emerge ASSOCIATES
Integrated Science & Design

Basic Fauna and Targeted Black Cockatoo Assessment

Peel Health Campus, Greenfields

Project No: EP24-094(03)

Prepared for Department of Finance
October 2024

Document Control

Doc name:	Basic Fauna and Targeted Black Cockatoo Assessment Peel Health Campus, Greenfields				
Doc no.:	**EP24-094(03)--005 NAW**				
Version	**Date**	**Author**		**Reviewer**	
1	October 2024	Nick Watson	NAW	Rachel Weber	RAW
	Submitted for client review				

Executive Summary

The Department of Finance engaged Emerge Associates to conduct a basic fauna and a targeted black cockatoo assessment within part of Peel Health Campus, 110 Lakes Road in Greenfields (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 on 6 September 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 six broad habitat types:
  - **Banksia woodland**: woodland of *Banksia attenuata* and *Eucalyptus marginata* over native shrubs over native sedge/herbland over grassland of **Ehrharta calycina* (8.59 ha)
  - **Eucalypt forest**: forest of *Corymbia calophylla* and/or *Eucalyptus gomphocephala* and scattered planted trees over planted gardens, bare ground and hard stand (1 ha)
  - **Grassland and bare ground**: highly disturbed cleared areas (2.32 ha)
  - **Hardstand and buildings:** Peel Health Campus buildings and carpark (6.18 ha)
  - **Mixed woodland**: open woodland native species such as *Eucalyptus gomphocephala*, *Eucalyptus marginata*, *Banksia attenuata* and *Jacksonia furcellata* with non-native species such as **Eucalyptus camaldulensis*, **Ehrharta calycina* and **Eragrostis curvula* (0.51 ha)
  - **Scattered trees and shrubs**: scattered native and non-native trees over cleared ground (0.23 ha).
- A total of 24 native and one non-native fauna species were recorded during the survey.
- No threatened, specially protected or priority fauna species were recorded.
- Despite not being recording during the survey, the following species were considered to have a high or moderate likelihood of occurring within the site:
  - *Zanda baudinii* (Baudin's black cockatoo) listed as endangered (EN) under the *Environmental Protection and Biodiversity Conservation Act 1999* (EPBC Act) and *Biodiversity Conservation Act 2016* (BC Act)
  - *Zanda latirostris* (Carnaby's black cockatoo) listed as EN under the EPBC Act and BC Act
  - *Calyptorhynchus banksii naso* (forest red-tailed black cockatoo) listed as vulnerable under the EPBC Act and 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 under the BC Act
  - *Neelaps calonotus* (black-striped burrowing snake) listed as priority three (P3) in Western Australia (WA)
  - *Lerista lineata* (Perth slider) listed as P3 in WA
  - *Synemon gratiosa* (graceful sun-moth) listed as priority four (P4) in WA
  - *Isoodon fusciventer* (quenda) listed as P4 in WA.

Outcomes of the targeted black cockatoo survey include the following:

- Black cockatoos were not recorded within the site during the field survey.
- The site occurs within the modelled distribution of Carnaby's black cockatoo, Baudin's black cockatoo and forest red-tailed black cockatoo.
- Carnaby's and Baudin's black cockatoo would not be expected to breed in the site as it occurs outside of their modelled breeding area. However, as FRTBC do not have defined breeding areas the site has potential to support breeding of this species.
- The site contains black cockatoo breeding habitat, with 115 habitat trees present. One contains a hollow potentially suitable for use by black cockatoos for nesting.
- No roosts or evidence of roosting by any species of black cockatoo was recorded within the site during the field survey. Tall trees within the site may provide roosting habitat for black cockatoos.
- A total of 10.18 ha of native foraging habitat for Carnaby's black cockatoo was mapped within the site of which 90.37 % is considered primary and 9.63 % considered secondary.
- A total of 9.49 ha of native foraging habitat for Baudin's black cockatoo was mapped within the site of which 4 % is considered primary and 96 % considered secondary.
- A total of 10.11 ha of native foraging habitat for forest red-tailed black cockatoo was mapped within the site of which 91 % is considered primary and 9 % considered secondary.

Table of Contents

List of Tables

List of Plates

Figures

Appendices

Database search results

Appendix C

Conservation significant species and likelihood of occurrence assessment

Appendix D

Black cockatoo foraging plants species list

Appendix E

Black cockatoo roost counts

Appendix F

Species list

Appendix G

Habitat Assessment Sample Data

Appendix H

Black cockatoo habitat tree data

This page has been left blank intentionally.

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	
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	*Biosecurity and Agriculture Management Act 2007*
BC Act	*Biodiversity Conservation Act 2016*
EBPC Act	*Environment Protection and Biodiversity Conservation Act 1999*

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
UFI	Unique Feature Identifier

1 Introduction

1.1 Purpose

Emerge Associates (Emerge) were engaged by the Department of Finance to conduct a basic fauna and targeted black cockatoo assessment within Peel Health Campus, 110 Lakes Road in Greenfields 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)[1]. 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.

