>Zanda baudinii</i>	Baudin's black cockatoo	EN	EN	Mainly eucalypt forests. Attracted to seeding <i>Corymbia calophylla</i> , <i>Banksia</i> spp., <i>Hakea</i> spp., and to fruiting apples and pears.
<i>Zanda latirostris</i>	Carnaby's black cockatoo	EN	EN	Mainly proteaceous scrubs and heaths and adjacent eucalypt woodlands and forests; also plantations of <i>Pinus</i> spp. Attracted to seeding <i>Banksia</i> spp., <i>Hakea</i> spp., <i>Eucalyptus</i> spp., <i>Corymbia calophylla</i> , <i>Grevillea</i> spp., and <i>Allocasuarina</i> spp..
<b>Mammals</b>				
<i>Isodon fusciventer</i>	Quenda	P4	-	Dense scrubby, often swampy, vegetation with dense cover up to one metre high.

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Table 4: Summary of conservation significant fauna species with potential to occur in the site (continued)

Species name	Common name	Status		Habitat description
		WA	EPBC Act	
<i>Notamacropus irma</i>	Western brush wallaby	P4	-	Dry sclerophyll forest, <i>Banksia</i> spp. woodlands and shrublands, typically favouring dense low vegetation that provides dense cover.
<i>Phascogale tapoatafa wambenger</i>	South-western brush-tailed phascogale	CD	-	Dry sclerophyll forests and open woodlands that contain hollow-bearing trees but a sparse ground cover.
<i>Pseudocheirus occidentalis</i>	Western ringtail possum	CR	CR	On the Swan Coastal Plain in <i>Agonis flexuosa</i> woodlands and <i>Agonis flexuosa</i> / <i>Eucalyptus gomphocephala</i> forests. Also <i>Eucalyptus marginata</i> forests.

## 2.3 Black cockatoos

Three threatened species of black cockatoo occur in the south-west of WA (referred to herein collectively as ‘black cockatoos’):

- *Zanda<sup>3</sup> latirostris* (Carnaby’s black cockatoo) which is listed as ‘endangered’ under the EPBC Act and the BC Act.
- *Zanda<sup>3</sup> baudinii* (Baudin’s black cockatoo) which is listed as ‘endangered’ under the EPBC Act and the BC Act.
- *Calyptorhynchus banksii naso* (forest red-tailed black cockatoo) which is listed as ‘vulnerable’ under the EPBC Act and the BC Act.

Black cockatoo habitat is conventionally separated into breeding, roosting and foraging categories.

**Breeding habitat** refers to ‘habitat trees’ which consist of native trees of a suitable species that either contain nesting hollows or have a large enough diameter at breast height<sup>4</sup> (DBH) to develop a nesting hollow over time (DAWE 2022). Black cockatoos typically utilise breeding habitat within their defined breeding season: August to March for Baudin’s black cockatoo, July to December for Carnaby’s black cockatoo breed and throughout the year for forest red-tailed black cockatoo, with peaks in April – June and August – October (DAWE 2022). **Roosting habitat** consists of a stand of tall trees (>8 m) within 6 km of water and food resources and 12 km of additional foraging resources where black cockatoos rest overnight (Shah 2006; Glossop *et al.* 2011; Le Roux 2017; DAWE 2022). **Foraging habitat** is vegetation that black cockatoos are known to feed on, which varies between black cockatoo species (Groom 2011; Johnstone *et al.* 2011; DAWE 2022). A full range of foraging plants and their foraging category assigned by Emerge Associates is available in **Appendix D**.

A review of black cockatoo datasets was undertaken as outlined in **Table 5** and shown in **Figure 4**. Further information on black cockatoo habitat is available in **Appendix A**. Counts for all known black cockatoo roosts within 12 km are available in **Appendix E**.

<sup>3</sup> Previously *Calyptorhynchus*

<sup>4</sup> ≥50 cm or ≥30 cm for wandoo or salmon gum

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Table 5: Summary of black cockatoo background review

Category	Black cockatoo site context			Source
	Carnaby's	Baudin's	Forest red-tailed	
Site located within species distribution	Yes	Yes	Yes	(DAWE 2022)
Site in known breeding distribution	Yes	Yes	N/A*	(DAWE 2022)
Site is located within 12km of a confirmed or possible breeding site	No	N/A	N/A	(Glossop <i>et al.</i> 2011)
Site located in important bird area	No	N/A	N/A	(DPaW 2013; International 2024)
Known roosts occur within site <sup>^</sup>	0		0	(Birdlife Australia 2023)
Known roosts occur within 12 km of site <sup>^</sup>	9		3	
Potential foraging habitat within site	Yes	Yes	Yes	(Forest Products Commission 2020; Emerge Associates 2021)
Potential foraging habitat in local area (including pine plantations)	Yes	Yes	Yes	

\*Whilst no datasets of breeding distributions are available for forest red-tailed black cockatoos, they are known to breed in the Jarrah Forest (Johnstone *et al.* 2013b).

<sup>^</sup>White-tailed black cockatoo roosts can be Carnaby's black cockatoo and/or Baudin's black cockatoo.

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## 3 Methods

### 3.1 Field survey

Two zoologists from Emerge visited the site on the 15 April to 17 April 2024 to conduct the basic fauna survey and targeted black cockatoo field survey.

Transects were traversed across the site during the day to evaluate the fauna habitat and record the presence of fauna species. Fauna habitat was assessed based on vegetation condition, the overall disturbances to the area and the microhabitat characteristics such as soil type and leaf litter density as well as the presence of logs, rocks, leaf litter and water. An opportunistic fauna list was compiled which included evidence of species presence such as tracks, scats, skeletal remains, foraging evidence and calls.

#### 3.1.1 Targeted black cockatoo

Transects were traversed across the site and the presence of potential black cockatoo breeding, night roosting and foraging habitat was recorded. If observed, the presence of black cockatoos within or near the site was noted. Active searches for evidence of breeding, roosting and foraging activity such as chew marks, branch clippings, droppings, moulted feathers and chewed marri or banksia fruit were conducted.

##### 3.1.1.1 Breeding habitat

All native eucalypts within the site that were  $\geq 50$  cm DBH were recorded. Occasionally, native eucalypts were encountered that met DBH requirements but did not contain a trunk/branch of a sufficient size to support a hollow suitable for use by black cockatoos. For example, the tree may have been less than 3 m tall or had a trunk that forked between 1.3 m and 3 m in height and after the fork no limbs had a diameter of  $\geq 50$  cm. These trees were not recorded as habitat trees as the likelihood they would form a suitable hollow was low.

Habitat trees were individually identified and the attributes outlined in **Table 6** were recorded for each tree.

*Table 6: Attributes recorded for each habitat tree in the site*

Attribute	Description
Identification tag no.	Number of aluminium tag attached to tree.
GPS location	The location was recorded using a handheld GPS unit
Tree species	Species and common name were identified
Diameter at breast height (DBH) (cm)	DBH was measured at breast height (1.3 m) using a diameter tape
Hollows potentially suitable for breeding by a black cockatoo	Number of hollows potentially suitable for breeding by a black cockatoo recorded (assessed from ground level only)

Hollows that appeared potentially suitable for use by a black cockatoo from the ground were further inspected using a drone and/or a pole-mounted camera. During the hollow inspection the internal dimensions of the hollow were confirmed if possible and an assessment was made for signs of use

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such as chew marks around the hollow entrance, nesting material, eggs, feathers or the presence of birds within the hollow.

To be suitable for use as breeding habitat by black cockatoos it was considered a hollow must:

- have an entrance opening of at least 10 cm but preferably 20-30 cm (Saunders *et al.* 1982; Groom 2010; Johnstone *et al.* 2013a)
- be located at least 3 m from the ground (Saunders 1979b; Johnstone and Storr 1998; Groom 2010; Saunders 2014)
- be located in a trunk or branch that is generally large enough to contain a hollow that has a floor diameter of at least 40 cm and depth of 50-200 cm such that it could house an adult black cockatoo and nestlings (Saunders 1979a; Johnstone and Storr 1998; Saunders 2014; DPaW 2015)
- have vertical or near vertical orientation (Johnstone and Kirkby 2008; Johnstone *et al.* 2013a).

Each habitat tree was assigned to a category listed in **Table 7** based on current black cockatoo guidelines (DAWE 2022).

Table 7: Habitat tree categories (DAWE 2022)

Category	Specifications
Known nesting tree	Trees (live or dead but still standing) which contains a hollow where black cockatoo breeding has been recorded or which demonstrates evidence of breeding (i.e. showing evidence of use through scratches, chew marks or feathers).
Suitable nesting tree	Trees with suitable nesting hollows present <sup>^</sup> , although no evidence of use. Note that any species of tree may develop suitable hollows for breeding.
Potential nesting tree	Trees that have a suitable DBH to develop a nest hollow, but do not currently have suitable nesting hollows. Trees suitable to develop a nest hollow in the future are 300-500 mm DBH. Note that many species of eucalypt may develop suitable hollows for breeding.

<sup>^</sup>Hollow determined to be suitable for use as breeding habitat by black cockatoos as listed above in **Section 3.1.1.1**

### 3.1.1.2 Roosting habitat

If present, groups of tall native and non-native trees were assumed to provide roosting habitat. The presence of active or historical roosts in these trees was determined through evidence of roosting activity, such as branch clippings, droppings or moulted feathers.

Tall groups of native and non-native trees in the site within 1000 m of an existing large roost (>150 individuals) or 500 m of an existing small roost (<150 individuals) were assumed to be associated with that roost (Glossop *et al.* 2011).

### 3.1.1.3 Foraging habitat

Foraging habitat was identified by assessing vegetation in the site for plant species known to provide food for black cockatoos (Davies 1966; Saunders 1980; Johnstone and Storr 1998; Johnstone and Kirkby 1999; Groom 2011; Johnstone *et al.* 2011; DAWE 2022).

Foraging habitat was classified as either 'native' or 'non-native' based on the predominant vegetation's naturalised status and in accordance with DAWE (2022).

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It was also classified as either 'primary' or 'secondary' based on black cockatoo foraging preferences. Primary food plants were defined as those with historical and contemporary records of regular consumption by a black cockatoo species. Secondary food plants were defined as plants that black cockatoo species have been recorded consuming occasionally or that, based on their limited extent or agricultural origin, should not be considered a sustaining resource. A list of plant species classified as primary or secondary food plants is provided as **Appendix D**.

Each patch of foraging habitat was assigned a foraging value for each species of black cockatoo likely to occur within the site. As it is not always possible to separate out food plants from non-food plants, mapped foraging habitat may also include vegetation comprising non-food plants. The proportion of non-food plants in mapped foraging habitat was minimised as far as practicable.

Evidence of black cockatoo foraging, such as chewed fruits, was searched for within the site and allocated to a black cockatoo species where possible.

## 3.2 Data analysis

### 3.2.1 Fauna identification

Fauna observed during the survey were identified in the field unless unknown. Where fauna was unknown, photographs and/or noted observations were recorded. Unknown fauna was identified through the use of taxonomic keys and field guides.

#### 3.2.1.1 Nomenclature and sources of information

Taxonomy and nomenclature of scientific and common names for mammals, reptiles and amphibians follow *the Western Australian Museum (WAM) Checklist of the Terrestrial Vertebrate Fauna of Western Australia* (WAM 2022). For birds taxonomy and nomenclature of scientific and common names follows the Australian Faunal Directory (AFD)(DCCEEW 2024a). Where common names were not provided by the WAM or the AFD, these have been derived from other sources as noted.

Literature listed in **Appendix A** represent the main publications used to identify fauna species and habitats within the site.

### 3.2.2 Fauna habitat

Fauna habitats were described according to the dominant flora species and vegetation type present, as determined from observations made during the field survey and information provided in the '*Detailed Flora and Vegetation Assessment*' (Emerge Associates 2024). Significant microhabitat features present in each habitat were also described.

The identified fauna habitats were mapped on aerial photography with the boundaries interpreted from aerial photography, (Emerge Associates 2024) plant communities and notes taken in the field.

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### 3.2.3 Black cockatoo habitat

#### 3.2.3.1 Habitat trees

Habitat trees were classified according to the scheme outlined in **Table 5** and mapped on aerial imagery. A complete summary of the recorded attributes of habitat trees was compiled in a tabular format.

#### 3.2.3.2 Foraging habitat value

Foraging habitat was described according to the dominant flora species or vegetation type present and mapped using boundaries interpreted from aerial photography and notes taken in the field. The foraging value of each patch of foraging habitat was attributed separately for each species of black cockatoo likely to occur in the site. Foraging value was assigned as outlined in **3.1.1.3**.

### 3.3 Survey limitations

It is important to note the specific constraints imposed on surveys and the degree to which these may have limited survey outcomes. An evaluation of the survey methodology against standard constraints outlined in the EPA's document *Technical Guidance – Terrestrial vertebrate fauna surveys for environmental impact assessment* (EPA 2020) is provided in **Table 8**.

*Table 8: Evaluation of survey methodology against standard constraints outlined in the EPA's Technical Guidance – Terrestrial vertebrate fauna surveys for environmental impact assessment (EPA 2020)*

Constraint	Degree of limitation	Details
Level of survey	No limitation	A basic survey (desktop study and field survey) in combination with a targeted black cockatoo survey was undertaken. The level of survey and survey effort are considered adequate to assess the fauna and black cockatoo habitat values within the site.
Scope	No limitation	The survey focused on vertebrate fauna and habitat values, with particular focus on black cockatoos and other conservation significant taxa with potential to occur within the site.
Proportion of fauna identified, recorded and/or collected.	No limitation	All observed vertebrate fauna were identified.
Sources of information e.g. previously available information (whether historic or recent) as distinct from new data.	No limitation	Adequate information was available from database searches, previous surveys and literature references.
The proportion of the task achieved and further work which might be needed.	No limitation	The task was achieved in its entirety.

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*Table:8: Evaluation of survey methodology against standard constraints outlined in the EPA's Technical Guidance – Terrestrial vertebrate fauna surveys for environmental impact assessment (EPA 2020)(continued)*

Constraint	Degree of limitation	Details
Experience level of personnel	No limitation	This fauna and black cockatoo assessment was undertaken by two qualified zoologists with over four and three years of zoological experience in Western Australia. Technical review was undertaken by a senior environmental consultant with over 13 years' experience in environmental science in Western Australia.
Suitability of timing, weather and season	No limitation	Survey timing is not considered to be of great importance for basic fauna assessments but the weather conditions during the survey were ideal for detecting fauna species. The black cockatoo survey was not undertaken during Carnaby's black cockatoo and Baudin's black cockatoo breeding seasons. However, the suitability of a hollow for black cockatoos can be determined at any time of the year.
Completeness	No limitation	The desktop assessment, field survey and targeted black cockatoo components of the survey were completed comprehensively.
Spatial coverage and access	No limitation	Site coverage was comprehensive (track logged).
	No limitation	All parts of the site could be accessed as required.
Survey intensity	No limitation	The intensity of the survey was adequate given the size of the site.
Influence of disturbance	No limitation	No recent disturbance within the site was noted that may have affected outcomes of the survey. Part of the land surrounding the site is highly modified due to historical and ongoing disturbance related to the waste management facility. However, these have no direct impacts on the fauna values within the site.
Adequacy of resources	No limitation	All resources required to perform the survey were available. The guidance currently available from Commonwealth and State agencies on the assessment of black cockatoo habitat is limited and relies heavily on technical experts preparing their own methodology. This assessment applies an internally developed methodology that is considered to provide a systematic and balanced characterisation of black cockatoo habitat.
Compliance with EPA (2020) guidance	No limitation	The EPA guidance requires that a full list of all fauna species with potential to occur within the site is compiled. As part of this assessment a comprehensive list of fauna species of conservation significance was compiled. Non-conservation taxa with potential to occur within the site were not compiled into a list but are provided as raw data in <b>Appendix B</b> . Given that all species with potential to occur within the site are still identified within the relevant appendices this is not considered to affect the outcomes of this assessment.



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## 4 Results

### 4.1 Fauna

#### 4.1.1 Species inventory

A total of 18 native and three introduced fauna species, were directly or indirectly (from foraging evidence, scats or burrows) recorded during the field survey.

A complete species list is provided in **Appendix F**.

#### 4.1.2 Threatened, specially protected and priority fauna

Three threatened species were recorded within the site during the field survey: Carnaby's black cockatoo (EN), Baudin's black cockatoo (EN) and forest red-tailed black cockatoo (VU).

Carnaby's black cockatoo and Baudin's black cockatoo foraging evidence was observed on marri fruit within the site. Several forest red-tailed black cockatoos were observed flying over the site.

#### 4.1.3 Declared pests

Two species listed as a declared pest (C3) pursuant to the BAM Act, *Oryctolagus cuniculus* (rabbit) and *Vulpes vulpes* (fox), were identified from scats and burrows within the site.

### 4.2 Fauna habitat

Two broad fauna habitats were identified within the site, as listed in **Table 9**.



A description, the size of the area and a representative photograph of each habitat is provided in **Table 9**. The location of each habitat is shown on **Figure 5**.

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Table 9: Fauna habitats identified within the site

Fauna habitat	Description	Total area (ha)	Proportion of site (%)	Representative photograph
Bare ground	<p>Tracks and areas of bare ground.</p> <ul style="list-style-type: none"> <li>• Low microhabitat complexity</li> <li>• May be used by common fauna for temporary traversal between patches of vegetation</li> </ul>	0.27	8.94	
Eucalypt forest	<p>Open forest of <i>Eucalyptus marginata</i> and <i>Corymbia calophylla</i> over native shubland over native forbs and grasses/sedges.</p> <ul style="list-style-type: none"> <li>• High microhabitat complexity</li> <li>• Tree hollows provide refuge for avifauna and arboreal mammals</li> <li>• Native eucalypts provide habitat for Carnaby's black cockatoo (EN), Baudin's black cockatoo (EN) and forest red-tailed black cockatoo (VU).</li> <li>• Suitable habitat for western ringtail possum (CR), southwestern brush-tailed phascogale (CD), Australian masked owl (P3), quenda (P4) and western brush wallaby (P4).</li> </ul>	2.75	91.06	

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### 4.3 Black cockatoo habitat

#### 4.3.1 Breeding

A total of 168 black cockatoo habitat trees were recorded within the site as shown in **Figure 6**.

The habitat trees comprised 103 marri, 59 jarrah and six stag (dead) trees.

An internal hollow inspection was undertaken for 16 habitat trees that were determined to potentially contain suitable hollows based on the initial inspection from ground level. Of the 16 trees inspected, none were determined to contain hollows suitable for breeding by black cockatoos.

A summary of the habitat trees recorded within the site is provided in **Table 10** and an inventory in **Appendix G**.

*Table 10: Habitat trees recorded within the site*

Category	No. trees
Known nesting trees	0
Suitable nesting trees	0
Potential nesting trees	168
Total nesting trees	168

#### 4.3.2 Roosting

No roosts or evidence of roosting were observed within the site during the survey.

Tall trees within the site have the potential to provide roosting habitat.

#### 4.3.3 Foraging

A total of 2.75 ha of foraging habitat for Carnaby's black cockatoo, Baudin's black cockatoo and forest red-tailed black cockatoo was recorded in the site as shown in **Figure 6**.

The extent of foraging habitat by value category is detailed in **Table 11**.

Foraging habitat	Black cockatoo species and area of foraging habitat (ha)		
	Carnaby's	Baudin's	Forest red-tailed
Primary native	2.75	2.75	2.75
Primary non-native	0	0	0
Secondary native	0	0	0
Secondary non-native	0	0	0
Total	2.75	2.75	2.75

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## 5 Discussion

### 5.1 Fauna

The 18 native fauna species recorded within the site are all generally common and widespread across the south-west of WA and therefore records for these species were not unexpected. The relatively small number of fauna species recorded during the survey is likely due to the heavily disturbed areas surrounding much of the site and the low intensity of a basic fauna survey.

#### 5.1.1 Threatened, specially protected and priority fauna

Carnaby's black cockatoo (EN), Baudin's black cockatoo (EN) and forest red-tailed black cockatoo (VU) were recorded within the site. These species are discussed further in **Section 5.3**.

Eight additional conservation significant species were considered a moderate or high likelihood to occur in the site, as detailed below.

- Pacific swift (MI) and peregrine falcon (OS) are highly mobile, predominantly aerial birds that may opportunistically fly over or forage in the site for short periods of time as part of a much larger home range. Neither of these species would breed within the site. Any occurrence of pacific swift or peregrine falcon in the site would likely be in the air space and largely independent from terrestrial habitat, aside from foraging by the peregrine falcon.
- Numerous records of western ringtail possum (CR) occur in the area with the closest being 450 m to the west. While no dreys or secondary evidence of the species were observed within the site, there is a high likelihood that western ringtail possum occurs periodically due to the abundance of suitable vegetation and hollows within the site and adjacent areas.
- South-western brush-tailed phascogale (CD) has previously been recorded approximately 1.2 km north of the site. The site contains suitable habitat which is contiguous with the vegetation that extends north to the existing record. It is likely that the species uses the site as part of a larger home range. Hollows in the site would provide suitable refuge habitat for this species.
- Australian masked owl (P3) has been recorded 7.5 km to the south-west of the site. Larger hollows found in the site may provide breeding and potential roosting habitat for this species.
- Several quenda (P4) records occur within 10 km and habitat within the site is suitable. While no diggings were seen during the survey, quenda are likely to inhabit the surrounding forest and likely visit the site periodically to forage.
- Several western brush wallaby (P4) records occur in forest surrounding Boranup and Redgate, with the closest record 5.2 km west from the site. Habitat within the site is suitable for the species. However, it is unknown whether western brush wallaby inhabits the patch of forest surrounding the site as records appear to be concentrated around the larger extent of forest near the coast.

*Anstisia alba* (white bellied frog (CR)) is known from small populations recorded in Forest Grove with the closest record approximately 2.2 km east from the site. No records have occurred since the 1990s. The southern portion of the site was suspected to provide potential suitable habitat being close to a drainage channel. However, the vegetation does not match their historical habitat and the drainage channel was considered too dry at the time of the survey.

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### 5.2 Fauna habitat

The habitat values within the site have remained largely unchanged since 1971. The site comprises mainly **eucalypt forest** which provides significant value to many species inhabiting the south-west of Western Australia. This habitat provides a contiguous cover of predominantly native trees and shrubs and several hollows suitable for nesting or refuge were observed. While the site is relatively small in extent and immediately adjacent to the waste facility operations, habitat within the site is connected to a larger patch of native forest forming part of an extensive network of forest habitat.

### 5.3 Black cockatoo habitat values

Forest red-tailed black cockatoo was recorded flying over the site. Observations of this species were not unexpected as the site is located within its modelled distribution range and suitable habitat occurs within the site and local area.

Carnaby's black cockatoo and Baudin's black cockatoo were also recorded from foraging evidence on marri fruit. The site is located within the breeding ranges of both species so the site is likely visited regularly for foraging.