Non-native 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).

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

[1] Currently there are no threatened species listed as extinct in the wild in Western Australia.

- 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.

2 Desktop Study

2.1 Site context

2.1.1 Location and extent

The site is located in the City of Mandurah in the Peel Region of Western Australia and extends over 18.83 hectares (ha) as shown in **Figure 1**. The site is bounded by Teranca Road to the east, Minilya Parkway to the north, Lakes Road to the west and vegetation and buildings to the south.

2.1.2 Climate

The South West 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 somewhat inconsistent with long term averages **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).

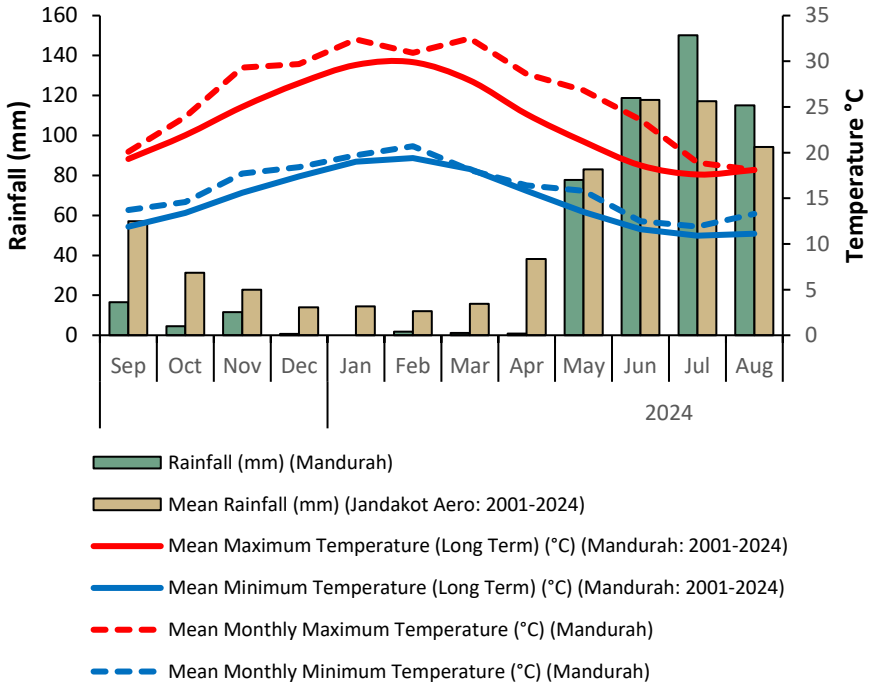

Plate 1: Rainfall and temperature 12 months prior to survey compared to long-term means

2.1.3 Geomorphology and soils

Landform and soils influence fauna habitat and species at regional and local scales. The site occurs on the Swan Coastal Plain, which is the geomorphic unit that characterises much of the Perth metropolitan area. The Swan Coastal Plain is approximately 500 km long and 20 to 30 km wide and is roughly bound by the Indian Ocean to the west and the Darling Scarp to the east. Broadly the Swan Coastal Plain consists of two sedimentary belts of different origin. Its eastern side comprises the

Pinjarra Plain which formed from the deposition of alluvial material washed down from the Darling Scarp, while its western side comprises three dune systems that run roughly parallel to the Indian Ocean coastline (Seddon 2004). These dune systems, referred to as Quindalup, Spearwood and Bassendean associations, represent a succession of coastal deposition that has occurred since the late Quaternary period (approximately two million years ago) (Kendrick *et al.* 1991) and, as a result, they contain soils at different stages of leaching and formation.

Examination of physiographic region mapping by (Gozzard 2011) places the site in the Spearwood Dunes which was later confirmed during the field survey. The Spearwood Dunes typically comprise a limestone core that is overlain by yellow sand (Churchward and McArthur 1980). The physiographic regions mapped within the site are shown in **Figure 2**.

Fine scale soil landscape mapping by DPIRD (2022) shows the 'Spearwood S4A Phase' soil unit occurs across the entire site. This unit comprises a 'flat to gently undulating sandplain with deep, pale and sometimes bleached, sands with yellow-brown subsoils'.

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

2.1.4 Topography

The elevation of the site ranges from 4 m in relation to the Australian height datum (mAHD) south west of the main building to 7 mAHD on the western side adjacent to Lakes Road (DoW 2008) (**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 2018) 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 no wetland or water related features occur within the site.

The *Geomorphic Wetlands of the Swan Coastal Plain* dataset maps geomorphic wetland features and classifies them based on their landform shape and water permanence and records no wetland features within the site {DBCA, 2024 #7210}. The closest mapped wetlands are shown in **Figure 3**.