#### 5.3.1 Breeding

As none of the habitat trees contain hollows suitable for use by black cockatoos for breeding, the site does not currently provide breeding habitat for any of the three species of black cockatoo. The habitat trees within the site have the potential to form suitable hollows in the future. However, it will likely take many decades for hollows to form that are large enough to be suitable for use by black cockatoos for breeding.

#### 5.3.2 Roosting

No secondary evidence of roosting such as branch clippings, droppings or feathers were observed within the site. Therefore, there is no reason to suspect that roosting by black cockatoos has recently occurred in the site. Nevertheless, the site contains many tall trees and groups of tall trees that have the potential to provide roosting habitat for black cockatoos.

#### 5.3.3 Foraging

The majority of the foraging habitat occurs as a contiguous area of mixed forest vegetation and comprises a combination of primary, secondary and non-food plants. The dominant foraging plants are jarrah and marri which are considered primary black cockatoo foraging species. Other foraging plants include *Eucalyptus diversicolor* (karri), *Hakea lissocarpha* (honeybush) and *Hakea ruscifolia* (candle hakea).

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## 6 Conclusions

Outcomes of the basic fauna assessment include the following:

- The site consists of two broad habitat types:
  - **Bare ground** (0.27 ha): tracks and bare ground.
  - **Eucalypt forest** (2.75 ha): open forest of *Eucalyptus marginata* and *Corymbia calophylla* over native shrubland.
- A total of 18 native fauna species were recorded within the site.
- Three threatened species were recorded during the survey: Carnaby's black cockatoo (EN), Baudin's black cockatoo (EN) and forest red-tailed black cockatoo (VU).
- Despite not being recording during the survey, the following species were considered to have a high or moderate likelihood of occurring within the site:
  - Western ringtail possum (CR)
  - Pacific swift (MI)
  - Peregrine falcon (OS)
  - South-western brush-tail phascogale (CD)
  - Masked Owl (P3)
  - Quenda (P4)
  - Western brush wallaby (P4).

Outcomes of the targeted black cockatoo survey include the following:

- Carnaby's black cockatoo, Baudin's black cockatoo and forest red-tailed black cockatoo were recorded during the field survey.
- The site occurs within the breeding distribution of Carnaby's black cockatoo, Baudin's black cockatoo and forest red-tailed black cockatoo.
- The site contains 168 habitat trees of which none contain hollows suitable for use by black cockatoos for breeding. Therefore, the site does not currently provide suitable breeding habitat for any species of black cockatoo.
- No roosts or evidence of roosting by any species of black cockatoo was recorded within the site during the field survey. Tall native and non-native trees within the site represent suitable roosting habitat for species of black cockatoo.
- A total of 2.75 ha of foraging habitat for Carnaby's black cockatoo, Baudin's black cockatoo and forest red-tailed black cockatoo was mapped within the site of which all is considered primary native foraging habitat
- Additional areas of foraging habitat of similar or higher value occur adjacent to the site and in the wider local area.

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# Basic Fauna and Targeted Black Cockatoo Assessment

Part Lot 5011 Davis Road, Forest Grove



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# Basic Fauna and Targeted Black Cockatoo Assessment

Part Lot 5011 Davis Road, Forest Grove



## 7.2 Online references

The online resources that have been utilised in the preparation of this report are referenced in **Section 7.1**, with access date information provided in **Table R 1**.

*Table R 1 Access dates for online references*

Reference	Date accessed	Website or dataset name
Atlas of Living Australia	29 May 2024	Atlas of Living Australia – Spatial Portal
BirdLife International (2024)	11 December 2023	Important Bird Areas
BoM (2024)	29 May 2024	Climate Data Online
DAWE (2024)	29 May 2024	Species Profile and Threats Database
DBCA (2024)	29 May 2024	Dandjoo
DCCEEW (2024)	29 May 2024	Australian Faunal Directory
DCCEEW (2024)	11 December 2023	Protected Matters Search Tool
WALIA (2024)	11 December 2023	Landgate Map Viewer

# Figures



*Figure 1: Site Location*

*Figure 2: Hydrography and Soils*

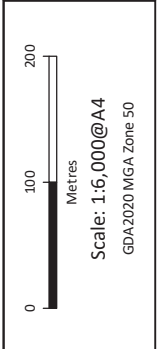
*Figure 3: Black Cockatoo Habitat Context*

*Figure 4: Fauna Habitat*

*Figure 5: Black Cockatoo Breeding Trees*

*Figure 6: Carnaby's Black Cockatoo, Baudin's Black Cockatoo and Forest Red-tailed Black Cockatoo Foraging Habitat*





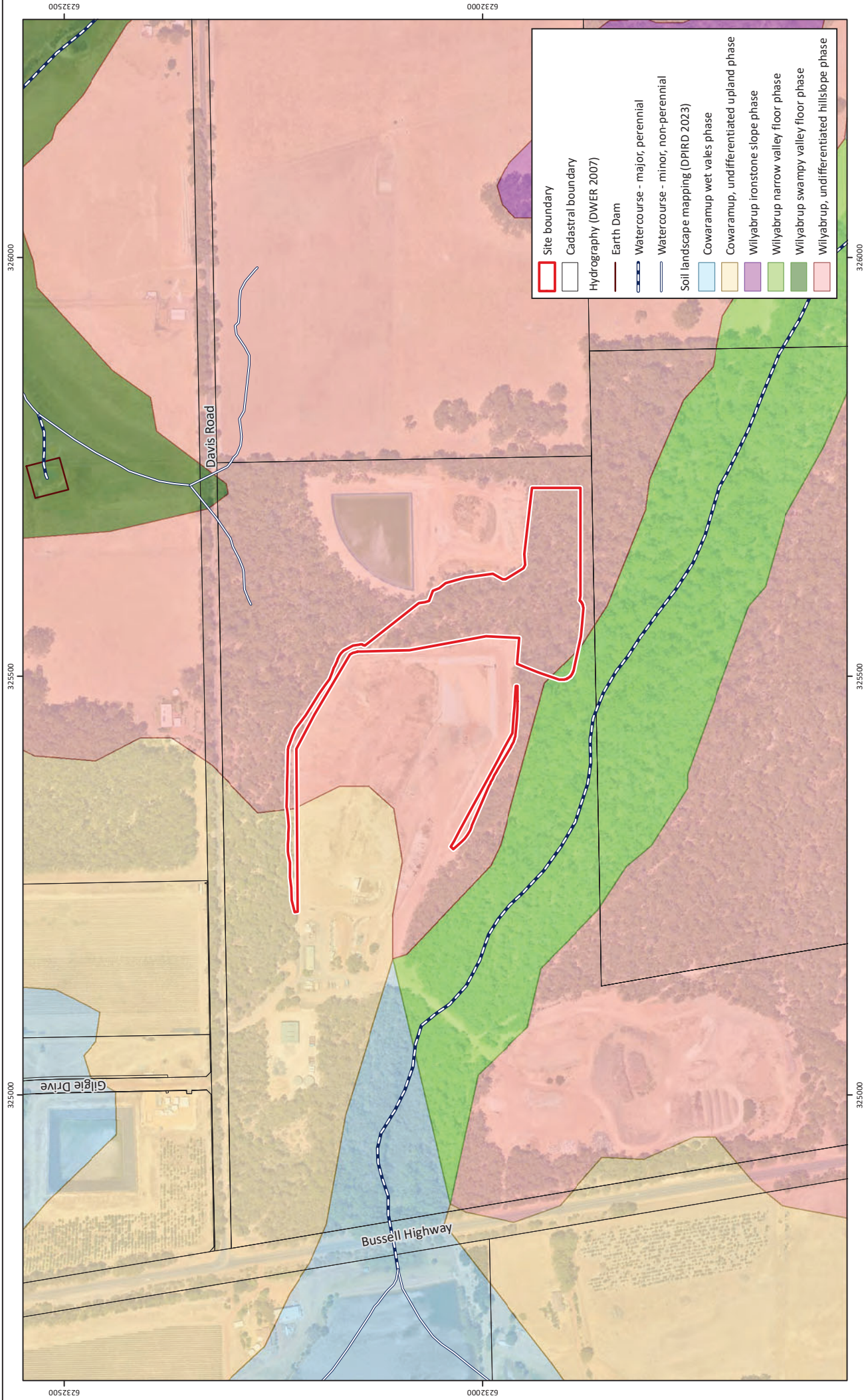
**Plan Number:** EP23-108(02)-F01  
**Drawn:** GAR  
**Date:** 27/05/2024  
**Checked:** NAW  
**Approved:** RAW  
**Date:** 20/06/2024

**Figure 1: Site Location**

**Project:** Basic Fauna and Targeted Black Cockatoo Assessment  
 Part Lot 5011 Davis Road, Forest Grove  
 Shire of Augusta Margaret River

**Client:** Shire of Augusta Margaret River

While Emerge Associates makes every attempt to ensure the accuracy and completeness of data, Emerge accepts no responsibility for externally sourced data used © Landgate (2024). Landgate / SLIP Imagery date: 28/01/2022



	Site boundary
	Cadastral boundary
Hydrography (DWER 2007)	
	Earth Dam
	Watercourse - major, perennial
	Watercourse - minor, non-perennial
Soil landscape mapping (DPIRD 2023)	
	Cowaramup wet vales phase
	Cowaramup, undifferentiated upland phase
	Wilyabrup ironstone slope phase
	Wilyabrup narrow valley floor phase
	Wilyabrup swampy valley floor phase
	Wilyabrup, undifferentiated hillslope phase



0 100 200  
Metres  
Scale: 1:6,000@A4  
GDA2020 MGA Zone 50

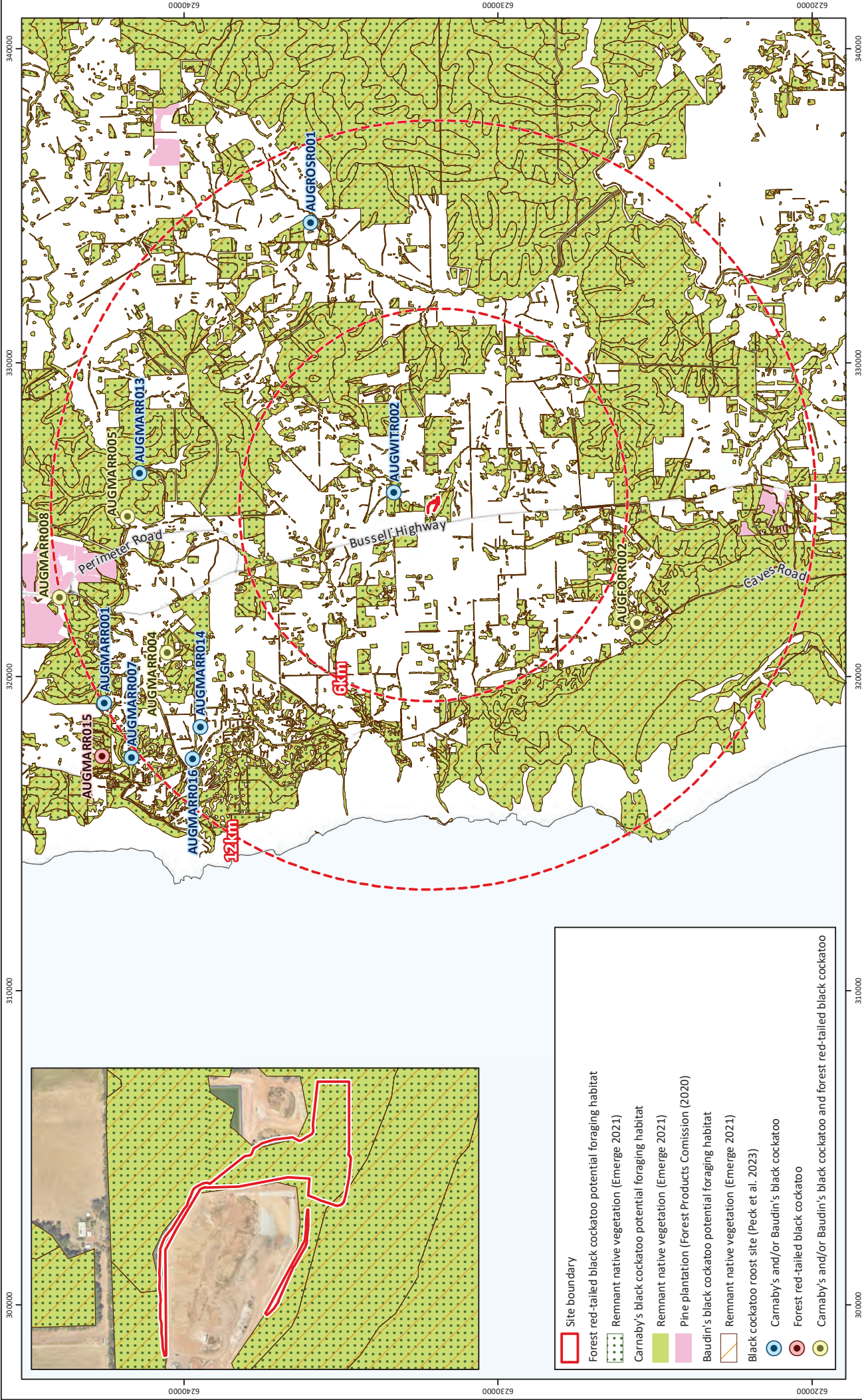


Plan Number:  
EP23-108(02)-F02  
Drawn: GAR  
Date: 27/05/2024  
Checked: NAW  
Approved: RAW  
Date: 20/06/2024

**Figure 2: Hydrography and Soils**

**Project:** Basic Fauna and Targeted Black Cockatoo Assessment  
Part Lot 5011 Davis Road, Forest Grove  
**Client:** Shire of Augusta Margaret River

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Plan Number: EP23-108(02)-F03a  
Drawn: WJC  
Date: 29/07/2024  
Checked: NAW  
Approved: RAW  
Date: 30/07/2024

**Figure 3: Black Cockatoo Habitat Context**

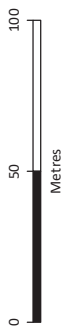
**Project:** Basic Fauna and Targeted Black Cockatoo Assessment  
Part Lot 5011 Davis Road, Forest Grove  
Shire of Augusta Margaret River

**Client:**

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	Site boundary
	Cadastral boundary
	Fauna habitat
	Eucalypt forest (2.75 ha)
	Bare ground (0.27 ha)



Scale: 1:2,500@A4  
GDA2020 MGA Zone 50



Plan Number: EP23-108(02)-F04  
 Drawn: GAR  
 Date: 27/05/2024  
 Checked: NAW  
 Approved: RAW  
 Date: 20/06/2024

**Figure 4: Fauna Habitat**

**Project:** Basic Fauna and Targeted Black Cockatoo Assessment  
 Part Lot 5011 Davis Road, Forest Grove  
**Client:** Shire of Augusta Margaret River

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Scale: 1:2,500@A4  
GDA2020 MGA Zone 50

Plan Number: EP23-108(02)-F05  
Drawn: GAR  
Date: 27/05/2024  
Checked: NAW  
Approved: RAW  
Date: 20/06/2024

**Figure 5: Black Cockatoo Breeding Trees**

**Project:** Basic Fauna and Targeted Black Cockatoo Assessment  
Part Lot 5011 Davis Road, Forest Grove  
**Client:** Shire of Augusta Margaret River

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0 50 100  
Metres  
Scale: 1:2,500@A4  
GDA2020 MGA Zone 50

Plan Number: EP23-108(02)-F06  
Drawn: GAR  
Date: 27/05/2024  
Checked: NAW  
Approved: RAW  
Date: 20/06/2024

**Figure 6: Carnaby's Black Cockatoo, Baudin's Black Cockatoo and Forest Red-tailed Black Cockatoo Foraging Habitat**

**Project:** Basic Fauna and Targeted Black Cockatoo Assessment  
Part Lot 5011 Davis Road, Forest Grove  
**Client:** Shire of Augusta Margaret River

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# Appendix A

Additional information





## Conservation Significant Fauna

### Threatened and priority fauna

Fauna species considered rare or under threat warrant special protection under Commonwealth and/or State legislation. At the Commonwealth level, fauna species can be listed under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) as ‘threatened’, ‘migratory’ or ‘marine’ as described in **Table 1**.

Migratory species comprise birds recognised under international treaties including:

- Japan Australia Migratory Bird Agreement 1981 (JAMBA)
- China Australia Migratory Bird Agreement 1998 (CAMBA)
- Republic of Korea-Australia Migratory Bird Agreement 2007 (ROKAMBA)
- Bonn Convention 1979 (The Convention on the Conservation of Migratory Species of Wild Animals).

Fauna species listed as threatened and migratory are protected in Australia as ‘matters of national environmental significance’ (MNES) under the EPBC Act.

*Table 1: Definitions of conservation significant fauna species pursuant to the EPBC Act*

Conservation Code	Category
X	Threatened Fauna –Extinct There is no reasonable doubt that the last member of the species has died.
EW <sup>#</sup>	Threatened Fauna –Extinct in the Wild Taxa which are known only to survive in cultivation, captivity or as a naturalised population outside its past range, or taxa which have not been recorded in its known and/or expected habitat despite appropriate exhaustive surveys.
CR <sup>#</sup>	Threatened Fauna – Critically Endangered Taxa which are considered to be facing an extremely high risk of extinction in the wild.
EN <sup>#</sup>	Threatened Fauna – Endangered Taxa which are considered to be facing a very high risk of extinction in the wild.
VU <sup>#</sup>	Threatened Fauna – Vulnerable Taxa which are considered to be facing a high risk of extinction in the wild.
Migratory <sup>#</sup>	Migratory Fauna All migratory species that are: (i) native species; and (ii) from time to time included in the appendices to the Bonn Convention; and (b) all migratory species from time to time included in annexes established under JAMBA, CAMBA and ROKAMBA; and All native species from time to time identified in a list established under, or an instrument made under, an international agreement approved by the Minister.
Ma	Marine Fauna Species in the list established under s248 of the EPBC Act

<sup>#</sup>matters of national environmental significance (MNES) under the EPBC Act

## Additional Background Information

In Western Australia, fauna taxa may be classed as ‘threatened’, ‘extinct’, or ‘specially protected’ under the *Biodiversity Conservation Act 2016* (BC Act), which is enforced by Department of Biodiversity Conservation and Attractions (DBCA) (DBCA 2019a). The definitions of these categories are provided in **Table 2**.

Table 2: Definitions of specially protected fauna schedules under the BC Act (DBCA 2019a)

Category	Conservation Code	Definition
Threatened	CR	Critically endangered Threatened species considered to be facing an extremely high risk of extinction in the wild in the immediate future.
	EN	Endangered Threatened species considered to be facing a very high risk of extinction in the wild in the near future.
	VU	Vulnerable Threatened species considered to be facing a high risk of extinction in the wild in the medium-term future.
Extinct	EX	Extinct Species where there is no reasonable doubt that the last member of the species has died.
	EW	Extinct in the wild Species that is known only to survive in cultivation, in captivity or as a naturalised population well outside its past range; and it has not been recorded in its known habitat or expected habitat, at appropriate seasons, anywhere in its past range, despite surveys over a time frame appropriate to its life cycle and form. Note that no species are currently listed as EW.
Specially protected	MI	Migratory species Fauna that periodically or occasionally visit Australia or an external Territory or the exclusive economic zone; or the species is subject of an international agreement that relates to the protection of migratory species and that binds the Commonwealth  Includes birds that subject to an agreement between the government of Australia and the governments of Japan (JAMBA), China (CAMBA) and The Republic of Korea (ROKAMBA), and the Bonn Convention, relating to the protection of migratory birds.
	CD	Species of special conservation interest (conservation dependent fauna) Fauna of special conservation need being species dependent on ongoing conservation intervention to prevent it becoming eligible for listing as threatened.
	OS	Other specially protected species Fauna otherwise in need of special protection to ensure their conservation.

## Additional Background Information

Fauna species that may be threatened or near threatened but lack sufficient information to be legislatively listed may be added to the DBCA's *Priority Fauna List* (DBCA 2018b). Species listed under priorities 1-3 comprise possible threatened species that do not meet survey criteria or are otherwise data deficient. Species listed under priority 4 are those that are adequately known, are rare but not threatened, or meet criteria for near threatened, or that have been recently removed from the threatened species or other specially protected fauna lists for other than taxonomic reasons (DBCA 2019a).

Priority fauna species are considered during State approval processes. Priority fauna categories and definitions are listed in **Table 3** (DBCA 2019a).

*Table 3: Definitions of priority fauna categories on DBCA's Priority Fauna List (DBCA 2019a)*

Conservation Code	Category
P1	<p>Priority 1 – Poorly known</p> <p>Species that are known from one or a few locations (generally five or less) which are potentially at risk. All occurrences are either: very small; or on lands not managed for conservation, e.g. agricultural or pastoral lands, urban areas, road and rail reserves, gravel reserves and active mineral leases; or otherwise under threat of habitat destruction or degradation. Species may be included if they are comparatively well known from one or more locations but do not meet adequacy of survey requirements and appear to be under immediate threat from known threatening processes. Such species are in urgent need of further survey.</p>
P2	<p>Priority 2 – Poorly known</p> <p>Species that are known from one or a few locations (generally five or less), some of which are on lands managed primarily for nature conservation, e.g. national parks, conservation parks, nature reserves and other lands with secure tenure being managed for conservation. Species may be included if they are comparatively well known from one or more locations but do not meet adequacy of survey requirements and appear to be under threat from known threatening processes. Such species are in urgent need of further survey.</p>
P3	<p>Priority 3 – Poorly known</p> <p>Species that are known from several locations and the species does not appear to be under imminent threat, or from few but widespread locations with either large population size or significant remaining areas of apparently suitable habitat, much of it not under imminent threat. Species may be included if they are comparatively well known from several locations but do not meet adequacy of survey requirements and known threatening processes exist that could affect them. Such species are in need of further survey.</p>
P4	<p>(a) Priority 4 – Rare species</p> <p>Species that are considered to have been adequately surveyed, or for which sufficient knowledge is available, and that are considered not currently threatened or in need of special protection, but could be if present circumstances change. These species are usually represented on conservation lands.</p> <p>(b) Priority 4 – Near Threatened</p> <p>Species that are considered to have been adequately surveyed and that do not qualify for Conservation Dependent, but that are close to qualifying for Vulnerable.</p> <p>(c) Priority 4 – Other</p> <p>Species that have been removed from the list of threatened species during the past five years for reasons other than taxonomy.</p>

## Additional Background Information



### Black cockatoos

Three threatened species of black cockatoo occur on the Swan Coastal Plain (referred to herein collectively as 'black cockatoos'):

- *Zanda*<sup>1</sup> *latirostris* (Carnaby's black cockatoo) which is listed as 'endangered' under the EPBC Act and the BC Act.
- *Zanda*<sup>1</sup> *baudinii* (Baudin's black cockatoo) which is listed as 'endangered' under the EPBC Act and the BC Act.
- *Calyptorhynchus banksii naso* (forest red-tailed black cockatoo) which is listed as 'vulnerable' under the EPBC Act and the BC Act.

There are a range of regional studies and spatial datasets available which provide information on black cockatoo records and potential habitat mapping. These are detailed below.

### Species distribution and breeding range

Broad-scale maps are available for the modelled distribution of Baudin's black cockatoo, Carnaby's black cockatoo and forest red-tailed black cockatoo (DSEWPaC 2011; DoEE 2016a, b).

The modelled distribution maps also include 'known breeding areas' and 'predicted breeding range' for Baudin's black cockatoo and 'breeding range' and 'non-breeding range' for Carnaby's black cockatoo.

No breeding range modelling is available for forest red-tailed black cockatoo but the species is known to breed mainly in the jarrah forest region (DBCA 2017a) and in small populations on the Swan Coastal Plain within the Baldivis, Stake Hill, Lake McLarty and Capel area and increasingly in the Perth metropolitan area (DAWE 2022).

### Breeding habitat

Department of Environment and Conservation (DEC, now Department of Biodiversity, Conservation and Attractions (DBCA)) and fauna experts, have identified and mapped Carnaby's black cockatoo habitat on the Swan Coastal Plain and Jarrah Forest regions (Glossop *et al.* 2011). This dataset includes mapping of Carnaby's black cockatoo breeding sites based on point records of breeding from a range of sources. Breeding sites were classified as 'confirmed' where eggs or chicks were recorded and 'possible' where observations relating to Carnaby's black cockatoo breeding that did not include actual records of eggs or chicks (e.g. chewed hollows or records of breeding or nesting behaviour by an expert observer).

A 12 km buffer applies to each site to 'reflect the flexible use of these areas by cockatoos and to indicate the important zone for access to potential feeding habitat' (Glossop *et al.* 2011). Glossop *et al.* (2011) state that the areas mapped in the dataset are not a comprehensive record of Carnaby's black cockatoo breeding and that many nesting sites are not known.

While this dataset only applies to Carnaby's black cockatoo, the information it contains is also applicable for Baudin's black cockatoo and forest red-tailed black cockatoo as they have similar

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<sup>1</sup> Previously *Calyptorhynchus*



## Additional Background Information



breeding habitat requirements. That is, breeding sites that are suitable for Carnaby's black cockatoo may also be suitable for Baudin's black cockatoo and forest red-tailed black cockatoo, if located within their distribution/breeding ranges.

BirdLife Australia also maintain a database of confirmed black cockatoo breeding sites which is accessible via a paid search system. BirdLife Australia have advised that their database is comprised of data collected during surveys by staff and volunteers of which most (>99%) surveys are of Carnaby's black cockatoo. They have also advised that the dataset is not comprehensive and that an absence of known nests does not necessarily indicate a lack of breeding activity.

The Carnaby's black cockatoo recovery plan also identifies 13 'important bird areas' for Carnaby's black cockatoo, which are identified as 'sites of global bird conservation importance' (DPaW 2013). These 'important bird areas' comprise sites supporting at least 20 breeding pairs or 1% of the population regularly utilising an area in the non-breeding part of the range.

### Confirmed roost sites

BirdLife Australia undertakes annual monitoring of black cockatoo overnight roost sites as part of the annual 'Great Cocky Count' community-based survey. Information gathered from these monitoring events provides roost locations and recorded black cockatoo number (Birdlife Australia 2023).

### Native foraging habitat

Glossop *et al.* (2011) also mapped 'areas requiring investigation as Carnaby's black cockatoo feeding habitat' for the Swan Coastal Plain and Jarrah Forest regions, based on regional vegetation mapping that may contain plant species known to be foraged upon by Carnaby's black cockatoo. Note that this dataset does not include observations or point records of Carnaby's black cockatoo feeding. This dataset represents areas of vegetation that may potentially provide foraging habitat for Carnaby's black cockatoo.

In order to account for clearing of native vegetation that has occurred since the Glossop *et al.* (2011) dataset was created and to incorporate updated vegetation mapping and information on foraging behaviour of Carnaby's black cockatoo, Emerge have revised this dataset to represent the most up to date information available. Furthermore, Emerge have used a similar methodology to Glossop *et al.* (2011) to define potential foraging habitat for Baudin's black cockatoo and forest-red tailed cockatoos.

Specifically, DBCA (2021), DBCA (2019b) and DPIRD (2018) regional vegetation complex mapping was used to determine which areas of remnant vegetation support plant species known to be foraged upon by Carnaby's black cockatoo, Baudin's black cockatoo or forest red-tailed cockatoos. Where these vegetation complexes intersect remnant vegetation mapped by DPIRD (2020) they were considered to represent potential foraging habitat for Carnaby's black cockatoo, Baudin's black cockatoo and/or forest red-tailed cockatoo.

Pine plantations also provide an important food source for Carnaby's black cockatoo, but were not included in the original Glossop *et al.* (2011) dataset. Mapping of pine plantations is available from the Forest Products Commission (Forest Products Commission 2020) and was considered in the assessment of Carnaby's black cockatoo foraging habitat.

## Pest fauna

A number of legislative and policy documents exist in relation to pest fauna management at state and national levels. The *Biosecurity and Agriculture Management Act 2007* (BAM Act) is the principle legislation guiding pest fauna management in Western Australia and lists declared pest species.

### Declared Pests

Part 2.3.23 of the BAM Act requires a person must not “*a) keep, breed or cultivate the declared pest; b) keep, breed or cultivate an animal, plant or other thing that is infected or infested with the declared pest; c) release into the environment the declared pest, or an animal, plant or other thing that is infected or infested with the declared pest; or d) intentionally infect or infest, or expose to infection or infestation, a plant, animal or other thing with a declared pest*”.

Under the BAM Act, all declared pests are assigned a legal status, as described in **Table 4**. Species assigned to the ‘declared pest, prohibited - s12’ category are placed in one of three control categories, as described in **Table 5**.

The *Biosecurity and Agriculture Management Regulations 2013* specify keeping categories for species assigned to the ‘declared pest - s22(2)’ category, which relate to the purposes of which species can be kept, as well as the entities that can keep them. The categories are described in **Table 6**.

The Western Australian Organism List (WAOL) provides the status of organisms which have been categorised under the BAM Act (DAFWA 2016).

Table 4: Legal status of declared pest species listed under the BAM Act (DAFWA 2016)

Category	Description
Declared Pest Prohibited - s12	May only be imported and kept subject to permits. Permit conditions applicable to some species may only be appropriate or available to research organisations or similarly secure institutions.
Declared Pest s22(2)	Must satisfy any applicable import requirements when imported and may be subject to an import permit if they are potential carriers of high-risk organisms. They may also be subject to control and keeping requirements once within Western Australia

Table 5: Control categories of declared pest species listed under the BAM Act (DAFWA 2016)

Category	Description
C1	Exclusion Not established in Western Australia and control measures are to be taken, including border checks, in order to prevent them entering and establishing in the State.
C2	Eradication Present in Western Australia in low enough numbers or in sufficiently limited areas that their eradication is still a possibility.
C3	Management Established in Western Australia but it is feasible, or desirable, to manage them in order to limit their damage. Control measures can prevent a C3 pest from increasing in population size or density or moving from an area in which it is established into an area which currently is free of that pest.

## Additional Background Information

*Table 6: Keeping categories of declared pest species listed under the BAM Act (DAFWA 2016)*

Category	Description
Prohibited	Can only be kept under a permit for public display and education purposes, and/or genuine scientific research, by entities approved by the state authority.
Exempt	No permit or conditions are required for keeping.
Restricted	Organisms which, relative to other species, have a low risk of becoming a problem for the environment, primary industry or public safety and can be kept under a permit by private individuals.

## Wetland Habitat

### Geomorphic wetland types

On the Swan Coastal Plain DBCA (2017b) have used the geomorphic wetland classification system developed by Semeniuk (1987) and Semeniuk and Semeniuk (1995) to classify wetlands based on the landform shape and water permanence (hydro-period) as outlined in **Table 7**. DBCA maintains a dataset of the *Geomorphic Wetlands of the Swan Coastal Plain* (DBCA 2018a).

*Table 7: Geomorphic Wetlands of the Swan Coastal Plain classification categories (DBCA 2017b)*

Level of inundation	Geomorphology			
	Basin	Flat	Channel	Slope
Permanently inundated	Lake	-	River	-
Seasonally inundated	Sumpland	Floodplain	Creek	-
Seasonally waterlogged	Dampland	Palusplain	-	Paluslope

## Literature

The main literature used for identifying fauna and fauna habitats is listed in **Table 8** below.

*Table 8: Standard literature used for identifying fauna species and habitats.*

Conservation Code	Category
Birds	Johnstone and Storr (1998b), Johnstone and Storr (1998a), Pizzev and Knight (2012), Slater <i>et al.</i> (2003)
Mammals	Menkhorst and Knight (2011), Triggs (2003)
Amphibia	Tyler and Doughty (2009), Bush <i>et al.</i> (2002)
Reptiles	Bush <i>et al.</i> (2002), Wilson and Swan (2021)

## References

### General references

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Department of Environment and Energy (DoEE) 2016b, *Modelled distribution for Forest Red-tailed Black-Cockatoo (*Calyptorhynchus banksii naso*)*, Canberra.

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Department of Primary Industries and Regional Development (DPIRD) 2020, *Current Extent of Native vegetation - Western Australia dataset (DPIRD-005)*, Perth, Western Australia.

## Additional Background Information



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# Appendix B

Database search results







# EPBC Act Protected Matters Report

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

Report created: 11-Dec-2023

[Summary](#)

[Details](#)

[Matters of NES](#)

[Other Matters Protected by the EPBC Act](#)

[Extra Information](#)

[Caveat](#)

[Acknowledgements](#)

# Summary

## Matters of National Environment Significance

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

<a href="#">World Heritage Properties:</a>	None
<a href="#">National Heritage Places:</a>	None
<a href="#">Wetlands of International Importance (Ramsar)</a>	None
<a href="#">Great Barrier Reef Marine Park:</a>	None
<a href="#">Commonwealth Marine Area:</a>	None
<a href="#">Listed Threatened Ecological Communities:</a>	4
<a href="#">Listed Threatened Species:</a>	58
<a href="#">Listed Migratory Species:</a>	46

## Other Matters Protected by the EPBC Act

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

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

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

<a href="#">Commonwealth Lands:</a>	4
<a href="#">Commonwealth Heritage Places:</a>	None
<a href="#">Listed Marine Species:</a>	65
<a href="#">Whales and Other Cetaceans:</a>	12
<a href="#">Critical Habitats:</a>	None
<a href="#">Commonwealth Reserves Terrestrial:</a>	None
<a href="#">Australian Marine Parks:</a>	None
<a href="#">Habitat Critical to the Survival of Marine Turtles:</a>	None

## Extra Information

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

<a href="#">State and Territory Reserves:</a>	9
<a href="#">Regional Forest Agreements:</a>	1
<a href="#">Nationally Important Wetlands:</a>	None
<a href="#">EPBC Act Referrals:</a>	13
<a href="#">Key Ecological Features (Marine):</a>	None
<a href="#">Biologically Important Areas:</a>	5
<a href="#">Bioregional Assessments:</a>	None
<a href="#">Geological and Bioregional Assessments:</a>	None

# Details

## Matters of National Environmental Significance

### Listed Threatened Ecological Communities

[ [Resource Information](#) ]

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

Status of Vulnerable, Disallowed and Ineligible are not MNES under the EPBC Act.

Community Name	Threatened Category	Presence Text	Buffer Status
<a href="#">Aquatic Root Mat Community 2 in Caves of the Leeuwin Naturaliste Ridge</a>	Endangered	Community known to occur within area	In buffer area only
<a href="#">Aquatic Root Mat Community 3 in Caves of the Leeuwin Naturaliste Ridge</a>	Endangered	Community known to occur within area	In buffer area only
<a href="#">Aquatic Root Mat Community 4 in Caves of the Leeuwin Naturaliste Ridge</a>	Endangered	Community known to occur within area	In buffer area only
<a href="#">Empodisma peatlands of southwestern Australia</a>	Endangered	Community likely to occur within area	In feature area

### Listed Threatened Species

[ [Resource Information](#) ]

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

Scientific Name	Threatened Category	Presence Text	Buffer Status
<b>BIRD</b>			
<a href="#">Anous tenuirostris melanops</a> Australian Lesser Noddy [26000]	Vulnerable	Species or species habitat may occur within area	In buffer area only
<a href="#">Botaurus poiciloptilus</a> Australasian Bittern [1001]	Endangered	Species or species habitat likely to occur within area	In feature area
<a href="#">Calidris canutus</a> Red Knot, Knot [855]	Endangered	Species or species habitat may occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
<a href="#">Calidris ferruginea</a> Curlew Sandpiper [856]	Critically Endangered	Species or species habitat likely to occur within area	In feature area
<a href="#">Calyptorhynchus banksii naso</a> Forest Red-tailed Black-Cockatoo, Karrak [67034]	Vulnerable	Species or species habitat known to occur within area	In feature area
<a href="#">Charadrius leschenaultii</a> Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat may occur within area	In buffer area only
<a href="#">Diomedea amsterdamensis</a> Amsterdam Albatross [64405]	Endangered	Species or species habitat may occur within area	In buffer area only
<a href="#">Diomedea dabbenena</a> Tristan Albatross [66471]	Endangered	Species or species habitat may occur within area	In buffer area only
<a href="#">Diomedea epomophora</a> Southern Royal Albatross [89221]	Vulnerable	Species or species habitat may occur within area	In buffer area only
<a href="#">Diomedea exulans</a> Wandering Albatross [89223]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
<a href="#">Diomedea sanfordi</a> Northern Royal Albatross [64456]	Endangered	Species or species habitat may occur within area	In buffer area only
<a href="#">Limosa lapponica menzbieri</a> Northern Siberian Bar-tailed Godwit, Russkoye Bar-tailed Godwit [86432]	Critically Endangered	Species or species habitat may occur within area	In buffer area only
<a href="#">Macronectes giganteus</a> Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area	In buffer area only
<a href="#">Macronectes halli</a> Northern Giant Petrel [1061]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
<a href="#">Numenius madagascariensis</a> Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area	In feature area
<a href="#">Pachyptila turtur subantarctica</a> Fairy Prion (southern) [64445]	Vulnerable	Species or species habitat known to occur within area	In buffer area only
<a href="#">Phoebetria fusca</a> Sooty Albatross [1075]	Vulnerable	Species or species habitat may occur within area	In buffer area only
<a href="#">Sternula nereis nereis</a> Australian Fairy Tern [82950]	Vulnerable	Breeding likely to occur within area	In feature area
<a href="#">Thalassarche carteri</a> Indian Yellow-nosed Albatross [64464]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
<a href="#">Thalassarche cauta</a> Shy Albatross [89224]	Endangered	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
<a href="#">Thalassarche impavida</a> Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area	In buffer area only
<a href="#">Thalassarche melanophris</a> Black-browed Albatross [66472]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
<a href="#">Thalassarche steadi</a> White-capped Albatross [64462]	Vulnerable	Species or species habitat may occur within area	In buffer area only
<a href="#">Zanda baudinii listed as Calyptorhynchus baudinii</a> Baudin's Cockatoo, Baudin's Black-Cockatoo, Long-billed Black-cockatoo [87736]	Endangered	Breeding known to occur within area	In feature area
<a href="#">Zanda latirostris listed as Calyptorhynchus latirostris</a> Carnaby's Black Cockatoo, Short-billed Black-cockatoo [87737]	Endangered	Species or species habitat known to occur within area	In feature area

## CRUSTACEAN

Scientific Name	Threatened Category	Presence Text	Buffer Status
<a href="#">Cherax tenuimanus</a> Hairy Marron, Margaret River Hairy Marron, Margaret River Marron [78931]	Critically Endangered	Species or species habitat may occur within area	In buffer area only
<a href="#">Engaewa pseudoreducta</a> Margaret River Burrowing Crayfish [82674]	Critically Endangered	Species or species habitat may occur within area	In feature area
<a href="#">Engaewa reducta</a> Dunsborough Burrowing Crayfish [82675]	Critically Endangered	Species or species habitat likely to occur within area	In buffer area only
<b>FISH</b>			
<a href="#">Nannatherina balstoni</a> Balston's Pygmy Perch [66698]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
<a href="#">Thunnus maccoyii</a> Southern Bluefin Tuna [69402]	Conservation Dependent	Species or species habitat likely to occur within area	In buffer area only
<b>FROG</b>			
<a href="#">Anstisia alba listed as Geocrinia alba</a> White-bellied Frog, Creek Frog [92544]	Critically Endangered	Species or species habitat known to occur within area	In feature area
<b>MAMMAL</b>			
<a href="#">Balaenoptera musculus</a> Blue Whale [36]	Endangered	Species or species habitat likely to occur within area	In buffer area only
<a href="#">Bettongia penicillata ogilbyi</a> Woylie [66844]	Endangered	Species or species habitat likely to occur within area	In buffer area only
<a href="#">Dasyurus geoffroi</a> Chuditch, Western Quoll [330]	Vulnerable	Species or species habitat known to occur within area	In feature area
<a href="#">Eubalaena australis</a> Southern Right Whale [40]	Endangered	Breeding known to occur within area	In buffer area only
<a href="#">Neophoca cinerea</a> Australian Sea-lion, Australian Sea Lion [22]	Endangered	Species or species habitat may occur within area	In buffer area only



Scientific Name	Threatened Category	Presence Text	Buffer Status
<a href="#">Pseudocheirus occidentalis</a> Western Ringtail Possum, Ngwayir, Womp, Woder, Ngoor, Ngoolangit [25911]	Critically Endangered	Species or species habitat known to occur within area	In feature area
<a href="#">Setonix brachyurus</a> Quokka [229]	Vulnerable	Species or species habitat known to occur within area	In feature area
<b>OTHER</b>			
<a href="#">Westralunio carteri</a> Carter's Freshwater Mussel, Freshwater Mussel [86266]	Vulnerable	Species or species habitat known to occur within area	In feature area
<b>PLANT</b>			
<a href="#">Banksia mimica</a> Summer Honeypot [82765]	Endangered	Species or species habitat may occur within area	In feature area
<a href="#">Banksia squarrosa subsp. argillacea</a> Whicher Range Dryandra [82769]	Vulnerable	Species or species habitat likely to occur within area	In feature area
<a href="#">Caladenia excelsa</a> Giant Spider-orchid [56717]	Endangered	Species or species habitat likely to occur within area	In buffer area only
<a href="#">Caladenia hoffmanii</a> Hoffman's Spider-orchid [56719]	Endangered	Species or species habitat likely to occur within area	In feature area
<a href="#">Caladenia huegelii</a> King Spider-orchid, Grand Spider-orchid, Rusty Spider-orchid [7309]	Endangered	Species or species habitat may occur within area	In buffer area only
<a href="#">Caladenia lodgeana</a> Lodge's Spider-orchid [68664]	Critically Endangered	Species or species habitat known to occur within area	In buffer area only
<a href="#">Calectasia cyanea</a> Blue Tinsel Lily [7669]	Critically Endangered	Species or species habitat may occur within area	In buffer area only
<a href="#">Drakaea micrantha</a> Dwarf Hammer-orchid [56755]	Vulnerable	Species or species habitat likely to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
<a href="#">Gastrolobium papilio</a> Butterfly-leaved Gastrolobium [78415]	Endangered	Species or species habitat may occur within area	In feature area
<a href="#">Lambertia echinata subsp. occidentalis</a> Western Prickly Honeysuckle [64528]	Endangered	Species or species habitat may occur within area	In feature area
<a href="#">Reedia spathacea</a> Reedia [2995]	Critically Endangered	Species or species habitat known to occur within area	In buffer area only

## REPTILE

<a href="#">Caretta caretta</a> Loggerhead Turtle [1763]	Endangered	Species or species habitat known to occur within area	In buffer area only
<a href="#">Chelonia mydas</a> Green Turtle [1765]	Vulnerable	Species or species habitat may occur within area	In buffer area only
<a href="#">Dermochelys coriacea</a> Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Breeding likely to occur within area	In buffer area only
<a href="#">Natator depressus</a> Flatback Turtle [59257]	Vulnerable	Species or species habitat known to occur within area	In buffer area only