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 for Australia (IBRA) divides the Swan Coastal Plain into two floristic subregions (Environment Australia 2000).

The site is contained within the 'SWA02' or Perth subregion, which is characterised as mainly containing *Banksia* low woodland on leached sands with *Melaleuca* swamps where ill-drained; and woodland of *Eucalyptus gomphocephala* (tuart), *E. marginata* (jarrah) and *Corymbia calophylla* (marri) on less leached soils (Beard 1990). This subregion is recognised as a biodiversity hotspot and contains a wide variety of endemic fauna species.

Variations in native vegetation can be further classified based on regional vegetation mapping. DBCA (2019) mapping shows the site as comprising the Yoongarillup vegetation complex which is described as a woodland to tall woodland of *Eucalyptus gomphocephala* (tuart) with *Agonis flexuosa* in the second storey. Less consistently an open forest of tuart - *Eucalyptus marginata* (jarrah) - C*orymbia calophylla* (marri).

2.1.7 Historic land use

Review of historical images available from 1960 onwards shows that the majority of the site was cleared of native vegetation prior to 1974. Subsequent imagery indicates the vegetation regenerated until around 1989 when development of the Peel Health Campus commenced. The vegetation in the eastern portion of the site appears to have remained relatively undisturbed since (WALIA 2024).

2.1.8 Bush Forever

The Government of Western Australia's Bush Forever policy is a strategic plan for conserving regionally significant bushland within the Swan Coastal Plain portion of the Perth Metropolitan Region. The objective of *Bush Forever* is to protect comprehensive representations of all original ecological communities by targeting a minimum of 10% of each vegetation complex for protection (Government of WA 2000). *Bush Forever* sites are representative of regional ecosystems and habitat and have a key role in the conservation of Perth's biodiversity.

No *Bush Forever* sites occur within the site.

2.1.9 Regional natural areas

Environmental Protection Bulletin no. 12 Swan *Bioplan – Peel Regionally Significant Natural Areas* (EPB 12) (EPA 2013) is used to inform strategic land use planning in the Peel Region by identifying 'Peel regionally significant natural areas' (Peel RSNAs). Peel RSNAs are natural areas which have significant flora, vegetation and landform values that represent the original landscape of the Peel Region. Development proposals which may potentially impact upon a Peel RSNA require detailed flora, vegetation and fauna investigations to be undertaken. Based on the outcomes of these investigations, development proposals should firstly aim to avoid, and then minimise, potential impacts on identified natural areas.

The 'Greenfields Bushland' Peel RSNA occurs within the site, representing the entire patch of remnant vegetation in the east portion of the site, as shown in **Figure 3**.

2.1.10 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 ecological linkages are mapped as occurring within the site. The closest mapped ecological linkage is number 13 which lies approximately 600 m east of the site along the Serpentine River. The site is separated from this linkage by urban residential dwellings.

2.1.11 Threatened, specially protected and priority fauna

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 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), *Dandjoo* (DBCA 2024a), DBCA's conservation significant fauna database (reference no. 12-1024FA), Atlas of Living Australia (ALA 2024) and literature references.

A total of 749 fauna species were identified from database searches as occurring or potentially occurring within 10 km of the site[2] as listed in **Appendix B.**

2.1.12 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

[2] Includes native and non-native species

Western Australia are provided in the *Western Australian Organism List* (DPIRD 2022). Further information on categories of declared pests is provided in **Appendix A**.

2.1.13 Previous surveys

Emerge undertook a targeted black cockatoo survey within a portion of the site in 2021, the results of which have been included in this report. The survey was documented separately to provide initial advice to DoF (Emerge Associates 2023).

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', 'very low, 'negligible' or 'nil' as outlined in **Table 1**.

Table 1: Likelihood of occurrence assessment categories and definitions

		Reliable record[1]		Unreliable record[2]
		Access to site not impeded	Access to site impeded	
Habitat	Suitable	High	Very low	Negligible
	Potentially suitable	Moderate		
	Unsuitable	Low		
	Absent	Nil		

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

Three threatened, two specially protected and four 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 2**.

The remainder of the conservation significant fauna species identified in the desktop assessment (90 species) were considered as having a 'low', 'negligible' or 'nil' likelihood of occurrence. Refer to **Table 2** and **Appendix C** for detail on individual species likelihood of occurrence.

Table 2: Summary of conservation significant fauna species with a 'high' or 'moderate' likelihood of occurrence in the site

Species name	Common name	Status		Habitat description	Likelihood
		WA	EPBC Act		
Birds					
Apus pacificus	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	Moderate
Calyptorhynchus banksii naso	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	High
Falco peregrinus	Peregrine falcon	OS	-	Mainly found around cliffs along coasts, rivers, ranges and around wooded watercourses and lakes	Moderate
Zanda baudinii	Baudin's black cockatoo	EN	EN	Mainly eucalypt forests. Attracted to seeding *Corymbia calophylla*, Banksia spp., Hakea spp., and to fruiting apples and pears	High
Zanda latirostris	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., *Dryandra* spp., *Hakea* spp., *Eucalyptus* spp., *Corymbia calophylla*, *Grevillea* spp., and *Allocasuarina* spp.	High
Invertebrates					
Synemon gratiosa	Graceful sun-moth	P4	-	Banksia woodland on Spearwood and Bassendean dunes, where the second known host plant *L. hermaphrodita* is widespread	Moderate
Mammals					
Isoodon fusciventer	Quenda	P4	-	Dense scrubby, often swampy, vegetation with dense cover up to one metre high	High
Reptiles					
Lerista lineata	Perth slider	P3	-	Sandy coastal heath and low scrubland. Banksia spp. woodland, *Eucalyptus gomphocephala* open woodland over deep sands, and coastal dunes immediately adjacent to the beach	Moderate
Neelaps calonotos	Black-striped snake	P3	-	Coastal and near-coastal dunes, sandplains supporting heathlands and Banksia spp. woodlands.	Moderate

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*[3] *latirostris* (Carnaby's black cockatoo) which is listed as 'endangered' under the EPBC Act and the BC Act.
- *Zanda*[3] *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[4] (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 3** 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**.

[3] Previously *Calyptorhynchus*
[4] ≥50 cm or ≥30 cm for wandoo or salmon gum

Table 3: 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	No	No	N/A*	(DAWE 2022)
Confirmed or possible breeding hollows within 12 kmˇ	Yes		No	(Glossop *et al.* 2011; DBCA 2024b)
Site located in important bird area	No	N/A	N/A	(DPaW 2013; BirdLife International 2024)
Known roosts occur within site^	0		0	(Birdlife Australia 2024)
Known roosts occur within 12 km of site^	3		6	
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 across the Swan Coastal Plain (Johnstone *et al.* 2013b).
ˇResults from DBCA database search.
^'White-tailed black cockatoo' roosts can be Carnaby's black cockatoo and/or Baudin's black cockatoo.

3 Methods

3.1 Field survey

The field survey was conducted on 6 September 2024. During the field survey, ecologists from Emerge traversed 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 Sampling

Sampling of fauna habitats was undertaken using non-permanent habitat assessment points. Habitat assessments were conducted across the site within different habitats. The habitat assessment was completed over an approximate 10-20 m radius of the sample location. The position of each sample was recorded with a hand-held GPS receiver (±5 m accuracy).

The data recorded within each sample included:

- site details (site name, site number, observers, date, location)
- environmental information (soil type, bare ground, rock outcropping, litter, time since last fire event, water features, disturbance and microhabitat types)
- biological information (faunal group(s), dominant vegetation type, presence of canopy, shrub and ground vegetation layers)
- other notes as required.

3.1.2 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.

3.1.2.1 Breeding habitat

All native eucalypts within the site that met the required 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 ≥50 cm or ≥30 cm for wandoo or salmon gum. 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 4** were recorded for each tree.

Table 4: Attributes recorded for each habitat tree in the site

Attribute	Description
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 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 5** based on current black cockatoo guidelines (DAWE 2022).

Table 5: 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^, 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.

^Hollow determined to be suitable for use as breeding habitat by black cockatoos as listed above in **Section 3.1.2.1**

3.1.2.2 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.

3.1.2.3 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).

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 habitat assessment results as well as 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).

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.

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 **3.1.2.3**.

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 6**.

Table 6: 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.

Table 6: 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 qualified zoologists with over five 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 survey was undertaken during the expected breeding season of forest red-tailed black cockatoo, to maximise the chance of detecting breeding behaviour. The survey was undertaken during Carnaby's black cockatoo breeding season when many individuals leave the Swan Coastal Plain (SCP) during this time and migrate to breeding areas and as such the detectability of the species was reduced.
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 and the relatively low habitat value present.
Influence of disturbance	No limitation	No recent disturbance was noted that may have affected outcomes of the survey.
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 **Appendix 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.

4 Results

4.1 Fauna

4.1.1 Species inventory

A total of 24 native and one non-native fauna species were directly or indirectly (from scats or burrows) recorded during the field survey.

A summary of legal and policy status of fauna records is provided in **Table 7**. A complete species list is provided in **Appendix F**.

Table 7: Summary of legal and policy status of taxa recorded in the site.

Status	Unlisted	Threatened	Specially Protected	Priority	Declared Pest	Total
Native	24	0	0	0	0	**24**
Non-native	0	0	0	0	1	**1**
Total	24	0	0	0	1	**25**

4.1.2 Threatened, specially protected and priority fauna

No occurrences of threatened, specially protected or priority fauna species were recorded within the site

4.1.3 Declared pests

One species listed as a declared pest (C3) pursuant to the BAM Act, **Oryctolagus cuniculus* (rabbit), was identified from burrows within the site.