## SHARK

<a href="#">Carcharias taurus (west coast population)</a> Grey Nurse Shark (west coast population) [68752]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
<a href="#">Carcharodon carcharias</a> White Shark, Great White Shark [64470]	Vulnerable	Species or species habitat known to occur within area	In buffer area only
<a href="#">Rhincodon typus</a> Whale Shark [66680]	Vulnerable	Species or species habitat may occur within area	In buffer area only
<a href="#">Sphyrna lewini</a> Scalloped Hammerhead [85267]	Conservation Dependent	Species or species habitat may occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
<b>Migratory Marine Birds</b>			
<a href="#">Apus pacificus</a> Fork-tailed Swift [678]		Species or species habitat likely to occur within area	In feature area
<a href="#">Ardenna carneipes</a> Flesh-footed Shearwater, Fleshy-footed Shearwater [82404]		Foraging, feeding or related behaviour likely to occur within area	In buffer area only
<a href="#">Ardenna grisea</a> Sooty Shearwater [82651]		Species or species habitat may occur within area	In buffer area only
<a href="#">Diomedea amsterdamensis</a> Amsterdam Albatross [64405]	Endangered	Species or species habitat may occur within area	In buffer area only
<a href="#">Diomedea dabbenena</a> Tristan Albatross [66471]	Endangered	Species or species habitat may occur within area	In buffer area only
<a href="#">Diomedea epomophora</a> Southern Royal Albatross [89221]	Vulnerable	Species or species habitat may occur within area	In buffer area only
<a href="#">Diomedea exulans</a> Wandering Albatross [89223]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
<a href="#">Diomedea sanfordi</a> Northern Royal Albatross [64456]	Endangered	Species or species habitat may occur within area	In buffer area only
<a href="#">Hydroprogne caspia</a> Caspian Tern [808]		Foraging, feeding or related behaviour known to occur within area	In buffer area only
<a href="#">Macronectes giganteus</a> Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
<a href="#">Macronectes halli</a> Northern Giant Petrel [1061]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
<a href="#">Onychoprion anaethetus</a> Bridled Tern [82845]		Foraging, feeding or related behaviour likely to occur within area	In buffer area only
<a href="#">Phoebetria fusca</a> Sooty Albatross [1075]	Vulnerable	Species or species habitat may occur within area	In buffer area only
<a href="#">Thalassarche carteri</a> Indian Yellow-nosed Albatross [64464]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
<a href="#">Thalassarche cauta</a> Shy Albatross [89224]	Endangered	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
<a href="#">Thalassarche impavida</a> Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area	In buffer area only
<a href="#">Thalassarche melanophris</a> Black-browed Albatross [66472]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
<a href="#">Thalassarche steadi</a> White-capped Albatross [64462]	Vulnerable	Species or species habitat may occur within area	In buffer area only
<b>Migratory Marine Species</b>			
<a href="#">Balaenoptera edeni</a> Bryde's Whale [35]		Species or species habitat may occur within area	In buffer area only
<a href="#">Balaenoptera musculus</a> Blue Whale [36]	Endangered	Species or species habitat likely to occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
<a href="#">Caperea marginata</a> Pygmy Right Whale [39]		Species or species habitat may occur within area	In buffer area only
<a href="#">Carcharhinus longimanus</a> Oceanic Whitetip Shark [84108]		Species or species habitat may occur within area	In buffer area only
<a href="#">Carcharodon carcharias</a> White Shark, Great White Shark [64470]	Vulnerable	Species or species habitat known to occur within area	In buffer area only
<a href="#">Caretta caretta</a> Loggerhead Turtle [1763]	Endangered	Species or species habitat known to occur within area	In buffer area only
<a href="#">Chelonia mydas</a> Green Turtle [1765]	Vulnerable	Species or species habitat may occur within area	In buffer area only
<a href="#">Dermochelys coriacea</a> Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Breeding likely to occur within area	In buffer area only
<a href="#">Eubalaena australis as Balaena glacialis australis</a> Southern Right Whale [40]	Endangered	Breeding known to occur within area	In buffer area only
<a href="#">Lagenorhynchus obscurus</a> Dusky Dolphin [43]		Species or species habitat may occur within area	In buffer area only
<a href="#">Lamna nasus</a> Porbeagle, Mackerel Shark [83288]		Species or species habitat may occur within area	In buffer area only
<a href="#">Megaptera novaeangliae</a> Humpback Whale [38]		Congregation or aggregation known to occur within area	In buffer area only
<a href="#">Mobula alfredi as Manta alfredi</a> Reef Manta Ray, Coastal Manta Ray [90033]		Species or species habitat may occur within area	In buffer area only
<a href="#">Mobula birostris as Manta birostris</a> Giant Manta Ray [90034]		Species or species habitat may occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
<a href="#">Natator depressus</a> Flatback Turtle [59257]	Vulnerable	Species or species habitat known to occur within area	In buffer area only
<a href="#">Orcinus orca</a> Killer Whale, Orca [46]		Species or species habitat may occur within area	In buffer area only
<a href="#">Rhincodon typus</a> Whale Shark [66680]	Vulnerable	Species or species habitat may occur within area	In buffer area only
<b>Migratory Terrestrial Species</b>			
<a href="#">Motacilla cinerea</a> Grey Wagtail [642]		Species or species habitat may occur within area	In buffer area only
<b>Migratory Wetlands Species</b>			
<a href="#">Actitis hypoleucos</a> Common Sandpiper [59309]		Species or species habitat known to occur within area	In feature area
<a href="#">Calidris acuminata</a> Sharp-tailed Sandpiper [874]		Species or species habitat likely to occur within area	In feature area
<a href="#">Calidris canutus</a> Red Knot, Knot [855]	Endangered	Species or species habitat may occur within area	In buffer area only
<a href="#">Calidris ferruginea</a> Curlew Sandpiper [856]	Critically Endangered	Species or species habitat likely to occur within area	In feature area
<a href="#">Calidris melanotos</a> Pectoral Sandpiper [858]		Species or species habitat may occur within area	In feature area
<a href="#">Charadrius leschenaultii</a> Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat may occur within area	In buffer area only
<a href="#">Limosa lapponica</a> Bar-tailed Godwit [844]		Species or species habitat may occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
<a href="#">Numenius madagascariensis</a> Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area	In feature area
<a href="#">Pandion haliaetus</a> Osprey [952]		Species or species habitat likely to occur within area	In buffer area only
<a href="#">Tringa nebularia</a> Common Greenshank, Greenshank [832]		Species or species habitat likely to occur within area	In buffer area only

## Other Matters Protected by the EPBC Act

### Commonwealth Lands [\[ Resource Information \]](#)

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

Commonwealth Land Name	State	Buffer Status
Unknown		
Commonwealth Land - [52113]	WA	In buffer area only
Commonwealth Land - [50382]	WA	In buffer area only
Commonwealth Land - [51991]	WA	In buffer area only
Commonwealth Land - [50383]	WA	In buffer area only

### Listed Marine Species [\[ Resource Information \]](#)

Scientific Name	Threatened Category	Presence Text	Buffer Status
Bird			
<a href="#">Actitis hypoleucos</a> Common Sandpiper [59309]		Species or species habitat known to occur within area	In feature area
<a href="#">Anous tenuirostris melanops</a> Australian Lesser Noddy [26000]	Vulnerable	Species or species habitat may occur within area	In buffer area only
<a href="#">Apus pacificus</a> Fork-tailed Swift [678]		Species or species habitat likely to occur within area overfly marine area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
<a href="#">Ardena carneipes as Puffinus carneipes</a> Flesh-footed Shearwater, Fleshy-footed Shearwater [82404]		Foraging, feeding or related behaviour likely to occur within area	In buffer area only
<a href="#">Ardena grisea as Puffinus griseus</a> Sooty Shearwater [82651]		Species or species habitat may occur within area	In buffer area only
<a href="#">Bubulcus ibis as Ardea ibis</a> Cattle Egret [66521]		Species or species habitat may occur within area overfly marine area	In feature area
<a href="#">Calidris acuminata</a> Sharp-tailed Sandpiper [874]		Species or species habitat likely to occur within area	In feature area
<a href="#">Calidris canutus</a> Red Knot, Knot [855]	Endangered	Species or species habitat may occur within area overfly marine area	In buffer area only
<a href="#">Calidris ferruginea</a> Curlew Sandpiper [856]	Critically Endangered	Species or species habitat likely to occur within area overfly marine area	In feature area
<a href="#">Calidris melanotos</a> Pectoral Sandpiper [858]		Species or species habitat may occur within area overfly marine area	In feature area
<a href="#">Charadrius leschenaultii</a> Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat may occur within area	In buffer area only
<a href="#">Diomedea amsterdamensis</a> Amsterdam Albatross [64405]	Endangered	Species or species habitat may occur within area	In buffer area only
<a href="#">Diomedea dabbenena</a> Tristan Albatross [66471]	Endangered	Species or species habitat may occur within area	In buffer area only



Scientific Name	Threatened Category	Presence Text	Buffer Status
<a href="#">Diomedea epomophora</a> Southern Royal Albatross [89221]	Vulnerable	Species or species habitat may occur within area	In buffer area only
<a href="#">Diomedea exulans</a> Wandering Albatross [89223]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
<a href="#">Diomedea sanfordi</a> Northern Royal Albatross [64456]	Endangered	Species or species habitat may occur within area	In buffer area only
<a href="#">Haliaeetus leucogaster</a> White-bellied Sea-Eagle [943]		Species or species habitat likely to occur within area	In feature area
<a href="#">Hydroprogne caspia as Sterna caspia</a> Caspian Tern [808]		Foraging, feeding or related behaviour known to occur within area	In buffer area only
<a href="#">Limosa lapponica</a> Bar-tailed Godwit [844]		Species or species habitat may occur within area	In buffer area only
<a href="#">Macronectes giganteus</a> Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area	In buffer area only
<a href="#">Macronectes halli</a> Northern Giant Petrel [1061]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
<a href="#">Merops ornatus</a> Rainbow Bee-eater [670]		Species or species habitat may occur within area overfly marine area	In feature area
<a href="#">Motacilla cinerea</a> Grey Wagtail [642]		Species or species habitat may occur within area overfly marine area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
<a href="#">Numenius madagascariensis</a> Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area	In feature area
<a href="#">Onychoprion anaethetus</a> as <a href="#">Sterna anaethetus</a> Bridled Tern [82845]		Foraging, feeding or related behaviour likely to occur within area	In buffer area only
<a href="#">Pachyptila turtur</a> Fairy Prion [1066]		Species or species habitat known to occur within area	In buffer area only
<a href="#">Pandion haliaetus</a> Osprey [952]		Species or species habitat likely to occur within area	In buffer area only
<a href="#">Phoebastria fusca</a> Sooty Albatross [1075]	Vulnerable	Species or species habitat may occur within area	In buffer area only
<a href="#">Puffinus assimilis</a> Little Shearwater [59363]		Foraging, feeding or related behaviour known to occur within area	In buffer area only
<a href="#">Thalassarche carteri</a> Indian Yellow-nosed Albatross [64464]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
<a href="#">Thalassarche cauta</a> Shy Albatross [89224]	Endangered	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
<a href="#">Thalassarche impavida</a> Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area	In buffer area only
<a href="#">Thalassarche melanophris</a> Black-browed Albatross [66472]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
<a href="#">Thalassarche steadi</a> White-capped Albatross [64462]	Vulnerable	Species or species habitat may occur within area	In buffer area only
<a href="#">Thinornis cucullatus as Thinornis rubricollis</a> Hooded Plover, Hooded Dotterel [87735]		Species or species habitat known to occur within area overfly marine area	In buffer area only
<a href="#">Tringa nebularia</a> Common Greenshank, Greenshank [832]		Species or species habitat likely to occur within area overfly marine area	In buffer area only
<b>Fish</b>			
<a href="#">Acentronura australe</a> Southern Pygmy Pipehorse [66185]		Species or species habitat may occur within area	In buffer area only
<a href="#">Campichthys galei</a> Gale's Pipefish [66191]		Species or species habitat may occur within area	In buffer area only
<a href="#">Heraldia nocturna</a> Upside-down Pipefish, Eastern Upside-down Pipefish, Eastern Upside-down Pipefish [66227]		Species or species habitat may occur within area	In buffer area only
<a href="#">Hippocampus angustus</a> Western Spiny Seahorse, Narrow-bellied Seahorse [66234]		Species or species habitat may occur within area	In buffer area only
<a href="#">Hippocampus breviceps</a> Short-head Seahorse, Short-snouted Seahorse [66235]		Species or species habitat may occur within area	In buffer area only
<a href="#">Hippocampus subelongatus</a> West Australian Seahorse [66722]		Species or species habitat may occur within area	In buffer area only
<a href="#">Histiogamphelus cristatus</a> Rhino Pipefish, Macleay's Crested Pipefish, Ring-back Pipefish [66243]		Species or species habitat may occur within area	In buffer area only
<a href="#">Lissocampus caudalis</a> Australian Smooth Pipefish, Smooth Pipefish [66249]		Species or species habitat may occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
<a href="#">Lissocampus fatiloquus</a> Prophet's Pipefish [66250]		Species or species habitat may occur within area	In buffer area only
<a href="#">Lissocampus runa</a> Javelin Pipefish [66251]		Species or species habitat may occur within area	In buffer area only
<a href="#">Maroubra perserrata</a> Sawtooth Pipefish [66252]		Species or species habitat may occur within area	In buffer area only
<a href="#">Mitotichthys meraculus</a> Western Crested Pipefish [66259]		Species or species habitat may occur within area	In buffer area only
<a href="#">Nannocampus subosseus</a> Bonyhead Pipefish, Bony-headed Pipefish [66264]		Species or species habitat may occur within area	In buffer area only
<a href="#">Phycodurus eques</a> Leafy Seadragon [66267]		Species or species habitat may occur within area	In buffer area only
<a href="#">Phyllopteryx taeniolatus</a> Common Seadragon, Weedy Seadragon [66268]		Species or species habitat may occur within area	In buffer area only
<a href="#">Pugnaso curtirostris</a> Pugnose Pipefish, Pug-nosed Pipefish [66269]		Species or species habitat may occur within area	In buffer area only
<a href="#">Solegnathus lettiensis</a> Gunther's Pipehorse, Indonesian Pipefish [66273]		Species or species habitat may occur within area	In buffer area only
<a href="#">Stigmatopora argus</a> Spotted Pipefish, Gulf Pipefish, Peacock Pipefish [66276]		Species or species habitat may occur within area	In buffer area only
<a href="#">Stigmatopora nigra</a> Widebody Pipefish, Wide-bodied Pipefish, Black Pipefish [66277]		Species or species habitat may occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
<a href="#">Urocampus carinirostris</a> Hairy Pipefish [66282]		Species or species habitat may occur within area	In buffer area only
<a href="#">Vanacampus margaritifer</a> Mother-of-pearl Pipefish [66283]		Species or species habitat may occur within area	In buffer area only
<a href="#">Vanacampus phillipi</a> Port Phillip Pipefish [66284]		Species or species habitat may occur within area	In buffer area only
<a href="#">Vanacampus poecilolaemus</a> Longsnout Pipefish, Australian Longsnout Pipefish, Long-snouted Pipefish [66285]		Species or species habitat may occur within area	In buffer area only
<b>Mammal</b>			
<a href="#">Arctocephalus forsteri</a> Long-nosed Fur-seal, New Zealand Fur-seal [20]		Species or species habitat may occur within area	In buffer area only
<a href="#">Neophoca cinerea</a> Australian Sea-lion, Australian Sea Lion [22]	Endangered	Species or species habitat may occur within area	In buffer area only
<b>Reptile</b>			
<a href="#">Caretta caretta</a> Loggerhead Turtle [1763]	Endangered	Species or species habitat known to occur within area	In buffer area only
<a href="#">Chelonia mydas</a> Green Turtle [1765]	Vulnerable	Species or species habitat may occur within area	In buffer area only
<a href="#">Dermochelys coriacea</a> Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Breeding likely to occur within area	In buffer area only
<a href="#">Natator depressus</a> Flatback Turtle [59257]	Vulnerable	Species or species habitat known to occur within area	In buffer area only
<b>Whales and Other Cetaceans</b>			
			<a href="#">[ Resource Information ]</a>
Current Scientific Name	Status	Type of Presence	Buffer Status
<b>Mammal</b>			

Current Scientific Name	Status	Type of Presence	Buffer Status
<a href="#">Balaenoptera acutorostrata</a> Minke Whale [33]		Species or species habitat may occur within area	In buffer area only
<a href="#">Balaenoptera edeni</a> Bryde's Whale [35]		Species or species habitat may occur within area	In buffer area only
<a href="#">Balaenoptera musculus</a> Blue Whale [36]	Endangered	Species or species habitat likely to occur within area	In buffer area only
<a href="#">Caperea marginata</a> Pygmy Right Whale [39]		Species or species habitat may occur within area	In buffer area only
<a href="#">Delphinus delphis</a> Common Dolphin, Short-beaked Common Dolphin [60]		Species or species habitat may occur within area	In buffer area only
<a href="#">Eubalaena australis</a> Southern Right Whale [40]	Endangered	Breeding known to occur within area	In buffer area only
<a href="#">Grampus griseus</a> Risso's Dolphin, Grampus [64]		Species or species habitat may occur within area	In buffer area only
<a href="#">Lagenorhynchus obscurus</a> Dusky Dolphin [43]		Species or species habitat may occur within area	In buffer area only
<a href="#">Megaptera novaeangliae</a> Humpback Whale [38]		Congregation or aggregation known to occur within area	In buffer area only
<a href="#">Orcinus orca</a> Killer Whale, Orca [46]		Species or species habitat may occur within area	In buffer area only
<a href="#">Tursiops aduncus</a> Indian Ocean Bottlenose Dolphin, Spotted Bottlenose Dolphin [68418]		Species or species habitat likely to occur within area	In buffer area only

Current Scientific Name	Status	Type of Presence	Buffer Status
<a href="#">Tursiops truncatus s. str.</a> Bottlenose Dolphin [68417]		Species or species habitat may occur within area	In buffer area only

## Extra Information

State and Territory Reserves			[ <a href="#">Resource Information</a> ]
Protected Area Name	Reserve Type	State	Buffer Status
Blackwood River	National Park	WA	In buffer area only
Bramley	National Park	WA	In buffer area only
Forest Grove	National Park	WA	In buffer area only
Leeuwin-Naturaliste	National Park	WA	In buffer area only
Ngari Capes	Marine Park	WA	In buffer area only
NTWA Bushland covenant (0144)	Conservation Covenant	WA	In buffer area only
NTWA Bushland covenant (0147)	Conservation Covenant	WA	In buffer area only
NTWA Bushland covenant (0185)	Conservation Covenant	WA	In buffer area only
Unnamed WA46400	National Park	WA	In buffer area only

## Regional Forest Agreements

[ [Resource Information](#) ]

Note that all areas with completed RFAs have been included. Please see the associated resource information for specific caveats and use limitations associated with RFA boundary information.

RFA Name	State	Buffer Status
<a href="#">South West WA RFA</a>	Western Australia	In feature area

## EPBC Act Referrals

[ [Resource Information](#) ]

Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
<b>Controlled action</b>				
<a href="#">Vlam Road Gravel Pit, Vlam Road, Karridale, WA</a>	2014/7141	Controlled Action	Post-Approval	In buffer area only
<b>Not controlled action</b>				
<a href="#">Busselton to Flinders Bay Rails to Trails Project, WA</a>	2013/6835	Not Controlled Action	Completed	In buffer area only

Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
<b>Not controlled action</b>				
<a href="#">Busselton to Margaret River Transmission Line</a>	2008/3964	Not Controlled Action	Completed	In buffer area only
<a href="#">Construction of the Margaret River bypass road</a>	2012/6677	Not Controlled Action	Completed	In buffer area only
<a href="#">Geo-science Investigations</a>	2005/2069	Not Controlled Action	Completed	In feature area
<a href="#">Gloucester Park Precinct-expansion of ovals and community facilities, Margaret River, WA</a>	2017/7985	Not Controlled Action	Completed	In buffer area only
<a href="#">Improving rabbit biocontrol: releasing another strain of RHDV, sthrn two thirds of Australia</a>	2015/7522	Not Controlled Action	Completed	In feature area
<a href="#">INDIGO Central Submarine Telecommunications Cable</a>	2017/8127	Not Controlled Action	Completed	In feature area
<a href="#">Installation of stock proof fencing and a stock crossing 8 km from Karridale WA</a>	2012/6427	Not Controlled Action	Completed	In buffer area only
<a href="#">Reinstating of Firebreaks at McLeod Creek, South West WA</a>	2012/6402	Not Controlled Action	Completed	In buffer area only
<a href="#">Residential Development Riverslea Estate Stage 8, Margaret River, WA</a>	2014/7227	Not Controlled Action	Completed	In buffer area only
<b>Not controlled action (particular manner)</b>				
<a href="#">Clearing of understorey vegetation for fire management purposes</a>	2010/5788	Not Controlled Action (Particular Manner)	Post-Approval	In buffer area only
<a href="#">INDIGO Marine Cable Route Survey (INDIGO)</a>	2017/7996	Not Controlled Action (Particular Manner)	Post-Approval	In feature area
<b>Biologically Important Areas</b>				
Scientific Name		Behaviour	Presence	Buffer Status
<b>Seabirds</b>				
<a href="#">Ardenna carneipes</a>				
Flesh-footed Shearwater [82404]		Foraging (in high numbers)	Known to occur	In buffer area only
<a href="#">Onychoprion anaethetus</a>				
Bridled Tern [82845]		Foraging (in high numbers)	Known to occur	In buffer area only



Scientific Name	Behaviour	Presence	Buffer Status
<a href="#">Puffinus assimilis tunneyi</a> Little Shearwater [59363]	Foraging (in high numbers)	Known to occur	In buffer area only

## Whales

<a href="#">Balaenoptera musculus brevicauda</a> Pygmy Blue Whale [81317]	Distribution	Known to occur	In buffer area only
<a href="#">Megaptera novaeangliae</a> Humpback Whale [38]	Migration (north and south)	Known to occur	In buffer area only

# Caveat

## 1 PURPOSE

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

The report contains the mapped locations of:

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

## 2 DISCLAIMER

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

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

## 3 DATA SOURCES

### Threatened ecological communities

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

### Threatened, migratory and marine species

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

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

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

## 4 LIMITATIONS

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

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

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

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

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

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

# Acknowledgements

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

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

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Please feel free to provide feedback via the [Contact us](#) page.