4.2 Fauna habitat

Six habitat assessments were undertaken within the site, as detailed in **Appendix G**.

Six broad fauna habitats were identified within the site, as listed in in **Table 8**.

A description, the size of the area and a representative photograph of each habitat is provided in **Table 8**. The location of each fauna habitat and sample (habitat assessment) is shown on **Figure 5**.

Table 8: Fauna habitats identified within the site

Fauna habitat	Description	Sample/s	Total area (ha)	Proportion of site (%)	Representative photograph
Banksia woodland	Woodland of *Banksia attenuata* and *Eucalyptus marginata* over native shrubs over native sedge/herbland over grassland of **Ehrharta calycina.* • High microhabitat complexity • Logs, hollows and leaf litter present • *Banksia* and native eucalypts provide foraging source for black cockatoos • Suitable habitat for black-striped snake (P3), Perth slider (P3), graceful sunmoth (P4) and quenda (P4).	3	8.59	45.62	
Eucalypt forest	Forest of *Corymbia calophylla* or *Eucalyptus gomphocephala* and scattered planted trees over planted gardens, bare ground and hard stand. • Low microhabitat complexity • Predominantly used by common avian species. • Native eucalypts provide foraging and potential breeding habitat for black cockatoos.	1	1.00	5.3	

Table 8: Fauna habitats identified within the site (continued)

Fauna habitat	Description	Sample/s	Total area (ha)	Proportion of site (%)	Representative photograph
Grassland and bare ground	Highly disturbed cleared areas. • Low microhabitat complexity • Any fauna occurrences in these areas would likely be temporary while traversing to other areas. • Grassland may provide foraging source for common avian species.	1	2.32	12.32	
Hardstand and buildings	Peel Health Campus buildings and carpark. • Low microhabitat complexity • Any fauna occurrences in these areas would likely be temporary while traversing to other areas. • Buildings may provide refuge for small birds and rodents.	0	6.18	32.8	

Table 8: Fauna habitats identified within the site (continued)

Fauna habitat	Description	Sample/s	Total area (ha)	Proportion of site (%)	Representative photograph
Mixed woodland	Open woodland native species such as *Eucalyptus gomphocephala*, *Eucalyptus marginata*, *Banksia attenuata* and *Jacksonia furcellata* with non-native species such as **Eucalyptus camaldulensis*, **Ehrharta calycina* and **Eragrostis curvula*. • Low microhabitat complexity • Predominantly used by common avian species. • Some trees provide foraging habitat for black cockatoos	1	0.51	2.7	
Scattered trees and shrubs	Scattered native and non-native trees over cleared ground. • Low habitat complexity • Predominantly used by common avian species. • Some trees provide foraging habitat for black cockatoos	0	0.23	1.26	

4.3 Black cockatoo habitat

4.3.1 Breeding

A total of 115 black cockatoo habitat trees were recorded within the site as shown in **Figure 6**.

The habitat trees comprised 10 marri, 36 tuart, 62 jarrah and seven stag (dead) trees.

An internal hollow inspection was undertaken for five habitat trees that were determined to potentially contain suitable hollows based on the initial inspection from ground level. None of these trees contained hollows suitable for black cockatoo nesting. Tree 962 contains a hollow that appears suitable from ground level but is located beyond the reach of the pole camera (>15 m). Therefore, this tree has been categorised as a suitable nesting tree until an appropriate internal inspection can prove otherwise. The remaining trees contained no suitable hollows for nesting by black cockatoos.

A summary of the habitat trees recorded within the site is provided in **Table 9** and an inventory in **Appendix H**.

Table 9: Habitat trees recorded within the site

Category	No. trees
Known nesting trees	0
Suitable nesting trees	1
Potential nesting trees	114
Total nesting trees	115

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 10.18 ha of foraging habitat for Carnaby's black cockatoo, 9.49 ha for Baudin's black cockatoo and 10.11 ha for forest red-tailed black cockatoo were recorded in the site as shown in **Figure 7** to **Figure 9**. The extent of foraging habitat by value category is detailed in **Table 10**.

Table 10: Foraging habitat recorded within the site

Foraging habitat	Black cockatoo species and area of foraging habitat (ha)		
	Carnaby's	Baudin's	Forest red-tailed
Native primary	9.2	0.38	9.2
Native secondary	0.98	9.11	0.91
Non-native primary	0	0	0
Non-native secondary	0	0	0
Total	10.18	9.49	10.11

5 Discussion

5.1 Fauna

The 24 native fauna species recorded within the site are all generally common and widespread across the Swan Coastal Plain. The large extent of disturbance relating to the hospital limits the amount of fauna activity within the site with common birds being the predominant fauna recorded.

5.1.1 Threatened, specially protected and priority fauna

Carnaby's black cockatoo, Baudin's black cockatoo and forest red-tailed black cockatoo have a high likelihood of occurring within the site. These species are discussed further in **Section 5.3**.

Of the remaining species with moderate and high likelihoods of occurrence, the site provides limited habitat.

While quenda (P4) wasn't recorded during the survey, it is likely they utilise the **banksia woodland** habitat due to its dense ground cover. The site isn't large enough to support multiple individuals but nearby adjacent residential gardens may provide a connection to the quenda record along the Serpentine River approximately 650 m away.

One of the graceful sun-moth's (P4) host plants, *Lomandra hermaphrodita*, was recorded during the detailed flora and vegetation assessment (Emerge Associates 2024). However, this plant occurs as scattered individuals and, combined with the small extent of the site, would reduce the habitat suitability for the species and as such the likelihood of occurrence of the graceful sun-moth is moderate.

Perth slider (P3) and black-striped snake (P3) are both found within banksia woodlands on the Swan Coastal Plain and so the **banksia woodland** habitat would be suitable for these species. However, due to the relatively small extent of banksia woodland within the site and its isolation, the likelihood of both species being present is moderate.

Pacific swift (MI) and peregrine falcon (OS) are highly mobile species 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.

5.2 Fauna habitat

The habitat values within the site have been modified by historical clearing for the hospital, which has resulted in the removal of a large portion of the native vegetation.

The **banksia woodland** habitat in the eastern portion provides the greatest value to fauna as it provided a contiguous cover of native trees and shrubs. The habitat is relatively small in extent and largely confined with little connectivity with other areas of remnant vegetation. Disturbance from regular human activity such as walking tracks has also reduced the value of this habitat.

The remaining habitats are likely to be predominantly used by common and widespread native and non-native fauna with non-specific habitat requirements, which enable them to persist in highly modified environments.

5.3 Black cockatoo habitat values

Although not recorded within the field survey, Carnaby's black cockatoo, Baudin's black cockatoo and forest red-tailed black cockatoo are all likely to occur within the site as it lies within the modelled distribution ranges and records of these species are known from the local area.

5.3.1 Breeding

The site contains several eucalyptus trees large enough to be considered potential breeding trees but wouldn't currently provide nesting habitat due to the lack of hollows. These trees have the potential to form suitable hollows in the future. However, it will likely take decades for hollows to form that are large enough to be suitable for use by black cockatoos for breeding.

The one habitat tree which appeared suitable from ground level was conservatively classified as a suitable nesting tree but internal inspection by either drone or arborist would be required to confirm whether the internal hollow dimensions and floor space are suitable.

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 site contains native foraging habitat for all species of black cockatoo. The majority of the foraging habitat is associated with the banksia woodland. This is considered primary foraging habitat for Carnaby's black cockatoo due to the *Banksia* spp. and jarrah. Jarrah also considered a primary species for the forest red-tailed black cockatoo. This habitat is only categorised secondary for Baudin's black cockatoo as these plants are only considered supplementary foraging sources for this species.

Marris in the south provide a primary foraging source for all three species while tuarts along Lakes Road provide secondary food sources for both Carnaby's and forest red-tailed black cockatoos. *Allocasuarina fraseriana* (sheoak), *Agonis flexuosa* (peppermint tree) and *Jacksonia furcellata* also feature within the site.

6 Conclusions

Outcomes of the basic fauna assessment include the following:

- The site consists of six broad habitat types:
  - **Banksia woodland**: woodland of *Banksia attenuata* and *Eucalyptus marginata* over native shrubs over native sedge/herbland over grassland of **Ehrharta calycina* (8.59 ha)
  - **Eucalypt forest**: forest of *Corymbia calophylla* or *Eucalyptus gomphocephala* and scattered planted trees over planted gardens, bare ground and hard stand (1 ha)
  - **Grassland and bare ground**: highly disturbed cleared areas (2.32 ha)
  - **Buildings and hardstand** Peel Health Campus buildings and carpark (6.18 ha)
  - **Mixed woodland** open woodland native species such as *Eucalyptus gomphocephala*, *Eucalyptus marginata*, *Banksia attenuata* and *Jacksonia furcellata* with non-native species such as **Eucalyptus camaldulensis*, **Ehrharta calycina* and **Eragrostis curvula* (0.51 ha)
  - **Scattered trees and shrubs**: scattered native and non-native trees over cleared ground (0.23 ha).
- A total of 24 native and one non-native fauna species were recorded within the site.
- No threatened, specially protected or priority species were recorded during the survey.
- Despite not being recording during the survey, the following species were considered to have a high or moderate likelihood of occurring within the site:
  - Baudin's black cockatoo (EN)
  - Carnaby's black cockatoo (EN)
  - forest red-tailed black cockatoo (VU)
  - Pacific swift (MI)
  - peregrine falcon (OS)
  - black-striped burrowing snake (P3)
  - Perth slider (P3
  - graceful sun-moth (P4)
  - quenda (P4).