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Department of Climate Change, Energy, the Environment and Water

GPO Box 3090

Canberra ACT 2601 Australia

+61 2 6274 1111

<b>Class</b>	<b>Scientific Name</b>	<b>Vernacular Name</b>
Actinopterygii	Galaxias occidentalis Ogilby, 1899	-
Amphibia	Crinia georgiana Tschudi, 1838	Quacking Frog
	Crinia glauerti (Loveridge, 1933)	Clicking Frog
	Crinia pseudinsignifera (Main, 1957)	Bleating Froglet
	Geocrinia leai (Fletcher, 1898)	Ticking Frog
	Heleioporus	-
	Heleioporus eyrei (Gray, 1845)	Moaning Frog
	Heleioporus inornatus (Lee & Main, 1954)	Whooping Frog
	Limnodynastes dorsalis (Gray, 1841)	Western Banjo Frog
	Litoria adelaidensis (Gray, 1841)	Slender Tree Frog
	Litoria moorei (Copland, 1957)	Motorbike Frog
	Metacrinia nicholli Harrison, 1927	Forest Toadlet
Arachnida	Acari Leach, 1817	-
	Acariformes	-
	Amaurobiidae Thorell, 1869	-
	Anapidae Simon, 1895	-
	Arachnura higginsi (L. Koch, 1872)	-
	Araneae Clerck, 1757	-
	Argiope trifasciata (Forsskål, 1775)	-
	Argyrodes Simon, 1864	-
	Arkys walckenaeri Simon, 1879	-
	Artoria flavimana Simon, 1909	-
	Austrochthonius J.C. Chamberlin, 1929	-
	Baiami tegenarioides (Simon, 1908)	-
	Baiami volucripes (Simon, 1908)	-
	Cercophonius Peters, 1861	-
	Cercophonius sulcatus Kraepelin, 1908	-
	Corasoides Butler, 1929	-
	Cyclosa trilobata (Urquhart, 1885)	-
	Encoparthria echemophthalma (Simon, 1908)	-
	Habronestes L. Koch, 1872	-
	Hadrotarsinae	-
	Hestimodema Simon, 1909	-
	Isopeda leishmanni Hogg, 1903	-
	Lagynochthonius australicus (Beier, 1966)	-
	Lamponella ainslie Platnick, 2000	-
	Latrodectus hasselti Thorell, 1870	-
	Maratus boranup Otto & Hill, 2018	-
	Maratus pavonis (Dunn, 1947)	-
	Missulena granulosa (O. P.-Cambridge, 1869)	-
	Miturga Thorell, 1870	-
	Miturgidae Simon, 1889	-
	Neopilionidae Lawrence, 1931	-
	Neosparassus diana (L. Koch, 1875)	-
	Neosparassus Hogg, 1903	-
	Orsolobidae Cooke, 1965	-
	Plebs cyphoxis (Simon, 1908)	-
	Proshermacha Simon, 1908	-

Class	Scientific Name	Vernacular Name
	Protochelifer Beier, 1948	-
	Pseudotyranochthonius Beier, 1930	-
	Raveniella peckorum Rix & Harvey, 2010	-
	Salticidae Blackwall, 1841	-
	Sparassidae Bertkau, 1872	-
	Stephanopis O. Pickard-Cambridge, 1869	-
	Storena formosa Thorell, 1870	-
	Storosa tetrica (Simon, 1908)	-
	Tasmanicosa leuckarti (Thorell, 1870)	-
	Theridiidae Sundevall, 1833	-
	Theridiosomatidae	-
	Trachycosmus sculptilis Simon, 1893	-
	Triaenonychinae	-
	Venator Hogg, 1833	-
	Venator immansuetus (Simon, 1909)	-
Aves	Acanthiza chrysorrhoa (Quoy & Gaimard, 1830)	-
	Aegotheles cristatus cristatus (Shaw, 1790)	-
	Artamus cyanopterus (Latham, 1802)	Dusky Woodswallow
	Barnardius zonarius semitorquatus (Quoy & Gaimard, 1830)	Twenty-eight Parrot
	Hieraaetus morphnoides (Gould, 1841)	-
	Melithreptus chloropsis Gould, 1848	Western White-naped Honeyeater
	Pachycephala fuliginosa occidentalis Ramsay, 1891	-
	Puffinus assimilis assimilis Gould, 1838	-
	Quoyornis georgianus (Quoy & Gaimard, 1830)	White-breasted Robin
	Rhipidura albiscapa preissi Cabanis, 1850	Grey Fantail
	Strepera versicolor (Latham, 1802)	-
	Strepera versicolor plumbea Gould, 1846	Grey Currawong
Chilopoda	Cryptops Leach, 1814	-
	Mecistocephalidae	-
Diplopoda	Antichiropus Attems, 1911	-
	Australiosomatini Brägger & Lemann, 1916	-
	Diplopoda de Blainville, 1844	-
	Paradoxosomatidae	-
	Polydesmida	-
	Siphonotidae Cook, 1895	-
Gastropoda	Ancylinae Rafinesque, 1815	-
	Physidae	-
Insecta	Caenidae	-
	Ceratopogonidae Newman, 1834	-
	Chironominae	-
	Coleoptera	-
	Diptera	-
	Dytiscidae	-
	Gripopterygidae	-
	Hemiptera	-
	Hydraenidae	-
	Hydroptilidae	-
	Leptoceridae	-

Class	Scientific Name	Vernacular Name
	Leptophlebiidae	-
	Libellulidae	-
	Orthoclaadiinae	-
	Paropsis elytrura Blackburn, 1901	-
	Scirtidae Fleming, 1821	-
	Simuliidae Newman, 1834	-
	Synthemistidae	-
	Telephlebiidae	-
	Tipulidae Latreille, 1802	-
	Veliidae	-
Malacostraca	Cherax	-
	Cherax cainii Austin, 2002	-
	Oniscidae Latreille, 1802	-
	Parastacidae	-
	Perthiidae	-
Mammalia	Chalinolobus gouldii (Gray, 1841)	Gould's Wattled Bat
	Chalinolobus morio (Gray, 1841)	Chocolate Wattled Bat
	Macropus fuliginosus melanops Gould, 1842	Western Grey Kangaroo
	Nyctophilus geoffroyi Leach, 1821	Lesser Long-eared Bat
	Petrogale	-
	Rattus fuscipes (Waterhouse, 1839)	Western Bush Rat
	Rattus rattus (Linnaeus, 1758)	Black Rat
	Sminthopsis fuliginosa fuliginosa (Gould, 1852)	-
	Trichosurus vulpecula hypoleucus (Wagner, 1852)	-
	Vespadelus regulus (Thomas, 1906)	Southern Forest Bat
Oligochaeta	Oligochaeta Grube, 1850	-
Reptilia	Acritoscincus trilineatus (Gray, 1839)	Western Three-lined Skink
	Anilius australis Gray, 1845	Southern Blind Snake
	Aprasia pulchella Gray, 1839	Granite Worm-lizard
	Chelodina oblonga Gray, 1841	-
	Christinus marmoratus (Gray, 1845)	Marbled Gecko
	Ctenotus catenifer Storr, 1974	Chain-striped South-west Ctenotus
	Ctenotus impar Storr, 1969	South-western Odd-striped Ctenotus
	Ctenotus labillardieri Dumeril & Bibron, 1839	Common South-west Ctenotus
	Egernia kingii (Gray, 1838)	King's Skink
	Egernia napoleonis (Gray, 1838)	South-western Crevice-skink
	Elapognathus coronatus (Schlegel, 1837)	Crowned Snake
	Hemiergus gracilipes (Gray, 1839)	South-western Mulch-skink
	Hemiergus peronii tridactyla (Boulenger, 1915)	Four-toed Earless Skink
	Lerista distinguenda (Werner, 1910)	Dwarf Four-toed Slider
	Lerista elegans (Gray, 1845)	Elegant Slider
	Lerista microtis microtis (Gray, 1845)	Long-legged Slider
	Lissolepis luctuosa (Peters, 1866)	Western Swamp Skink
	Menetia greyii Gray, 1845	Common Dwarf Skink
	Morethia lineoocellata (Dumeril & Bibron, 1839)	West Coast Morethia Skink
	Morethia obscura (Storr, 1973)	Shrubland Pale-flecked Morethia
	Notechis scutatus (Peters, 1861)	Tiger Snake
	Pygopus lepidopodus (Lacépède, 1804)	Common Scaly Foot

<b>Class</b>	<b>Scientific Name</b>	<b>Vernacular Name</b>
	Rhinoplocephalus bicolor Muller, 1885	Square-nosed Snake
Symphyla	Cephalostigmata	-
Udeonychophora	Kumbadjena Reid, 2002	-
Unassigned class	Arthropoda	-
	Baalzebub Coddington, 1986	-
	Cherax crassimanus Riek, 1967	-
	Cherax preissii (Erichson, 1846)	-
	Cherax quinquecarinatus (Gray, 1845)	-
	Maratus pavonis (Dunn, 1947)	-
	Nannoperca vittata (Castelnau, 1873)	-
	Nunciella aspera (Pocock, 1903)	-
	Nyctophilus holtorum Parnaby, King & Eldridge	-
	Nyctophilus major major Gray, 1844	-
	Pseudotyranochthonius giganteus Beier, 1971	-
	Urocampus carinirostris Castelnau, 1872	-



Class	Species Name	Vernacular Name
Amphibia	Anstisia alba	White-bellied Frog
	Crinia georgiana	Tschudi's Froglet
	Crinia glauerti	Glauert's Froglet
	Crinia pseudinsignifera	Bleating Froglet
	Heleioporus eyrei	Moaning Frog
	Limnodynastes dorsalis	Western Banjo Frog
	Litoria adelaidensis	Slender Tree Frog
	Litoria moorei	Western Green And Golden Bell Frog
Arachnida	Apricia jovialis	Australian Jumping Spider
	Arachnura higginsii	Scorpion Tailed Spider
	Argiope protensa	Orb-weaver Spider
	Arkys walckenaeri	Walckenaer's Studded Triangular Spider
	Austracantha minax	Jewel Spider
	Australomisidia pilula	Crab Spider
	Badumna insignis	Black House Spider
	Badumna longinqua	Grey House Spider
	Cryptachaea veruculata	Tangle-web Spider
	Helpis minitabunda	Bronze Aussie Jumping Spider
	Hortophora biapicata	-
	Hortophora transmarina	-
	Isopeda leishmanni	Huntsman Spider
	Latrodectus hasseltii	Redback Spider
	Leucauge dromedaria	-
	Maratus boranup	-
	Maratus griseus	-
	Maratus pavonis	Species Of Peacock Spider
	Nyssus coloripes	Spotted Ground Swift Spider
	Ocrisiona leucomomis	Jumping Spider
	Oxyopes amoenus	-
	Pholcus phalangioides	Cellar Spider
	Sidymella trapezia	Trapezium Crab Spider
	Tamopsis perthensis	-
	Tetragnatha nitens	Brown Long-jawed Spider
	Aves	Acanthiza (Acanthiza) apicalis
Acanthiza (Geobasileus) chrysochloris		Yellow-rumped Thornbill
Acanthiza (Geobasileus) inornata		Western Thornbill
Acanthorhynchus superciliosus		Western Spinebill
Accipiter (Leucospiza) fasciatus		Brown Goshawk
Accipiter (Paraspizias) cirrocephalus		Collared Sparrowhawk
Acrocephalus (Acrocephalus) australis		Australian Reed Warbler
Actitis hypoleucos		Common Sandpiper
Aegotheles (Aegotheles) cristatus		Australian Owlet-nightjar
Anas (Anas) platyrhynchos		Common Mallard
Anas (Anas) superciliosa		Pacific Black Duck
Anas gracilis		Grey Teal
Anthochaera (Anellobia) chrysoptera		Little Wattlebird
Anthochaera (Anellobia) lunulata		Western Wattlebird
Anthochaera (Anthochaera) carunculata		Red Wattlebird

Class	Species Name	Vernacular Name
	Anthus (Anthus) novaeseelandiae	Australian Pipit
	Aquila (Uroaetus) audax	Wedge-tailed Eagle
	Ardea pacifica	White-necked Heron
	Arenaria interpres	Ruddy Turnstone
	Artamus (Angroyan) cinereus	Black-faced Woodswallow
	Artamus (Angroyan) cyanopterus	Dusky Woodswallow
	Atrichornis (Rahcinta) clamosus	Noisy Scrub-bird
	Aythya (Nyroca) australis	Hardhead
	Barnardius zonarius	Australian Ringneck
	Biziura lobata	Musk Duck
	Cacatua (Licmetis) pastinator	Western Corella
	Cacatua (Licmetis) sanguinea	Little Corella
	Cacomantis (Vidgenia) flabelliformis	Fan-tailed Cuckoo
	Calidris (Crocethia) alba	Sanderling
	Calidris (Ereunetes) ruficollis	Red-necked Stint
	Calyptorhynchus (Calyptorhynchus) banksii	Red-tailed Black Cockatoo
	Chalcites basalis	Horsfield's Bronze-cuckoo
	Chalcites lucidus	Shining Bronze-cuckoo
	Charadrius (Charadrius) leschenaultii	Greater Sand Plover
	Charadrius (Charadrius) ruficapillus	Red-capped Plover
	Chenonetta jubata	Australian Wood Duck
	Chroicocephalus novaehollandiae	Silver Gull
	Circus approximans	Swamp Harrier
	Climacteris (Climacteris) rufus	Rufous Treecreeper
	Colluricincla (Colluricincla) harmonica	Grey Shrike-thrush
	Coracina (Coracina) novaehollandiae	Black-faced Cuckoo-shrike
	Coracina (Pteropodocys) maxima	Ground Cuckoo-shrike
	Corvus coronoides	Australian Raven
	Coturnix (Coturnix) pectoralis	Stubble Quail
	Cracticus torquatus	Grey Butcherbird
	Cygnus atratus	Black Swan
	Dacelo (Dacelo) novaeguineae	Laughing Kookaburra
	Daphoenositta (Neositta) chrysoptera	Varied Sittella
	Dromaius novaehollandiae	Emu
	Egretta novaehollandiae	White-faced Heron
	Egretta sacra	Eastern Reef Egret
	Elanus axillaris	Black-shouldered Kite
	Elseynornis melanops	Black-fronted Dotterel
	Eolophus roseicapilla	Galah
	Eopsaltria (Eopsaltria) griseogularis	Western Yellow Robin
	Epthianura (Epthianura) albifrons	White-fronted Chat
	Eurostopodus (Eurostopodus) argus	Spotted Nightjar
	Falco (Falco) longipennis	Australian Hobby
	Falco (Hierofalco) peregrinus	Peregrine Falcon
	Falco (Ieracidea) berigora	Brown Falcon
	Falco (Tinnunculus) cenchroides	Nankeen Kestrel
	Falcunculus frontatus	Crested Shrike-tit
	Fulica atra	Eurasian Coot

Class	Species Name	Vernacular Name
	Gallinula (Gallinula) tenebrosa	Dusky Moorhen
	Gavicalis virescens	Singing Honeyeater
	Gerygone fusca	Western Gerygone
	Gliciphila melanops	Tawny-crowned Honeyeater
	Grallina cyanoleuca	Magpie-lark
	Gymnorhina tibicen	Australian Magpie
	Haematopus fuliginosus	Sooty Oystercatcher
	Haematopus longirostris	Australian Pied Oystercatcher
	Haliaeetus (Pontoaetus) leucogaster	White-bellied Sea-eagle
	Haliastur sphenurus	Whistling Kite
	Heterosceles pallidus	Pallid Cuckoo
	Hieraaetus (Hieraaetus) morphnoides	Little Eagle
	Hirundo (Hirundo) neoxena	Welcome Swallow
	Hydroprogne caspia	Caspian Tern
	Ixobrychus flavicollis	Black Bittern
	Larus pacificus	Pacific Gull
	Leipoa ocellata	Malleefowl
	Lichmera (Lichmera) indistincta	Brown Honeyeater
	Lophoictinia isura	Square-tailed Kite
	Malurus (Leggeornis) elegans	Red-winged Fairy-wren
	Malurus (Leggeornis) lamberti	Variiegated Fairy-wren
	Malurus (Malurus) splendens	Splendid Fairy-wren
	Melithreptus (Eidopsarus) brevirostris	Brown-headed Honeyeater
	Melithreptus (Melithreptus) chloropsis	Gilbert's Honeyeater
	Melithreptus (Melithreptus) lunatus	White-naped Honeyeater
	Merops (Merops) ornatus	Rainbow Bee-eater
	Microcarbo melanoleucos	Little Pied Cormorant
	Microeca (Microeca) fascinans	Jacky Winter
	Morus serrator	Australasian Gannet
	Myiagra (Seisura) inquieta	Restless Flycatcher
	Neophema (Neonanodes) elegans	Elegant Parrot
	Neophema (Neonanodes) petrophila	Rock Parrot
	Ninox (Ninox) boobook	Southern Boobook
	Ninox (Ninox) novaeseelandiae	Southern Boobook
	Numenius (Phaeopus) phaeopus	Whimbrel
	Numida meleagris	Helmeted Guineafowl
	Nycticorax caledonicus	Nankeen Night-heron
	Ocyphaps lophotes	Crested Pigeon
	Pachycephala (Alisterornis) rufiventris	Rufous Whistler
	Pachycephala (Pachycephala) pectoralis	Golden Whistler
	Pardalotus (Pardalotinus) striatus	Striated Pardalote
	Pardalotus (Pardalotus) punctatus	Spotted Pardalote
	Parvipsitta porphyrocephala	Purple-crowned Lorikeet
	Pavo cristatus	Indian Peafowl
	Pelecanus conspicillatus	Australian Pelican
	Petrochelidon (Hylochelidon) nigricans	Tree Martin
	Petroica (Petroica) boodang	Scarlet Robin
	Petroica (Petroica) goodenovii	Red-capped Robin

Class	Species Name	Vernacular Name
	Phalacrocorax (Phalacrocorax) carbo	Great Cormorant
	Phalacrocorax (Phalacrocorax) sulcirostris	Little Black Cormorant
	Phalacrocorax (Phalacrocorax) varius	Pied Cormorant
	Phaps (Phaps) chalcoptera	Common Bronzewing
	Phaps (Phaps) elegans	Brush Bronzewing
	Phylidonyris (Meliornis) niger	White-cheeked Honeyeater
	Phylidonyris (Meliornis) novaehollandiae	New Holland Honeyeater
	Platalea (Platibis) flavipes	Yellow-billed Spoonbill
	Platycercus (Violania) icterotis	Western Rosella
	Podargus strigoides	Tawny Frogmouth
	Poliocephalus poliocephalus	Hoary-headed Grebe
	Polytelis anthopeplus	Regent Parrot
	Poodytes gramineus	Little Grassbird
	Porphyrio (Porphyrio) porphyrio	Purple Swamphen
	Psophodes (Phodopses) nigrogularis	Western Whipbird
	Purpureicephalus spurius	Red-capped Parrot
	Rhipidura (Rhipidura) albiscapa	Grey Fantail
	Rhipidura (Sauloprocta) leucophrys	Willie Wagtail
	Sericornis (Sericornis) frontalis	White-browed Scrubwren
	Smicronis brevirostris	Weebill
	Stagonopleura (Zonaeginthus) oculata	Red-eared Firetail
	Stipiturus malachurus	Southern Emu-wren
	Strepera (Neostrepera) versicolor	Grey Currawong
	Tachybaptus novaehollandiae	Australasian Grebe
	Tadorna (Casarca) tadornoides	Australian Shelduck
	Thalasseus bergii	Crested Tern
	Thinornis cucullatus	Hooded Plover
	Threskiornis moluccus	Australian White Ibis
	Threskiornis spinicollis	Straw-necked Ibis
	Todiramphus (Todiramphus) sanctus	Sacred Kingfisher
	Turnix (Austrotornix) varius	Painted Button-quail
	Tyto novaehollandiae	Masked Owl
	Vanellus (Lobivanellus) tricolor	Banded Lapwing
	Zanda baudinii	Long-billed Black-cockatoo
	Zanda latirostris	Short-billed Black-cockatoo
	Zosterops lateralis	Silvereye
Chilopoda	Cormocephalus aurantiipes	Orange-footed Centipede
Gastropoda	Bothriembryon (Bothriembryon) leeuwinensis	-
	Bothriembryon (Bothriembryon) sayi	-
	Cornu apertus	Green Snail
	Cornu aspersum	Common Garden Snail
	Limacus flavus	Yellow Cellar Slug
	Theba pisana	White Italian Snail
Insecta	Acanthuchus trispinifer	Treehopper
	Aenetus dulcis	-
	Agrotis ipsilon	Owlet Moth
	Amegilla (Asaropoda) preissi	(blank)
	Amegilla (Notomegilla) chlorocyanea	Blue Banded Bee

Class	Species Name	Vernacular Name
	<i>Amphibolia (Amphibolia) vidua</i>	Horse Fly
	<i>Anisynta sphenosema</i>	Wedge Grass-skipper
	<i>Anophelepis telesphorus</i>	Short-winged Stick-insect
	<i>Anthomyia punctipennis</i>	Fly
	<i>Antictenia torta</i>	-
	<i>Apis (Apis) mellifera</i>	Honey Bee
	<i>Archaeosynthemis leachii</i>	Twinspot Tigertail
	<i>Archimantis sobrina</i>	Large Brown Mantid
	<i>Arenopsaltria fullo</i>	Sandgrinder
	<i>Arrhythmica semifusca</i>	-
	<i>Austrogomphus (Austrogomphus) collaris</i>	Western Inland Hunter
	<i>Austrolestes io</i>	Iota Ringtail
	<i>Bathyllus albicinctus</i>	Frog hopper
	<i>Bibio imitator</i>	Garden Maggot
	<i>Camponotus ephippium</i>	Jumbuck Sugar Ant
	<i>Carcinophora occidentalis</i>	-
	<i>Chrysopasta elegans</i>	-
	<i>Coccinella transversalis</i>	Transverse Ladybird
	<i>Coelophora inaequalis</i>	Common Australian Lady Beetle
	<i>Coryphistes ruricola</i>	Bark-mimicking Grasshopper
	<i>Cryptes baccatus</i>	Wattle Tick Scale
	<i>Cryptocheilus bicolor</i>	Orange Spider Wasp
	<i>Dacnodes shortridgei</i>	-
	<i>Dasypodia selenophora</i>	Granny Moth
	<i>Delias aganippe</i>	Red-spotted Jezebel
	<i>Dictyotus inconspicuus</i>	Shield Bug
	<i>Diplacodes haematodes</i>	Scarlet Percher
	<i>Doratifera quadriguttata</i>	Four-spotted Cup Moth
	<i>Echthromorpha intricatoria</i>	Cream Spotted Ichneumon Wasp
	<i>Ephutomorpha distinguenda</i>	-
	<i>Epiphyas xylodes</i>	-
	<i>Eristalis (Eristalis) tenax</i>	Drone Fly
	<i>Gminatus australis</i>	Assassin Bug
	<i>Goniaea vocans</i>	Slender Gumleaf Grasshopper
	<i>Harmonia conformis</i>	Common Spotted Ladybird
	<i>Hecatesia thyrion</i>	Southern Whistling Moth
	<i>Heteronympha merope</i>	Common Brown Butterfly
	<i>Hippodamia variegata</i>	Spotted Amber Ladybird
	<i>Hylarcta nigrescens</i>	Ribbed Bagworm Moth
	<i>Hylaeus (Euprosopoides) musgravei</i>	-
	<i>Hylaeus (Euprosopoides) obtusatus</i>	-
	<i>Hylaeus (Euprosopoides) ruficeps</i>	Plasterer Bee
	<i>Hylaeus (Hylaeorhiza) nubilosus</i>	Plasterer Bee
	<i>Iridomyrmex discors</i>	-
	<i>Lamprima aurata</i>	Golden Stag Beetle
	<i>Laxta riei</i>	-
	<i>Lipotriches (Austronomia) australica</i>	Sweat Bee
	<i>Lissopimpla excelsa</i>	Dusky Winged Ichneumonid (orchid Dupe)

Class	Species Name	Vernacular Name
	<i>Lucilia sericata</i>	Green Blowfly
	<i>Megachile (Eutricharaea) chrysopyga</i>	Bee
	<i>Megachile (Hackeriapis) oblonga</i>	Bee
	<i>Megachile (Hackeriapis) tosticauda</i>	Bee
	<i>Megachile erythropyga</i>	Bee
	<i>Melangyna (Austrosyrphus) viridiceps</i>	Hover Fly
	<i>Mictis profana</i>	Crusader Bug
	<i>Miniargiolestes minimus</i>	Stream Flatwing
	<i>Moerarchis australasiella</i>	Fungus Moth
	<i>Moerarchis clathrata</i>	-
	<i>Myrmecia analis</i>	-
	<i>Myrmecia clarki</i>	-
	<i>Myrmecia gulosa</i>	Giant Bull Ant
	<i>Myrmecia ludlowi</i>	-
	<i>Myrmecia regularis</i>	Bull Ant
	<i>Myrmecia rugosa</i>	-
	<i>Nyctemera amicus</i>	Moth
	<i>Ocirrhoe unimaculata</i>	Shield Bug
	<i>Oenochroma vinaria</i>	Grevillea Looper Moth
	<i>Opodiphthera helena</i>	Helena Emperor Moth
	<i>Orthetrum caledonicum</i>	Blue Skimmer
	<i>Orthodera ministralis</i>	Green Mantid
	<i>Oxycarenus (Oxycarenus) luctuosus</i>	Cottonseed Bug
	<i>Paralastor subpunctulatus</i>	-
	<i>Paraoxyphilus tasmaniensis</i>	-
	<i>Phalaenoides glycinae</i>	Grapevine Moth
	<i>Philobota xanthastis</i>	-
	<i>Phlyctinus callosus</i>	Garden Weevil
	<i>Podalonia tydei</i>	Wasp
	<i>Polistes (Polistella) humilis</i>	Common Paper Wasp
	<i>Polistes (Polistes) dominulus</i>	-
	<i>Polyzosteria cuprea</i>	-
	<i>Porrostoma rhipidium</i>	Long-nosed Lycid Beetle
	<i>Pseudapines geminata</i>	Pittosporum Bug
	<i>Pyropteron doryliformis</i>	-
	<i>Rhipicera (Agathorhipis) attenuata</i>	-
	<i>Rhipicera (Agathorhipis) femorata</i>	Feather-horned Beetle
	<i>Schizobothrus flavovittatus</i>	Disappearing Grasshopper
	<i>Sciarasaga quadrata</i>	-
	<i>Simosyrphus grandicornis</i>	Hoverfly
	<i>Sphenarches anisodactylus</i>	-
	<i>Stenoderus suturalis</i>	-
	<i>Theseus modestus</i>	Shield Bug
	<i>Tholosanus proximus</i>	Shield Bug
	<i>Thyreus waroonensis</i>	Cuckoo Bee
	<i>Torbia viridissima</i>	Gum Leaf Katydid
	<i>Uresiphita ornithopteralis</i>	Tree Lucerne Moth
	<i>Vanessa itea</i>	Australian Admiral