Outcomes of the targeted black cockatoo survey include the following:

- Black cockatoos were not recorded within the site during the field survey.
- The site occurs within the modelled distribution of Carnaby's black cockatoo, Baudin's black cockatoo and forest red-tailed black cockatoo.
- Carnaby's and Baudin's black cockatoo would not be expected to breed in the site as it occurs outside of their modelled breeding area. However, as FRTBC do not have defined breeding areas the site has potential to support breeding of this species.
- The site contains black cockatoo breeding habitat, with 115 habitat trees present. One contains a hollow potentially suitable for use by black cockatoos for nesting.
- No roosts or evidence of roosting by any species of black cockatoo was recorded within the site during the field survey.
- A total of 10.18 ha of native foraging habitat for Carnaby's black cockatoo was mapped within the site of which 90.37 % is considered primary and 9.63 % considered secondary.
- A total of 9.49 ha of native foraging habitat for Baudin's black cockatoo was mapped within the site of which 4 % is considered primary and 96 % considered secondary.

- A total of 10.11 ha of native foraging habitat for forest red-tailed black cockatoo was mapped within the site of which 91 % is considered primary and 9 % considered secondary.

7 References

7.1 General references

Atlas of Living Australia (ALA) 2024, *Spatial Portal*.

Alan Tingay and Associates 1998, *A Strategic Plan for Perth's Greenways - Final Report*. December 1998.

Birdlife Australia 2024, *Great Cocky Count Roost Dataset*,

BirdLife International 2024, *Important Bird Areas*, <https://datazone.birdlife.org/site/factsheet/peel-harvey-estuary-iba-australia/text>.

Buereau of Meterology (BoM) 2024, *Climate Data Online*, <http://www.bom.gov.au/climate/data/>.

Churchward, H. M. and McArthur, W. M. 1980, *'Landforms and Soils of the Darling System, Western Australia'*, in Department of Conservation and Environment (ed.), *Atlas of Natural Resources Darling System Western Australia*, Department of Conservation and Environment.

Davies, S. J. J. F. 1966, *The movements of the White-tailed Black Cockatoo (Calyptorhynchus baudinii) in south-western Australia*, Western Australian Naturalist 10: 33-42.

Department of Agriculture, Water and the Environment (DAWE) 2022, *Referral guideline for 3 WA threatened black cockatoo species: Carnaby's Cockatoo, Baudin's Cockatoo and the Forest Red-tailed Black-cockatoo*, Canberra.

Department of Biodiversity, Conservation and Attractions (DBCA) 2017, *Ramsar Sites (DBCA-010)*.

Department of Biodiversity, Conservation and Attractions (DBCA) 2018, *Directory of Important Wetlands in Australia - Western Australia (DBCA-045)*.

Department of Biodiversity, Conservation and Attractions (DBCA) 2021, *Geomorphic Wetlands, Swan Coastal Plain (DBCA-019)*, <https://catalogue.data.wa.gov.au/dataset/geomorphic-wetlands-swan-coastal-plain>.

Department of Biodiversity, Conservation and Attractions (DBCA) 2023, *Geomorphic Wetlands, Swan Coastal Plain (DBCA-019)*, Perth, WA.

C. a. A. Department of Biodiversity (DBCA) 2024a, *Danjoo*, <https://dandjoo.bio.wa.gov.au/>.

Department of Biodiversity, Conservation and Attractions (DBCA) 2024b, *Threatened Species and Communities - Data Searches*, Perth, WA, <https://www.dpaw.wa.gov.au/plants-and-animals/threatened-species-and-communities>.

Department of Climate Change, Energy, the Environment and Water (DCCEEW) 2024a, *Australian Faunal Directory*.

Department of Climate Change, Energy, the Environment and Water (DCCEEW) 2024b, *Protected Matters Search Tool*, <https://pmst.awe.gov.au/>.

Department of Water (DoW) 2008, *LiDAR Elevation Dataset, Swan Coastal Plain*, Perth.

Department of Parks and Wildlife (DPaW) 2013, *Carnaby's Cockatoo (Calyptorphynchus latirostris) Recovery Plan*.

Department of Parks and Wildlife (DPaW) 2015, *How to design and place artificial hollows for Carnaby's cockatoo*, Perth.

Department of Primary Industries and Regional Development (DPIRD) 2022, *Western Australian Organism List*, Perth, WA.

Department of Water and Environmental Regulation (DWER) 2018, *Hydrography Linear (Heirarchy) (DWER-031)*, Perth.