Class	Species Name	Vernacular Name
	Vanessa kershawi	Australian Painted Lady
	Xanthagrion erythroneurum	Red & Blue Damsel
	Zizina otis	Common Grass-blue
Mammalia	Isoodon macrourus	Northern Brown Bandicoot
	Macropus fuliginosus	Western Grey Kangaroo
	Oryctolagus cuniculus	Rabbit
	Phascogale tapoatafa	Brush-tailed Phascogale
	Pseudocheirus occidentalis	Western Ringtail Possum
	Pseudocheirus peregrinus	Common Ringtail Possum
	Rattus fuscipes	Bush Rat
	Rattus rattus	Black Rat
	Sus scrofa	Pig
	Trichosurus vulpecula	Common Brushtail Possum
Reptilia	Christinus marmoratus	Marbled Gecko
	Cryptoblepharus buchananii	Buchanan's Snake-eyed Skink
	Egernia kingii	King's Skink
	Egernia napoleonis	South-western Crevice-skink
	Notechis scutatus	Tiger Snake
	Pogona minor	Dwarf Bearded Dragon
	Tiliqua rugosa	Shingle-back
	Varanus rosenbergi	Heath Monitor





# Appendix C

Conservation significant species and likelihood of occurrence  
assessment





Species name	Common name	Level of significance		Habitat	Likelihood of occurrence
		WA	EPBC Act		
<b>Amphibia</b>					
<i>Anstisia alba</i>	White-bellied frog	CR	CR	Swampy flows along drainage depressions in an area of subdued topography (relief < 80m) near the junction of the Leeuwin-Naturaliste Ridge and Blackwood Plateau. Breeding sites are typically associated with sandy soils, dense overstorey vegetation dominated by Homalospermum firmum, Agonis linearifolia, Astartea fascicularis, and a dense ground layer of rhizomatous vegetation, usually composed of Pseudoloxocarya sp., Loxocarya sp. and Tetrarrhena laevis (DPAW 2014).	Negligible
<b>Birds</b>					
<i>Actitis hypoleucos</i>	Common sandpiper	MI	MI	Edge of sheltered waters salt or fresh, e.g. estuaries, mangrove creeks, rocky coasts, near-coastal saltlakes (including saltwork ponds), river pools, lagoons, claypans, drying swamps, flood waters, dams and sewage ponds. Preferring situations where low perches are available (Johnstone & Storr 1998).	Negligible
<i>Anous tenuirostris melanops</i>	Australian lesser noddy	EN	VU	Very common in blue-water seas around the Abrolhos (endemic to this area, accidental occurrences on lower west coast of Australia) (Johnstone and Storr 1998).	Nil

Species name	Common name	Level of significance		Habitat	Likelihood of occurrence
		WA	EPBC Act		
<i>Aphelocephala leucopsis</i>	Southern whiteface	-	VU	Relatively undisturbed open woodlands and shrublands with low tree densities, with an understory of grasses or herbaceous litter cover. They require hollows and crevices in living or dead trees for roosting and nesting (DCCEEW 2023).	Nil
<i>Apus pacificus</i>	Pacific swift	MI	MI	Aerial, migratory species that is most often seen over inland plains and sometimes above open areas, foothills or in coastal areas. Sometimes occurs over settled areas, including towns, urban areas and cities (Pizzey & Knight 2012).	Moderate
<i>Ardenna carneipes</i>	Flesh-footed shearwater	VU	MI	Marine species that breeds on islands off south coast from near Cape Leeuwin (Johnstone and Storr 1998).	Nil
<i>Ardenna grisea</i>	Sooty shearwater	MI	MI	Marine, migratory species that may visit southwestern Australian waters from June to October (Pizzey & Knight 2012).	Nil

Species name	Common name	Level of significance		Habitat	Likelihood of occurrence
		WA	EPBC Act		
<i>Atrichornis clamosus</i>	Noisy scrub-bird	EN	EN	Dense vegetation, including low forest, scrub thicket and (rarely) heath. Generally in gullies and drainage lines or overgrown swamps, lake margins and streams. Species occurs on the south-coast of Western Australia, from Two Peoples Bay Nature Reserve to Cheynes Beach and on Bald Island (DPAW 2014). Translocated populations were released at multiple sites on the south-east and in the Darling Range. Most of these translocated populations have failed. In the Darling Range singing males persisted at several locations, with evidence of breeding having been recorded at one site. It is unknown where these populations are located (Comer et. al 2010).	Nil
<i>Botaurus poiciloptilus</i>	Australasian bittern	EN	EN	In or over water, in tall reedbeds, sedges, rushes, cumbungi, lignum. Also occurs in ricefields, drains in tussocky paddocks and occasionally in saltmarshes and brackish wetlands (TSSC 2019).	Nil
<i>Calidris acuminata</i>	Sharp-tailed sandpiper	VU (MI)	VU (MI)	Occurs in tidal mudflats, saltmarshes and mangroves, as well as, shallow fresh, brackish or saline inland wetlands. It is also known from floodwaters, irrigated pastures and crops, sewage ponds, saltfields (Pizzey & Knight 2012).	Nil

Species name	Common name	Level of significance		Habitat	Likelihood of occurrence
		WA	EPBC Act		
<i>Calidris canutus</i>	Red knot	EN	EN (MI)	Mud and sand flats in estuaries and on sheltered coasts. Also near-coastal saltlakes, including saltwork ponds (Pizzey & Knight 2012).	Nil
<i>Calidris ferruginea</i>	Curlew sandpiper	CR	CR (MI)	Mainly shallows of estuaries and near-coastal saltlakes (including saltwork ponds) and drying near-coastal freshwater lakes and swamps. Also beaches and near-coastal sewage ponds (Johnstone & Storr 1988).	Nil
<i>Calidris melanotos</i>	Pectoral sandpiper	MI	MI	Mainly fresh waters (swamps, lagoons, river pools, irrigation channels and sewage ponds); also samphire flats around estuaries and saltlakes (Johnstone & Storr 1998).	Nil
<i>Calyptorhynchus banksii naso</i>	Forest red-tailed black cockatoo	VU	VU	Eucalypt and Corymbia forests, often in hilly interior. More recently also observed in more open agricultural and suburban areas including Perth metropolitan area. Attracted to seeding Corymbia calophylla, Eucalyptus marginata, introduced Melia azedarach and Eucalyptus spp. trees (Johnstone et al. 2013).	High
<i>Charadrius leschenaultii</i>	Great sand plover	VU	VU (MI)	Wide sandy or shelly beaches, sandpits, tidal mudflats, reefs, sand cays, mangroves, saltmarsh, dune wilderness, bare paddocks, seldom far inland (Pizzey & Knight 2012).	Nil

Species name	Common name	Level of significance		Habitat	Likelihood of occurrence
		WA	EPBC Act		
<i>Dasyornis longirostris</i>	Western bristlebird	EN	EN	Dense, low, closed coastal heaths. Open heaths with dense clumps of shrubs, eucalypt thickets and tall swampy heaths. Much reduced by fire, draining for agriculture, but may need fire for optimal status over 50-10+ years. Current range in WA confined to south coast from Albany to Hopetoun (Pizzey and Knight 2012).	Negligible
<i>Diomedea amsterdamensis</i>	Amsterdam Island albatross	CR	EN (MI)	The Amsterdam albatross is a marine, pelagic seabird. It nests in open patchy vegetation (among tussocks, ferns or shrubs) near exposed ridges or hillocks (Weimerskirch et al. 1985). It sleeps and rests on ocean waters when not breeding (Marchant and Higgins 1990)	Nil
<i>Diomedea dabbenena</i>	Tristan albatross	CR	EN (MI)	The Tristan albatross is a marine, pelagic seabird. It forages in open water in the Atlantic Ocean near the Cape of Good Hope, South Africa. It sleeps and rests on ocean waters when not breeding (Marchant and Higgins 1990).	Nil
<i>Diomedea epomophora</i>	Southern royal albatross	VU	VU (MI)	Rare visitor to Western Australian seas; it breeds on subantarctic islands south of New Zealand (Johnstone and Storr 1998).	Nil
<i>Diomedea exulans</i>	Wandering albatross	VU	VU (MI)	Marine, pelagic and aerial species. It breeds on Macquarie Island and feeds in Australian portions of the Southern Ocean (DoE 2018).	Nil

Species name	Common name	Level of significance		Habitat	Likelihood of occurrence
		WA	EPBC Act		
<i>Diomedea sanfordi</i>	Northern royal albatross	EN	EN	Species is marine, pelagic and aerial. Habitat includes subantarctic, subtropical, and occasionally Antarctic waters (Marchant & Higgins 1990). Rare visitors to south-western Australian waters.	Nil
<i>Falco peregrinus</i>	Peregrine falcon	OS	-	Mainly found around cliffs along coasts, rivers, ranges and around wooded watercourses and lakes (Johnstone and Storr 1998).	Moderate
<i>Hydroprogne caspia</i>	Caspian tern	MI	MI	Mainly sheltered areas, estuaries (when not laden with silt) and tidal creeks; occasionally near-coastal saltlakes (including saltwork ponds) and brackish pools in lower courses of rivers; rarely fresh waters (DCCEE 2023).	Nil
<i>Ixobrychus flavicollis australis</i>	Black bittern	P2	-	Freshwater pools, swamps and lagoons, well-screened with trees. Occasionally feeding by day but mainly sheltering in dense waterside vegetation (Melaleuca spp., Eucalyptus camaldulensis, Pandanus spp. and long grass) (Johnstone and Storr 1998).	Negligible
<i>Leipoa ocellata</i>	Malleefowl	VU	VU	Scrubs and thickets of Eucalyptus spp., Melaleuca lanceolata and Acacia linophylla; also other dense litter-forming shrublands. Attracted to fallen wheat in stubbles and along roads (Johnstone and Storr 1998).	Negligible



Species name	Common name	Level of significance		Habitat	Likelihood of occurrence
		WA	EPBC Act		
<i>Limosa lapponica</i>	Bar-tailed godwit	MI	MI	Estuarine sand and mudflats and sandy beaches with loads of seaweed; also reef flats and near-coastal saltlakes (including saltwork and sewage ponds) (Johnstone and Storr 1998).	Nil
<i>Limosa lapponica menzbieri</i>	Bar-tailed godwit	CR (MI)	CR (MI)	Mainly coastal habitats such as large intertidal sandflats, banks, mudflats, estuaries, inlets, harbours, coastal lagoons and bays. Has also been recorded in coastal sewage farms and saltworks, saltlakes and brackish wetlands near coasts, sandy ocean beaches, rock platforms, and coral reef-flats (Higgins and Davies 1996).	Nil
<i>Macronectes giganteus</i>	Southern giant-petrel	MI	EN (MI)	Breeds on southern subantarctic and antarctic islands. May visit Western Australian waters from February to December (mostly June to September) (Johnstone and Storr 1998).	Nil
<i>Macronectes halli</i>	Northern giant petrel	MI	VU (MI)	Breeds on subantarctic islands. May visit Western Australian water from February to September (Johnstone and Storr 1998).	Nil
<i>Motacilla cinerea</i>	Grey wagtail	MI	MI	In Australia mostly near running water in disused quarries, sandy and rocky streams in escarpments and rainforests, sewage ponds, ploughed fields and airfields (Pizzey & Knight 2012).	Nil

Species name	Common name	Level of significance		Habitat	Likelihood of occurrence
		WA	EPBC Act		
<i>Numenius madagascariensis</i>	Eastern curlew	CR	CR (MI)	Mainly tidal mudflats; also reef flats, sandy beaches and rarely near-coastal lakes (including saltwork ponds) (Johnstone and Storr 1998).	Nil
<i>Onychoprion anaethetus</i>	Bridled tern	MI	MI	Tropical and subtropical seas, offshore islands, rarely coasts (Pizzey & Knight 2012).	Nil
<i>Pachyptila turtur subantarctica</i>	Fairy prion	-	VU	Breeds on subantarctic islands and is presumed to frequent subtropical waters during non-breeding period (TSSC 2015).	Nil
<i>Pandion haliaetus</i>	Osprey	MI	MI	Coasts, estuaries, bays, inlets, islands, and surrounding waters; coral atolls, reefs, lagoons, rock cliffs, stacks (Pizzey & Knight 2012).	Nil
<i>Phoebastria fusca</i>	Sooty albatross	EN	VU (MI)	Marine, pelagic species that tolerates a wide range of sea surface temperatures and salinities. breeds on subtropical and subantarctic islands in the Indian and Atlantic Oceans, on vegetated cliffs and steep slopes that are sheltered from prevailing winds, often amongst tussock grass (Pizzey & Knight 2012).	Nil
<i>Psophodes nigrogularis</i>	Western whipbird	dependent	dependent	Mainly heathlands and coastal and waterside thickets (Johnstone and Storr 1998)	Nil
<i>Sternula nereis nereis</i>	Australian fairy tern	VU	VU	Sheltered blue-water seas close to land, estuaries (when free of silt) and near-coastal lakes (Johnstone and Storr 1998).	Nil

Species name	Common name	Level of significance		Habitat	Likelihood of occurrence
		WA	EPBC Act		
<i>Thalassarche carteri</i>	Indian yellow-nosed albatross	EN	VU (MI)	Marine species that inhabits seas of south and west coast of Western Australia and breeds on islands in the south Indian Ocean and in the south Atlantic (Johnstone & Storr 1998).	Nil
<i>Thalassarche cauta</i>	Shy albatross	VU	VU (MI)	Scarce visitor (late May to mid-October) to southwestern and western seas. Breeds on islands off Tasmania and south New Zealand (Johnstone and Storr 1998).	Nil
<i>Thalassarche impavida</i>	Campbell albatross	VU	VU (MI)	Scarce visitor to south-western and western Australian seas. Breeds on Campbell Island (Pizzey & Knight 2012).	Nil
<i>Thalassarche melanophris</i>	Black-browed albatross	EN	VU (MI)	Seas of south and west coasts. Visitor to Western Australian mainland from January to early November (mostly May to September). Breeds on southern subantarctic and Antarctic islands (Johnstone and Storr 1998).	Nil
<i>Thalassarche steadi</i>	White-capped albatross	VU	VU (MI)	Scarce visitor (late May to mid-October) to southwestern and western seas. Breeds on islands off Tasmania and south New Zealand (Johnstone and Storr 1998).	Nil
<i>Thalasseus bergii</i>	Crested tern	MI	MI	Mainly blue-water seas (especially within 3 km of land), including southern estuaries in summer and autumn (when free of silt); also tidal creeks in north, but not penetrating far into larger estuaries (DCCEW 2023).	Nil

Species name	Common name	Level of significance		Habitat	Likelihood of occurrence
		WA	EPBC Act		
<i>Thinornis rubricollis</i>	Hooded plover	P4	VU	Margins and shallows of saltlakes, sandy and seaweedy beaches and estuaries; also dams (Johnstone and Storr 1998).	Nil
<i>Tringa nebularia</i>	Common greenshank	EN (MI)	EN (MI)	Mudflats, estuaries, saltmarshes, margins of lakes, wetlands, claypans (fresh and saline), commercial saltfields, sewage ponds (Pizzey & Knight 2012).	Nil
<i>Tyto novaehollandiae novaehollandiae</i>	Australian masked owl	P3	-	Forests, open woodlands, farmlands with large trees. E.g. river red gums, adjacent cleared country, timbered watercourses, paperbark woodlands and caves (Pizzey & Knight 2012).	High
<i>Zanda baudinii</i>	Baudin's black cockatoo	EN	EN	Mainly eucalypt forests. Attracted to seeding Corymbia calophylla, Banksia spp., Hakea spp., and to fruiting apples and pears (Johnstone and Storr 1998).	High
<i>Zanda latirostris</i>	Carnaby's black cockatoo	EN	EN	Mainly proteaceous scrubs and heaths and adjacent eucalypt woodlands and forests; also plantations of Pinus spp. Attracted to seeding Banksia spp., Hakea spp., Eucalyptus spp., Corymbia calophylla, Grevillea spp., and Allocasuarina spp. (Johnstone and Storr 1998).	High

Species name	Common name	Level of significance		Habitat	Likelihood of occurrence
		WA	EPBC Act		
<b>Fish</b>					
<i>Galaxiella munda</i>	Mud minnow	VU	-	Prefers swift-flowing streams in Karri forests, near submerged vegetation. The water in these streams is usually acidic (pH 3.0-6.0) and darkly tannin-stained, and the water temperature fluctuates widely with the seasons. It also occasionally occurs in ponds, swamps and roadside drains (Gomon et al. 2020). AQUATIC - EXCLUDE FROM LoO	Negligible
<i>Geotria australis</i>	Pouched lamprey	P3	-	Marine, estuarine and coastal rivers and streams. Adults live in Southern Ocean and migrate upstream to spawn. Larvae live in muddy burrows in the upper reaches of streams (Bray and Gomon 2018).	Negligible
<i>Nannatherina balstoni</i>	Balston's pygmy perch	VU	VU	Acidic, tannin-stained freshwater pools, streams and lakes in peat flats within 30 km of the coast of south-west Western Australia, preferring shallow water, and commonly associated with tall sedge thickets and inundated riparian vegetation (DAWE 2020).	Negligible
<b>Invertebrates</b>					
<i>Kawanaphila pachomai</i>	Grey vernal katydid	P1	-	Found in the southwest near Margaret River.	Nil

Species name	Common name	Level of significance		Habitat	Likelihood of occurrence
		WA	EPBC Act		
<i>Westralunio carteri</i>	Carter's freshwater mussel	VU	VU	Occurs in greatest abundance in slower flowing streams with stable sediments that are soft enough for burrowing amongst woody debris and exposed tree roots. Also occupies lentic systems including large water supply dams and even on-	Negligible
<b>Mammals</b>					
<i>Bettongia penicillata ogilbyi</i>	Woylie	CR	EN	Woodlands and adjacent heaths with a dense understorey of shrubs, particularly <i>Gastrolobium</i> spp. (TSSC 2018).	Nil
<i>Dasyurus geoffroii</i>	Chuditch	VU	VU	Wide range of habitats from woodlands, dry sclerophyll forests, riparian vegetation, beaches and deserts. Appears to utilise native vegetation along roadsides in the wheatbelt (DEC 2012).	Nil
<i>Hydromys chrysogaster</i>	Rakali	P4	-	Areas with permanent water, fresh, brackish or marine. Likely to occur in all major rivers and most of the larger streams as well as bodies of permanent water in the lower south-west (Christensen et al. 1984). Intact riparian vegetation and associated bank stability is critical to their survival (DWER 2023).	Negligible
<i>Isoodon fusciventer</i>	Quenda	P4	-	Dense scrubby, often swampy, vegetation with dense cover up to one metre high (DEC 2012)	High
<i>Macrotis lagotis</i>	Bilby	VU	VU	Open tussock grassland on uplands and hills, mulga woodland/shrubland growing on ridges and rises and hummock grassland (spinifex) growing on sandplains and dunes. drainage systems. salt	Nil

Species name	Common name	Level of significance		Habitat	Likelihood of occurrence
		WA	EPBC Act		
<i>Notamacropus eugenii derbianus</i>	Tammar wallaby	P4	-	Dry sclerophyll forest, Banksia spp. woodlands and shrublands, typically favouring dense low vegetation that provides dense cover (Christensen and Strahan 1983).	Nil
<i>Notamacropus irma</i>	Western brush wallaby	P4	-	Dry sclerophyll forest, Banksia spp. woodlands and shrublands, typically favouring dense low vegetation that provides dense cover (Christensen and Strahan 1983).	Moderate
<i>Phascogale tapoatafa wambenger</i>	South-western brush-tailed phascogale	CD	-	Dry sclerophyll forests and open woodlands that contain hollow-bearing trees but a sparse ground cover (Triggs 2003).	High
<i>Potorous gilbertii</i>	Gilbert's potoroo	CR	CR	Dense Melaleuca heath with dense groundcover of sedges (Menkhorst & Knight 2011).	Nil
<i>Pseudocheirus occidentalis</i>	Western ringtail possum	CR	CR	On the Swan Coastal Plain in Agonis flexuosa woodlands and Agonis flexuosa/ Eucalyptus gomphocephala forests. Also Eucalyptus marginata forests (DBCA 2017).	High
<i>Pseudomys shorridgei</i>	Heath mouse	VU	VU	Prefers long unburnt tall heath and scrubby mallee (Menkhorst and Knight 2011)	Nil
<i>Setonix brachyurus</i>	Quokka	VU	VU	On the mainland mostly dense streamside vegetation or shrubland and heath areas, particularly around swamps (Cronin 2007).	Negligible

Note: CE=critically endangered, EN=endangered, VU=vulnerable, CD=conservation dependent, MI=migratory, OS=other specially protected, P1=Priority 1, P2=Priority 2, P3=Priority 3, P4=Priority 4. Species recorded or considered to potentially occur within the site are shaded green.

Species name	Common name	Level of significance		Habitat	Likelihood of occurrence
		WA	EPBC Act		
<p><b>References</b></p> <p>Bush, B., Maryan, B., Browne-Cooper, R. and Robinson, D. 2007, Reptiles and Frogs in the Bush: Southwestern Australia, UWA Press, Nedlands.</p> <p>Bray, D. J. and Gomon, M. F. 2018, Pouch Lamprey, Geotria australis.</p> <p>Christensen, P. and Strahan, R. 1984, The Australian Museum Complete Book of Australian Mammals, Angus and Robertson Publishers, Sydney.</p> <p>Cronin, L. 2007, Cronin's Key Guide to Australian Wildlife, Oxford University Press, Oxford, United Kingdom.</p> <p>Department of Biodiversity, Conservation and Attractions (DBCA) 2017, Fauna Profile: Western Ringtail Possum Pseudocheirus occidentalis, Perth, Western Australia.</p> <p>Johnstone, R. E. and Storr, G. M. 1998, Handbook of Western Australian Birds. Volume 1 - Non-Passerines (Emu to Dollarbird), Western Australian Museum, Perth.</p> <p>Marchant, S. and Higgins, P. J. 1993, Handbook of Australian, New Zealand and Antarctic Birds. Volume two - Raptors to Lapwings, Oxford University Press, Melbourne, Victoria.</p> <p>Morgan, D. L., Beatty, S. J., Klunzinger, M. W., Allen, M. G. and Burnham, Q. E. 2011, Field Guide to the Freshwater Fishes, Crayfishes and Mussels of South Western Australia, SERCUL, Perth, Western Australia.</p>					



# Appendix D

Black cockatoo foraging plants species list





Foraging category as assigned by Emerge					
Species name	Common name	CBC	BBC	FRTBC	Literature references
<i>Acacia baileyana</i>	Cootamundra wattle	Secondary	-	-	Groom 2011
<i>Acacia pentadenia</i>	Karri wattle	Secondary	-	-	Groom 2011
<i>Acacia saligna</i>	Orange wattle	Secondary	-	-	Groom 2011
<i>Agonis flexuosa</i>	Peppermint tree	Secondary	-	-	Groom 2011
<i>Allocasuarina fraseriana</i>	Sheoak	Secondary	Secondary	Secondary	Johnstone & Storr 1998; Johnstone <i>et al.</i> 2010; Johnstone 2017; DoEE 2017
<i>Allocasuarina spp.</i>		Secondary	-	Secondary	Johnstone <i>et al.</i> 2010; Groom 2011; DSEWPac 2012; DoEE 2017
<i>Anigozanthos flavidus</i>	Tall kangaroo paw	-	Secondary	-	Johnstone <i>et al.</i> 2010; DSEWPac 2012; DoEE 2017
<i>Araucaria heterophylla</i>	Norfolk island pine	Secondary	-	-	Groom 2011; DoEE 2017
<i>Banksia ashbyi</i>	Ashby's banksia	Primary	Secondary	-	Saunders 1980; Groom 2011; DoEE 2017
<i>Banksia attenuata</i>	Slender banksia	Primary	Secondary	-	Saunders 1980; Johnstone <i>et al.</i> 2010; Groom 2011; DoEE 2017
<i>Banksia baxteri</i>	Baxter's banksia	Primary	Secondary	-	Johnstone <i>et al.</i> 2010; Groom 2011; DoEE 2017
<i>Banksia carlinoides</i>	Pink dryandra	Primary	Secondary	-	Johnstone <i>et al.</i> 2010; Groom 2011; DoEE 2017
<i>Banksia coccinea</i>	Scarlet banksia	Primary	Secondary	-	Johnstone <i>et al.</i> 2010; Groom 2011; DoEE 2017
<i>Banksia dallanneyi</i>	Couch honeypot dryandra	Primary	Secondary	-	Groom 2011; DoEE 2017
<i>Banksia ericifolia</i>	Heath-leaved banksia	Primary	Secondary	-	Johnstone <i>et al.</i> 2010; Groom 2011; DoEE 2017
<i>Banksia fraseri</i>	Prostrate banksia	Primary	Secondary	-	Johnstone <i>et al.</i> 2010; Groom 2011; DoEE 2017
<i>Banksia gardneri</i>	Bull banksia	Primary	Secondary	-	Groom 2011; DoEE 2017
<i>Banksia grandis</i>		Primary	Secondary	-	Saunders 1980; Johnstone & Storr 1998; Johnstone <i>et al.</i> 2010; Groom 2011; DoEE 2017
<i>Banksia hookeriana</i>	Hooker's banksia	Primary	Secondary	-	Johnstone <i>et al.</i> 2010; Groom 2011; DoEE 2017
<i>Banksia ilicifolia</i>	Holly banksia	Primary	Secondary	-	Johnstone <i>et al.</i> 2010; Groom 2011; Johnstone & Storr 1998; DoEE 2017
<i>Banksia kippistiana</i>		Primary	Secondary	-	Groom 2011; DoEE 2017
<i>Banksia leptophylla</i>		Primary	Secondary	-	Groom 2011; DoEE 2017
<i>Banksia lindleyana</i>	Porcupine banksia	Primary	Secondary	-	Johnstone <i>et al.</i> 2010; DoEE 2017

Species name	Common name	Foraging category as assigned by Emerge			Literature references
		CBC	BBC	FRTBC	
<i>Banksia littoralis</i>	Swamp banksia	Primary	Secondary	-	Saunders 1980; Groom 2011; Johnstone & Storr 1998; Johnstone <i>et al.</i> 2010; DoEE 2017
<i>Banksia menziesii</i>	Firewood banksia	Primary	Secondary	-	Saunders 1980; Johnstone <i>et al.</i> 2010; Groom 2011; DoEE 2017
<i>Banksia mucronulata</i>	Swordfish dryandra	Primary	Secondary	-	Groom 2011; DoEE 2017
<i>Banksia nivea</i>	Honeypot dryandra	Primary	Secondary	-	Saunders 1980; Groom 2011; DoEE 2017
<i>Banksia nobilis</i>	Golden dryandra	Primary	Secondary	-	Saunders 1980; Groom 2011; DoEE 2017
<i>Banksia praemorsa</i>	Cut-leaf banksia	Primary	Secondary	-	Saunders 1980; Johnstone <i>et al.</i> 2010; Groom 2011; DoEE 2017
<i>Banksia prionotes</i>	Acorn banksia	Primary	Secondary	-	Johnstone <i>et al.</i> 2010; Groom 2011; DoEE 2017
<i>Banksia prolata</i>		Primary	Secondary	-	Johnstone <i>et al.</i> 2010; DoEE 2017
<i>Banksia quercifolia</i>	Oak-leaved banksia	Primary	Secondary	-	Johnstone & Storr 1998; Johnstone <i>et al.</i> 2010; Groom 2011; DoEE 2017
<i>Banksia sessilis</i>	Parrot bush	Primary	Secondary	-	Saunders 1980; Johnstone & Storr 1998; Johnstone <i>et al.</i> 2010; Groom 2011; DoEE 2017
<i>Banksia speciosa</i>	Showy banksia	Primary	Secondary	-	Johnstone <i>et al.</i> 2010; Groom 2011; DoEE 2017
<i>Banksia spp.</i>		Primary	Secondary	-	Saunders 1979; DSEWPac 2012; DoEE 2017
<i>Banksia squarrosa</i>	Pingle	Primary	Secondary	-	Johnstone <i>et al.</i> 2010; Groom 2011; DoEE 2017
<i>Banksia tricuspis</i>	Pine banksia	Primary	Secondary	-	Groom 2011; DoEE 2017
<i>Banksia undata</i>	Urchin dryandra	Primary	Secondary	-	Groom 2011; DoEE 2017
<i>Banksia verticillata</i>	Granite banksia	Primary	Secondary	-	Saunders 1980; Groom 2011; DoEE 2017
<i>Brassica campestris</i>	Canola	Secondary	-	-	Groom 2011; DoEE 2017
<i>Callistemon spp.</i>		Secondary	Secondary	-	Johnstone <i>et al.</i> 2010; DoEE 2017
<i>Callistemon viminalis</i>	Captain cook bottlebrush	Secondary	-	-	Groom 2011
<i>Callitris sp.</i>		Secondary	-	-	Johnstone <i>et al.</i> 2010; Groom 2011
<i>Carya illinoensis</i>	Pecan	Primary	Secondary	-	Johnstone <i>et al.</i> 2010; Groom 2011; Groom 2014; DoEE 2017
<i>Casuarina cunninghamiana</i>	River sheoak	Secondary	-	-	Groom 2011
<i>Citrullus lanatus</i>	Pie or afghan melon	Secondary	-	-	Johnstone <i>et al.</i> 2010; Groom 2011

Species name	Common name	Foraging category as assigned by Emerge			Literature references
		CBC	BBC	FRTBC	
<i>Corymbia calophylla</i>	Marri	Primary	Primary	Primary	Johnstone & Storr 1998; Johnstone & Kirkby 1999; Johnstone <i>et al.</i> 2010; DSEWPaC 2012; DoEE 2017; Johnstone 2017; Saunders 1979; Johnstone & Kirkby 2008
<i>Corymbia citriodora</i>	Lemon scented gum	Secondary	Secondary	Secondary	Johnstone <i>et al.</i> 2010; DSEWPaC 2012; Groom 2011; Johnstone 2017
<i>Corymbia ficifolia</i>	Red flowering gum	Secondary	-	-	Groom 2011
<i>Corymbia haematoxylon</i>	Mountain marri	Secondary	-	Secondary	Groom 2011; DoEE 2012; DoEE 2017
<i>Corymbia maculata</i>	Spotted gum	-	-	-	-
<i>Darwinia citriodora</i>	Lemon-scented darwinia	Secondary	Secondary	-	Groom 2011; Johnstone <i>et al.</i> 2010
<i>Diospyros sp.</i>	Sweet persimmon	Secondary	Secondary	-	Johnstone <i>et al.</i> 2010; Groom 2011; DSEWPaC 2012; DoEE 2017
<i>Eremophila glabra</i>	Tarbush	Secondary	-	-	Groom 2011
<i>Erodium aureum</i>		Secondary	-	-	Groom 2011
<i>Erodium botrys</i>	Long storksbill	Secondary	Secondary	-	Groom 2011; Johnstone & Storr 1998; Johnstone <i>et al.</i> 2010
<i>Erodium spp.</i>		Secondary	Secondary	-	Johnstone <i>et al.</i> 2010; DoEE 2017
<i>Eucalyptus caesia</i>	Silver princess	Secondary	-	Secondary	Johnstone <i>et al.</i> 2010; Groom 2011; DSEWPaC 2012; DoEE 2017; Johnstone 2017
<i>Eucalyptus camaldulensis</i>	River red gum	-	-	Secondary	DoEE 2012; DoEE 2017
<i>Eucalyptus decipiens</i>	Red heart/moit	-	-	Secondary	Johnstone 2017
<i>Eucalyptus diversicolor</i>	Karri	-	-	Primary	Johnstone <i>et al.</i> 2010; DSEWPaC 2012; DoEE 2017; Johnstone & Storr 1998
<i>Eucalyptus erythrocorys</i>	Illyarrie	Secondary	-	Secondary	DSEWPaC 2012; DoEE 2017; Johnstone 2017, Johnstone <i>et al.</i> 2010
<i>Eucalyptus gomphocephala</i>	Tuart	Secondary	-	Secondary	Johnstone <i>et al.</i> 2010; Groom 2011; DSEWPaC 2012; DoEE 2017
<i>Eucalyptus grandis</i>	Flooded gum, rose gum	-	-	Secondary	DoEE 2012; DoEE 2017
<i>Eucalyptus lehmannii</i>	Bushy yate	-	-	Secondary	Johnstone 2017
<i>Eucalyptus leucoxylon</i>	Yellow gum	Secondary	-	-	Groom 2014

Species name	Common name	Foraging category as assigned by Emerge			Literature references
		CBC	BBC	FRTBC	
<i>Eucalyptus loxophleba</i>	York gum	Secondary	-	-	Johnstone <i>et al.</i> 2010; Groom 2011; DSEWPac 2012; DoEE 2017
<i>Eucalyptus marginata</i>	Jarrah	Primary	Secondary	Primary	Saunders 1980; Johnstone <i>et al.</i> 2010; Groom 2011; DSEWPac 2012;
<i>Eucalyptus patens</i>	Blackbutt	Primary	-	Primary	DoEE 2017; Johnstone & Storr 1998; Johnstone & Kirkby 1999; Johnstone 2017
<i>Eucalyptus pleurocarpa</i>	Tallerack	Secondary	-	-	Johnstone & Storr 1998; Johnstone & Kirkby 1999; Johnstone 2017
<i>Eucalyptus preissiana</i>	Bell-fruited mallee	Secondary	-	-	Johnstone <i>et al.</i> 2010; Groom 2011
<i>Eucalyptus robusta</i>	Swamp mahogany	Secondary	-	-	Johnstone <i>et al.</i> 2010; Groom 2011
<i>Eucalyptus salmonophloia</i>	Salmon gum	Primary	-	-	Johnstone <i>et al.</i> 2010; Groom 2011; DSEWPac 2012; DoEE 2017
<i>Eucalyptus staeri</i>	Albany blackbutt	-	-	Secondary	Johnstone & Storr 1998
<i>Eucalyptus todtiana</i>	Coastal blackbutt	Secondary	-	-	Saunders 1980; Johnstone <i>et al.</i> 2010; Groom 2011; Johnstone & Kirkby 2008
<i>Eucalyptus wandoo</i>	Wandoo	Primary	Secondary	Primary	Saunders 1980; Johnstone <i>et al.</i> 2010; Groom 2011; DSEWPac 2012; DoEE 2017
<i>Ficus sp.</i>	Fig	Secondary	-	-	Groom 2011
<i>Grevillea armigera</i>	Prickly toothbrushes	Primary	-	-	Groom 2011
<i>Grevillea bipinnatifida</i>	Fuschia grevillea	Primary	-	-	Groom 2011
<i>Grevillea hookeriana</i>	Red toothbrushes	Primary	-	-	Groom 2011
<i>Grevillea hookeriana subsp. api</i>	Black toothbrushes	Primary	-	-	Groom 2011
<i>Grevillea paniculata</i>	Kerosene bush	Primary	-	-	Groom 2011
<i>Grevillea paradoxa</i>	Bottlebrush grevillea	Primary	-	-	Groom 2011
<i>Grevillea petrophiloides</i>	Pink poker	Primary	-	-	Groom 2011
<i>Grevillea robusta</i>	Silky oak	Primary	-	-	Johnstone <i>et al.</i> 2010; Groom 2011

Species name	Common name	Foraging category as assigned by Emerge			Literature references
		CBC	BBC	FRTBC	
<i>Grevillea spp.</i>		Primary	-	-	Saunders 1979; Johnstone <i>et al.</i> 2010; DSEWPaC 2012; DoEE 2017
<i>Grevillea wilsonii</i>	Native fuchsia	-	Secondary	-	Johnstone <i>et al.</i> 2010
<i>Hakea auriculata</i>		Primary	-	-	Saunders 1980; Groom 2011
<i>Hakea candolleana</i>		Primary	-	-	Groom 2011
<i>Hakea circumalata</i>	Coastal hakea	Primary	-	-	Groom 2011
<i>Hakea commutata</i>		Primary	-	-	Groom 2011
<i>Hakea conchifolia</i>	Shell-leaved hakea	Primary	-	-	Groom 2011
<i>Hakea costata</i>	Ribbed hakea	Primary	-	-	Groom 2011
<i>Hakea cristata</i>	Snail hakea	Primary	Secondary	-	Groom 2011; Johnstone <i>et al.</i> 2010
<i>Hakea cucullata</i>	Snail hakea	Primary	-	-	Groom 2011
<i>Hakea cyclocarpa</i>	Ramshorn	Primary	-	-	Saunders 1980; Groom 2011
<i>Hakea eneabba</i>		Primary	-	-	Groom 2011
<i>Hakea erinacea</i>	Hedgehog hakea	Primary	Secondary	-	Johnstone <i>et al.</i> 2010; Groom 2011
<i>Hakea falcata</i>	Sickle hakea	Primary	-	-	Groom 2011
<i>Hakea flabellifolia</i>	Fan-leaved hakea	Primary	-	-	Groom 2011
<i>Hakea gilbertii</i>		Primary	-	-	Saunders 1980; Groom 2011
<i>Hakea incrassata</i>	Golfball or marble hakea	Primary	-	-	Johnstone <i>et al.</i> 2010; Groom 2011
<i>Hakea lasiantha</i>	Woolly flowered hakea	Primary	-	-	Johnstone <i>et al.</i> 2010; Groom 2011
<i>Hakea lasianthoides</i>		Primary	Secondary	-	Johnstone <i>et al.</i> 2010; Groom 2011
<i>Hakea laurina</i>	Pin-cushion hakea	Primary	-	-	Johnstone <i>et al.</i> 2010; Groom 2011
<i>Hakea lissocarpa</i>	Honeybush	Primary	Secondary	-	Saunders 1980; Johnstone <i>et al.</i> 2010; Groom 2011
<i>Hakea marginata</i>		-	Secondary	-	Johnstone <i>et al.</i> 2010
<i>Hakea megalosperma</i>	Lesueur hakea	Primary	-	-	Groom 2011
<i>Hakea multilineata</i>	Grass leaf hakea	Primary	-	-	Groom 2011
<i>Hakea neospathulata</i>		Primary	-	-	Groom 2011
<i>Hakea obliqua</i>	Needles and corks	Primary	-	-	Saunders 1980; Groom 2011
<i>Hakea oleifolia</i>	Dungyn	Primary	-	-	Groom 2011

Species name	Common name	Foraging category as assigned by Emerge				Literature references
		CBC	BBC	FRTBC		
<i>Hakea pandanicularpa subsp. crassifolia</i>	Thick-leaved hakea	Primary	-	-	Groom 2011	
<i>Hakea petiolaris</i>	Sea urchin hakea	Primary	-	-	Groom 2011	
<i>Hakea polyanthema</i>		Primary	-	-	Groom 2011	
<i>Hakea preissii</i>	Needle tree	Primary	-	-	Groom 2011	
<i>Hakea prostrata</i>	Harsh hakea	Primary	Secondary	-	Saunders 1980; Johnstone <i>et al.</i> 2010; Groom 2011	
<i>Hakea psilorrhyncha</i>		Primary	-	-	Groom 2011	
<i>Hakea ruscifolia</i>	Candle hakea	Primary	Secondary	-	Saunders 1980; Groom 2011; Johnstone <i>et al.</i> 2010	
<i>Hakea scoparia</i>	Kangaroo bush	Primary	-	-	Groom 2011	
<i>Hakea smilacifolia</i>		Primary	-	-	Groom 2011	
<i>Hakea spp.</i>		Primary	Secondary	-	Saunders 1979; DSEWPaC 2012; DoEE 2017	
<i>Hakea stenocarpa</i>	Narrow-fruited hakea	Primary	Secondary	-	Johnstone <i>et al.</i> 2010; Groom 2011	
<i>Hakea sulcata</i>	Furrowed hakea	Primary	-	-	Groom 2011	
<i>Hakea trifurcata</i>	Two-leaved hakea	Primary	Secondary	-	Saunders 1980; Johnstone <i>et al.</i> 2010; Groom 2011	
<i>Hakea undulata</i>	Wavy-leaved hakea	Primary	Secondary	-	Saunders 1980; Johnstone <i>et al.</i> 2010; Groom 2011	
<i>Hakea varia</i>	Variable-leaved hakea	Primary	Secondary	-	Saunders 1980; Groom 2011	
<i>Harpephyllum coffrum</i>	Kaffir plum	-	-	Secondary	Johnstone 2017	
<i>Helianthus annuus</i>	Sunflower	Secondary	-	-	Johnstone <i>et al.</i> 2010; Groom 2011	
<i>Hibiscus sp.</i>	Hibiscus	Secondary	-	-	Groom 2011	
<i>Isopogon scabriusculus</i>		Secondary	-	-	Groom 2011	
<i>Jacaranda mimosifolia</i>	Jacaranda	Secondary	Secondary	-	Johnstone <i>et al.</i> 2010; Groom 2011	
<i>Jacksonia furcellata</i>	Grey stinkwood	Secondary	-	-	Groom 2011	
<i>Kingia australis</i>	Kingia	-	Secondary	-	Johnstone <i>et al.</i> 2010	
<i>Lambertia inermis</i>	Chittick	Secondary	-	-	Johnstone & Storr 1998; Groom 2011	
<i>Lambertia multiflora</i>	Many-flowered honeysuckle	Secondary	-	-	Saunders 1980; Groom 2011	



Species name	Common name	Foraging category as assigned by Emerge			Literature references
		CBC	BBC	FRTBC	
<i>Liquidamber styraciflua</i>	Liquid amber	Primary	-	Secondary	Johnstone <i>et al.</i> 2010; Groom 2011; Groom 2014; Personal observation
<i>Lupinus sp.</i>	Lupin	Secondary	-	-	Saunders 1980; Groom 2011
<i>Macadamia integrifolia</i>	Macadamia	Primary	Secondary	-	Johnstone <i>et al.</i> 2010; Grooms 2011; Groom 2014
<i>Malus domestica</i>	Apple	Secondary	Secondary	-	Johnstone <i>et al.</i> 2010; Johnstone & Storr 1998; DSEWPac 2012; DoEE 2017; Groom 2011
<i>Melaleuca leuropoma</i>		Secondary	-	-	Saunders 1980; Groom 2011
<i>Melia azedarach</i>	Cape lilac or white cedar	Secondary	-	Primary	Johnstone <i>et al.</i> 2010; Groom 2011
<i>Mesomeleana spp.</i>		Secondary	-	-	Johnstone <i>et al.</i> 2010; Groom 2011
<i>Olea europea</i>	Olive	-	-	Secondary	Johnstone 2017
<i>Persoonia longifolia</i>	Snottygobble	-	-	Secondary	Johnstone & Storr 1998; Johnstone & Kirkby 1999; Johnstone <i>et al.</i> 2010; DSEWPac 2012; DoEE 2017
<i>Pinus canariensis</i>	Canary island pine	Primary	-	-	Johnstone <i>et al.</i> 2010; Groom 2011
<i>Pinus caribea</i>	Caribbean pine	Primary	-	-	Johnstone <i>et al.</i> 2010; Groom 2011
<i>Pinus pinaster</i>	Pinaster or maritime pine	Primary	-	-	Groom 2011
<i>Pinus radiata</i>	Radiata pine	Primary	Secondary	-	Johnstone <i>et al.</i> 2010; Groom 2011
<i>Pinus spp.</i>		Primary	Secondary	-	Johnstone & Storr 1998; Saunders 1979; Johnstone <i>et al.</i> 2010; DSEWPac 2012; DoEE 2017
<i>Protea 'Pink Ice'</i>		Secondary	-	-	Groom 2011
<i>Protea repens</i>		Secondary	-	-	Groom 2011
<i>Protea spp.</i>		Secondary	-	-	Johnstone <i>et al.</i> 2010
<i>Prunus amygdalus</i>	Almond tree	Secondary	-	-	Johnstone & Storr 1998; Johnstone <i>et al.</i> 2010; Groom 2011; DoEE 2017
<i>Pyrus communis</i>	European pear	-	Secondary	-	Johnstone & Storr 1998; Johnstone <i>et al.</i> 2010; DSEWPac 2012; DoEE 2017
<i>Quercus spp.</i>	Oak	-	Secondary	-	Johnstone <i>et al.</i> 2010

Species name	Common name	Foraging category as assigned by Emerge			Literature references
		CBC	BBC	FRTBC	
<i>Raphanus raphanistrum</i>	Wild radish	Secondary	-	-	Groom 2011; DoEE 2017
<i>Reedia spathacea</i>		-	Secondary	-	Johnstone <i>et al.</i> 2010
<i>Rumex hypogaeus</i>	Doublegee	Secondary	-	-	Saunders 1980
<i>Stenocarpus sinuatus</i>		Secondary	-	-	Johnstone <i>et al.</i> 2010
<i>Syzygium smithii</i>	Lilly pilli	Secondary	-	-	Groom 2014
<i>Tipuana tipu</i>	Tipu or rosewood tree	Primary	-	-	Groom 2011, Groom 2014
<i>Xanthorrhoea preissii</i>	Grass tree	Secondary	Secondary	-	Groom 2011; Johnstone <i>et al.</i> 2010
<i>Xylomelum occidentale</i>	Woody pear	Secondary	-	-	Groom 2014

CBC=Carnaby's black cockatoo, BBC=Baudin's black cockatoo and FRTBC=Forest red-tailed black cockatoo

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# Appendix E

Black cockatoo roost counts





Table 1: White-tailed black cockatoo recorded in roosts within 12 km of the site

Roost ID	Year and number of individuals									
	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
AUGFORR002	NS	NS	6	0	0	NS	NS	0	NS	NS
AUGMARR001	47	0	57	0	0	0	NS	0	NS	NS
AUGMARR004	NS	NS	6	0	NS	21	NS	6	NS	0
AUGMARR005	NS	NS	NS	0	NS	10	NS	0	NS	NS
AUGMARR013	NS	NS	NS	13	0	0	NS	0	NS	NS
AUGMARR014	NS	NS	NS	60	0	NS	NS	47	NS	0
AUGMARR016	NS	NS	NS	NS	NS	NS	NS	0	NS	55
AUGROSR001	NS	NS	NS	46	29	0	NS	NS	89	0
AUGWITR002	NS	NS	NS	7	3	2	NS	0	NS	NS

Table 2: Forest red-tailed black cockatoo recorded in roosts within 12 km of the site

Roost ID	Year and number of individuals									
	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
AUGFORR002	NS	NS	9	0	0	NS	NS	0	NS	NS
AUGMARR004	NS	NS	0	0	NS	0	NS	0	NS	3
AUGMARR005	NS	NS	NS	0	NS	4	NS	0	NS	NS

NS = not surveyed



# Appendix F

Species list







Category	Status	Species name	Common name	Record type
<b>Birds</b>				
		<i>Acanthiza inornata</i>	Western thornbill	Sight, call
		<i>Barnardius zonarius</i>	Australian ringneck	Sight, call
	VU	<i>Calyptorhynchus banksii naso</i>	Forest red-tailed black cockatoo	Sight
		<i>Corvus coronoides</i>	Australian raven	Sight, call
	*	<i>Dacelo novaeguineae</i>	Laughing kookaburra	Sight, call
		<i>Dromaius novaehollandiae</i>	Emu	Scat
		<i>Gymorhina tibicen</i>	Australian magpie	Sight, call
		<i>Haliastur sphenurus</i>	Whistling kite	Sight
		<i>Malurus splendens</i>	Splendid fairy-wren	Sight, call
		<i>Parvipsitta porphrocephala</i>	Purple-crowned lorikeet	Call
		<i>Phylidonyris novaehollandiae</i>	New hollad honeyeater	Sight, call
		<i>Rhipidura albiscapa</i>	Grey fantail	Sight, call
		<i>Rhipidura leucophrys</i>	Willy wagtail	Sight, call
		<i>Threskiornis moluccus</i>	Australian white ibis	Sight
	EN	<i>Zanda baudinii</i>	Baudin's black cockatoo	Foraging evidence
	EN	<i>Zanda latirostris</i>	Carnaby's black cockatoo	Foraging evidence
		<i>Zosterops lateralis</i>	Silvereye	Sight, call
<b>Mammals</b>				
		<i>Macropus fuliginosus</i>	Western grey kangaroo	Scats
	*DP	<i>Oryctolagus cuniculus</i>	Rabbit	Burrows
	*DP	<i>Vulpes vulpes</i>	Fox	Scats
<b>Reptiles</b>				
		<i>Tiliqua rugosa</i>	Bobtail	Remains

Note: \* denotes introduced fauna species, DP=declared pest under the BAM Act, EN=Endangered under the BC and EPBC Acts, VU=Vulnerable under the BC and EPBC Acts



# Appendix G

Black cockatoo habitat tree data





Tag No.	Eastings	Northing	DBH (cm)	Species	Category	Recorder
330	325714.06	6231940.79	83	<i>Eucalyptus marginata</i>	Potential nesting tree	NAW
0	325711.48	6231940.52	56	<i>Eucalyptus marginata</i>	Potential nesting tree	NAW
332	325705.49	6231939.41	101	<i>Corymbia calophylla</i>	Potential nesting tree	NAW
337	325719.54	6231899.06	61	<i>Eucalyptus marginata</i>	Potential nesting tree	NAW
338	325717.91	6231886.94	107	<i>Corymbia calophylla</i>	Potential nesting tree	NAW
340	325704.30	6231893.79	52	<i>Eucalyptus marginata</i>	Potential nesting tree	NAW
341	325702.60	6231895.98	54	<i>Corymbia calophylla</i>	Potential nesting tree	NAW
342	325713.51	6231900.62	75	<i>Eucalyptus marginata</i>	Potential nesting tree	NAW
343	325715.74	6231914.42	54	<i>Eucalyptus marginata</i>	Potential nesting tree	NAW
344	325710.42	6231912.43	53	Stag	Potential nesting tree	NAW
345	325703.24	6231916.29	55	<i>Eucalyptus marginata</i>	Potential nesting tree	NAW
346	325695.33	6231939.67	84	<i>Eucalyptus marginata</i>	Potential nesting tree	NAW
347	325682.88	6231933.67	74	<i>Corymbia calophylla</i>	Potential nesting tree	NAW
348	325688.96	6231924.57	105	Stag	Potential nesting tree	NAW
349	325675.96	6231923.11	56	<i>Eucalyptus marginata</i>	Potential nesting tree	NAW
350	325675.71	6231916.56	114	<i>Corymbia calophylla</i>	Potential nesting tree	NAW
351	325686.94	6231908.78	85	<i>Corymbia calophylla</i>	Potential nesting tree	NAW
352	325684.22	6231895.97	107	<i>Corymbia calophylla</i>	Potential nesting tree	NAW
353	325670.61	6231887.84	70	<i>Corymbia calophylla</i>	Potential nesting tree	NAW
354	325663.12	6231898.58	51	<i>Corymbia calophylla</i>	Potential nesting tree	NAW
355	325646.67	6231903.93	85	<i>Corymbia calophylla</i>	Potential nesting tree	NAW
356	325643.80	6231889.57	77	<i>Corymbia calophylla</i>	Potential nesting tree	NAW
357	325647.75	6231885.54	65	<i>Corymbia calophylla</i>	Potential nesting tree	NAW
359	325644.92	6231913.88	58	<i>Corymbia calophylla</i>	Potential nesting tree	NAW
360	325663.04	6231917.99	87	<i>Corymbia calophylla</i>	Potential nesting tree	NAW
361	325669.59	6231923.33	65	<i>Eucalyptus marginata</i>	Potential nesting tree	NAW
363	325674.12	6231943.05	73	<i>Eucalyptus marginata</i>	Potential nesting tree	NAW
364	325665.30	6231940.55	144	<i>Corymbia calophylla</i>	Potential nesting tree	NAW
365	325647.88	6231938.68	55	<i>Eucalyptus marginata</i>	Potential nesting tree	NAW
366	325646.13	6231933.43	77	<i>Eucalyptus marginata</i>	Potential nesting tree	NAW
367	325642.33	6231944.12	53	<i>Eucalyptus marginata</i>	Potential nesting tree	NAW

Tag No.	Easting	Northing	DBH (cm)	Species	Category	Recorder
368	325637.60	6231944.81	59	<i>Eucalyptus marginata</i>	Potential nesting tree	NAW
369	325637.72	6231923.29	55	<i>Eucalyptus marginata</i>	Potential nesting tree	NAW
370	325645.32	6231917.00	56	<i>Eucalyptus marginata</i>	Potential nesting tree	NAW
371	325649.42	6231920.18	66	<i>Corymbia calophylla</i>	Potential nesting tree	NAW
372	325636.45	6231897.09	70	<i>Corymbia calophylla</i>	Potential nesting tree	NAW
373	325629.38	6231884.98	132	<i>Corymbia calophylla</i>	Potential nesting tree	NAW
375	325626.35	6231883.81	54	<i>Corymbia calophylla</i>	Potential nesting tree	NAW
376	325620.51	6231895.13	88	<i>Corymbia calophylla</i>	Potential nesting tree	NAW
377	325612.99	6231897.32	81	<i>Corymbia calophylla</i>	Potential nesting tree	NAW
378	325622.75	6231904.05	55	<i>Corymbia calophylla</i>	Potential nesting tree	NAW
379	325633.45	6231909.90	55	<i>Corymbia calophylla</i>	Potential nesting tree	NAW
380	325623.98	6231917.38	55	<i>Eucalyptus marginata</i>	Potential nesting tree	NAW
381	325622.91	6231920.25	50	<i>Corymbia calophylla</i>	Potential nesting tree	NAW
382	325609.12	6231922.10	83	<i>Corymbia calophylla</i>	Potential nesting tree	NAW
383	325612.49	6231929.70	73	<i>Corymbia calophylla</i>	Potential nesting tree	NAW
384	325621.94	6231938.09	62	Stag	Potential nesting tree	NAW
385	325613.09	6231951.90	52	<i>Corymbia calophylla</i>	Potential nesting tree	NAW
386	325600.76	6231944.35	87	<i>Corymbia calophylla</i>	Potential nesting tree	NAW
387	325594.70	6231942.58	68	<i>Eucalyptus marginata</i>	Potential nesting tree	NAW
388	325592.32	6231941.31	64	<i>Corymbia calophylla</i>	Potential nesting tree	NAW
389	325590.04	6231929.73	99	<i>Corymbia calophylla</i>	Potential nesting tree	NAW
390	325596.65	6231927.08	92	<i>Corymbia calophylla</i>	Potential nesting tree	NAW
391	325605.88	6231912.05	108	<i>Corymbia calophylla</i>	Potential nesting tree	NAW
392	325605.98	6231901.96	71	<i>Corymbia calophylla</i>	Potential nesting tree	NAW
394	325595.38	6231885.68	72	<i>Eucalyptus marginata</i>	Potential nesting tree	NAW
395	325582.76	6231908.97	57	<i>Corymbia calophylla</i>	Potential nesting tree	NAW
396	325580.73	6231913.70	128	<i>Corymbia calophylla</i>	Potential nesting tree	NAW
397	325582.21	6231918.50	51	<i>Corymbia calophylla</i>	Potential nesting tree	NAW
398	325568.39	6231911.70	99	<i>Corymbia calophylla</i>	Potential nesting tree	NAW
399	325571.67	6231924.51	78	Stag	Potential nesting tree	NAW
703	325583.57	6231944.92	73	<i>Eucalyptus marginata</i>	Potential nesting tree	NAW

Tag No.	Easting	Northing	DBH (cm)	Species	Category	Recorder
704	325584.84	6231946.28	83	<i>Corymbia calophylla</i>	Potential nesting tree	NAW
705	325578.60	6231939.29	70	<i>Eucalyptus marginata</i>	Potential nesting tree	NAW
706	325574.44	6231929.45	53	<i>Corymbia calophylla</i>	Potential nesting tree	NAW
707	325572.38	6231915.87	66	<i>Corymbia calophylla</i>	Potential nesting tree	NAW
708	325575.06	6231911.04	51	<i>Eucalyptus marginata</i>	Potential nesting tree	NAW
709	325572.66	6231906.01	63	<i>Corymbia calophylla</i>	Potential nesting tree	NAW
710	325566.71	6231898.02	124	<i>Corymbia calophylla</i>	Potential nesting tree	NAW
711	325582.27	6231880.33	73	<i>Eucalyptus marginata</i>	Potential nesting tree	NAW
712	325555.18	6231902.24	66	<i>Corymbia calophylla</i>	Potential nesting tree	NAW
713	325559.46	6231915.41	73	Stag	Potential nesting tree	NAW
714	325567.95	6231911.02	82	<i>Eucalyptus marginata</i>	Potential nesting tree	NAW
715	325558.88	6231926.61	98	<i>Corymbia calophylla</i>	Potential nesting tree	NAW
716	325542.16	6231902.00	54	<i>Eucalyptus marginata</i>	Potential nesting tree	NAW
717	325523.98	6231891.02	62	<i>Corymbia calophylla</i>	Potential nesting tree	NAW
718	325513.65	6231900.26	95	<i>Corymbia calophylla</i>	Potential nesting tree	NAW
719	325514.76	6231900.61	65	<i>Corymbia calophylla</i>	Potential nesting tree	NAW
720	325497.53	6231907.95	65	<i>Eucalyptus marginata</i>	Potential nesting tree	NAW
721	325526.07	6231918.01	93	<i>Eucalyptus marginata</i>	Potential nesting tree	NAW
722	325534.02	6231922.82	112	<i>Corymbia calophylla</i>	Potential nesting tree	NAW
723	325524.07	6231926.19	59	<i>Corymbia calophylla</i>	Potential nesting tree	NAW
724	325519.13	6231938.96	55	<i>Eucalyptus marginata</i>	Potential nesting tree	NAW
725	325548.56	6231930.52	64	<i>Corymbia calophylla</i>	Potential nesting tree	NAW
536	325286.61	6232231.54	53	<i>Corymbia calophylla</i>	Potential nesting tree	AJU
539	325349.85	6232232.82	53	<i>Corymbia calophylla</i>	Potential nesting tree	AJU
543	325449.70	6232207.26	57	<i>Corymbia calophylla</i>	Potential nesting tree	AJU
545	325499.80	6232180.45	104	<i>Corymbia calophylla</i>	Potential nesting tree	AJU
547	325514.46	6232171.74	74	<i>Corymbia calophylla</i>	Potential nesting tree	AJU
548	325521.52	6232164.44	85	<i>Eucalyptus marginata</i>	Potential nesting tree	AJU
550	325531.89	6232143.22	101	<i>Corymbia calophylla</i>	Potential nesting tree	AJU
553	325571.68	6232093.70	94	<i>Corymbia calophylla</i>	Potential nesting tree	AJU
554	325570.39	6232093.45	85	<i>Corymbia calophylla</i>	Potential nesting tree	AJU

Tag No.	Easting	Northing	DBH (cm)	Species	Category	Recorder
69	325548.61	6232098.04	555	<i>Corymbia calophylla</i>	Potential nesting tree	AJU
556	325548.89	6232097.60	55	<i>Corymbia calophylla</i>	Potential nesting tree	AJU
557	325533.11	6232091.76	78	<i>Corymbia calophylla</i>	Potential nesting tree	AJU
558	325537.79	6232103.72	65	<i>Corymbia calophylla</i>	Potential nesting tree	AJU
559	325544.77	6232105.74	79	<i>Corymbia calophylla</i>	Potential nesting tree	AJU
560	325540.22	6232112.31	65	<i>Corymbia calophylla</i>	Potential nesting tree	AJU
561	325534.79	6232121.08	69	<i>Eucalyptus marginata</i>	Potential nesting tree	AJU
562	325562.02	6232091.74	53	<i>Corymbia calophylla</i>	Potential nesting tree	AJU
563	325556.52	6232069.45	61	<i>Eucalyptus marginata</i>	Potential nesting tree	AJU
564	325553.47	6232064.52	142	<i>Eucalyptus marginata</i>	Potential nesting tree	AJU
565	325570.50	6232062.94	72	<i>Corymbia calophylla</i>	Potential nesting tree	AJU
566	325556.09	6232042.71	65	<i>Eucalyptus marginata</i>	Potential nesting tree	AJU
567	325549.55	6232041.81	53	<i>Eucalyptus marginata</i>	Potential nesting tree	AJU
568	325548.07	6232041.78	67	<i>Eucalyptus marginata</i>	Potential nesting tree	AJU
569	325541.51	6232042.22	70	<i>Eucalyptus marginata</i>	Potential nesting tree	AJU
570	325551.41	6232031.31	65	<i>Eucalyptus marginata</i>	Potential nesting tree	AJU
571	325549.98	6232028.40	72	<i>Corymbia calophylla</i>	Potential nesting tree	AJU
572	325550.95	6232016.21	83	<i>Corymbia calophylla</i>	Potential nesting tree	AJU
573	325554.85	6232004.86	90	<i>Corymbia calophylla</i>	Potential nesting tree	AJU
574	325559.31	6231993.73	69	<i>Corymbia calophylla</i>	Potential nesting tree	AJU
575	325569.27	6232009.56	60	<i>Eucalyptus marginata</i>	Potential nesting tree	AJU
576	325566.12	6232009.61	61	<i>Eucalyptus marginata</i>	Potential nesting tree	AJU
577	325603.20	6232057.22	79	<i>Corymbia calophylla</i>	Potential nesting tree	AJU
578	325594.90	6232056.63	80	<i>Corymbia calophylla</i>	Potential nesting tree	AJU
580	325593.21	6232048.28	70	<i>Eucalyptus marginata</i>	Potential nesting tree	AJU
581	325594.89	6232037.43	80	<i>Corymbia calophylla</i>	Potential nesting tree	AJU
32	325600.88	6232038.21	73	<i>Corymbia calophylla</i>	Potential nesting tree	AJU
33	325610.68	6232042.50	68	<i>Corymbia calophylla</i>	Potential nesting tree	AJU
35	325617.17	6232020.98	67	<i>Corymbia calophylla</i>	Potential nesting tree	AJU
36	325618.44	6232017.46	71	<i>Eucalyptus marginata</i>	Potential nesting tree	AJU
37	325619.72	6232008.05	57	<i>Eucalyptus marginata</i>	Potential nesting tree	AJU



Tag No.	Easting	Northing	DBH (cm)	Species	Category	Recorder
38	325617.65	6232004.91	62	<i>Eucalyptus marginata</i>	Potential nesting tree	AJU
39	325613.66	6232006.16	78	<i>Eucalyptus marginata</i>	Potential nesting tree	AJU
40	325608.87	6232010.73	53	<i>Eucalyptus marginata</i>	Potential nesting tree	AJU
41	325608.41	6232030.25	60	<i>Corymbia calophylla</i>	Potential nesting tree	AJU
42	325603.28	6232028.05	76	<i>Corymbia calophylla</i>	Potential nesting tree	AJU
43	325586.46	6232028.96	76	<i>Corymbia calophylla</i>	Potential nesting tree	AJU
44	325583.62	6232027.69	63	<i>Corymbia calophylla</i>	Potential nesting tree	AJU
45	325578.43	6232033.25	51	<i>Eucalyptus marginata</i>	Potential nesting tree	AJU
46	325580.71	6232039.95	80	<i>Corymbia calophylla</i>	Potential nesting tree	AJU
47	325568.66	6232042.16	63	<i>Eucalyptus marginata</i>	Potential nesting tree	AJU
48	325565.68	6232023.58	65	<i>Corymbia calophylla</i>	Potential nesting tree	AJU
49	325573.66	6232011.75	57	<i>Corymbia calophylla</i>	Potential nesting tree	AJU
50	325574.34	6232014.76	55	<i>Eucalyptus marginata</i>	Potential nesting tree	AJU
51	325580.52	6232025.52	58	<i>Eucalyptus marginata</i>	Potential nesting tree	AJU
52	325586.54	6232024.52	60	<i>Corymbia calophylla</i>	Potential nesting tree	AJU
53	325601.86	6232004.95	117	<i>Corymbia calophylla</i>	Potential nesting tree	AJU
54	325598.07	6232000.22	69	<i>Eucalyptus marginata</i>	Potential nesting tree	AJU
55	325600.69	6231993.28	73	<i>Corymbia calophylla</i>	Potential nesting tree	AJU
56	325603.18	6231988.77	70	<i>Corymbia calophylla</i>	Potential nesting tree	AJU
57	325603.08	6231988.99	53	<i>Corymbia calophylla</i>	Potential nesting tree	AJU
58	325612.04	6231993.60	63	<i>Eucalyptus marginata</i>	Potential nesting tree	AJU
59	325613.50	6232000.06	61	<i>Corymbia calophylla</i>	Potential nesting tree	AJU
60	325615.39	6231997.54	80	<i>Corymbia calophylla</i>	Potential nesting tree	AJU
61	325617.09	6231985.26	53	<i>Eucalyptus marginata</i>	Potential nesting tree	AJU
77	325614.48	6231981.99	114	<i>Corymbia calophylla</i>	Potential nesting tree	AJU
62	325614.61	6231974.90	70	<i>Eucalyptus marginata</i>	Potential nesting tree	AJU
63	325601.82	6231976.99	58	<i>Corymbia calophylla</i>	Potential nesting tree	AJU
64	325575.94	6231988.05	57	<i>Corymbia calophylla</i>	Potential nesting tree	AJU
65	325558.71	6231980.96	67	<i>Corymbia calophylla</i>	Potential nesting tree	AJU
66	325586.92	6231958.63	60	<i>Corymbia calophylla</i>	Potential nesting tree	AJU
67	325582.38	6231959.66	52	<i>Corymbia calophylla</i>	Potential nesting tree	AJU

Tag No.	Eastings	Northing	DBH (cm)	Species	Category	Recorder
68	325581.80	6231965.86	72	<i>Corymbia calophylla</i>	Potential nesting tree	AJU
69	325583.88	6231968.45	62	<i>Corymbia calophylla</i>	Potential nesting tree	AJU
70	325585.91	6231968.60	90	<i>Eucalyptus marginata</i>	Potential nesting tree	AJU
71	325563.94	6231978.07	69	<i>Eucalyptus marginata</i>	Potential nesting tree	AJU
72	325556.90	6231973.83	65	<i>Corymbia calophylla</i>	Potential nesting tree	AJU
73	325551.39	6231972.40	58	<i>Eucalyptus marginata</i>	Potential nesting tree	AJU
74	325563.13	6231951.76	88	<i>Corymbia calophylla</i>	Potential nesting tree	AJU
75	325607.18	6231966.77	52	<i>Corymbia calophylla</i>	Potential nesting tree	AJU
76	325607.88	6231968.89	50	<i>Eucalyptus marginata</i>	Potential nesting tree	AJU
79	325619.80	6231963.57	63	<i>Eucalyptus marginata</i>	Potential nesting tree	AJU
82	325462.79	6231959.00	101	<i>Corymbia calophylla</i>	Potential nesting tree	AJU
83	325450.34	6231963.10	71	<i>Corymbia calophylla</i>	Potential nesting tree	AJU
88	325541.40	6231932.94	60	Stag	Potential nesting tree	AJU