Emerge Associates 2021, *Potential Habitat Black Cockatoo Habitat Spatial Dataset*, Perth, WA.

Emerge Associates 2023, *Targeted Flora and Black Cockatoo Survey - Peel Health Campus*, EP21-128(03)--006A MS, Version A.

Emerge Associates 2024, *Detailed Flora and Vegetation Assessment - Peel Health Campus, Greenfields*, EP21-128(04)--008 TDP, 1.

Environment Australia 2000, *Revision of the Interim Biogeographic Regionalisation for Australia (IBRA) and Development of Version 5.1 - Summary Report*, Department of Environment and Heritage.

Environmental Protection Authority (EPA) 2020, *Technical Guidance - Terrestrial vertebrate fauna surveys for environmental impact assessment*, Joondalup, Western Australia.

Forest Products Commission 2020, *Forest Products Commission Plantations (FPC-001)*.

Glossop, B., Clarke, K., Mitchell, D. and Barrett, G. 2011, *Methods for mapping Carnaby's cockatoo habitat*, Department of Environment and Conservation, Perth.

Government of WA 2000, *Bush Forever - Volume 1: Policies, principles and processes*, Perth.

Gozzard, J. 2011, *Sea to scarp - geology, landscape, and land use planning in the southern Swan Coastal Plain*, Geological Survey of Western Australia.

Groom, C. 2010, *Artificial Hollows for Carnaby's Black Cockatoo: An investigation of the placement, use, monitoring and maintenance requirements of artificial hollows for Carnaby's black cockatoo*, Department of Environment and Conservation, Perth.

Groom, C. 2011, *Plants Used by Carnaby's Black Cockatoo*, Department of Environment and Conservation, Perth.

Johnstone, R., Kirby, T. and Sarti, K. 2013a, *The breeding biology of the forest red-tailed black cockatoo Calyptorhynchus banksii naso Gould in south-western Australia. I. Characteristics of nest trees and nest hollows*, Pacific Conservation Biology, 19(2): 121-142.

Johnstone, R. E., Johnstone, C. and Kirkby, T. 2011, *Black Cockatoos on the Swan Coastal Plain: Carnaby's Cockatoo (Calyptorhynchus latirostris), Baudin's Cockatoo (Calyptorhynchus baudinii) and the Forest Red-tailed Black Cockatoo (Calyptorhynchus banksii naso) on the Swan Coastal Plain (Lancelin–Dunsborough), Western Australia. Studies on distribution, status, breeding, food, movements and historical changes.*, Department of Planning, Western Australia.

Johnstone, R. E. and Kirkby, T. 1999, *Food of the Red-tailed Forest Black Cockatoo Calyptorhynchus banksii naso in Western Australia*, Western Australian Naturalist, 22: 167-178.

Johnstone, R. E. and Kirkby, T. 2008, *Distribution, status, social organisation, movements and conservation of Baudin' s Cockatoo (Calyptorhynchus baudinii) in South-west Western Australia*, Records of the Western Australian Museum, 25: 107-118.

Johnstone, R. E., Kirkby, T. and Sarti, K. 2013b, *The breeding biology of the forest red-tailed black cockatoo Calyptorhynchus banksii naso Gould in south-western Australia. II Breeding behaviour and diet*, Pacific Conservation Biology, 19(2): 143-155.

Johnstone, R. E. and Storr, G. M. 1998, *Handbook of Western Australian Birds. Volume 1 - Non-Passerines (Emu to Dollarbird)*, Western Australian Museum, Perth.

Kendrick, G. W., Wyrwoll, K. H. and Szabo, B. J. 1991, *Pliocene-Pleistocene coastal events and history along the western margin of Australia*, Quaternary Science Reviews, 10: 419-439.

Le Roux, C. 2017, *Nocturnal roost tree, roost site and landscape characteristics of Carnaby's Black-Cockatoo (Calyptorynchus latirostris) on the Swan Coastal Plain*, Edith Cowan University Research Online.

Molloy, S., Wood, J., Hall, S., Wallrodt, S. and Whisson, G. 2009, *South West Regional Ecological Linkages Technical Report*, Western Australian Local Government Association and Department of Environment and Conservation, Perth.

Saunders, D. A. 1979a, *The Availability of Tree Hollows for Use as Nest Sites by White-tailed Black Cockatoos*, Australian Wildlife Research, 6: 205-216.

Saunders, D. A. 1979b, *Distribution and taxonomy of the white-tailed and yellow-tailed Black-Cockatoos Calyptorhynchus spp.*, Emu, 79(215-227).

Saunders, D. A. 1980, *Food and Movements of the Short-billed Form of the White-tailed Black Cockatoo*, Australian Wildlife Research, 7: 257-269.

Saunders, D. A., Mawson, P.R., Dawson, R. 2014, *Use of tree hollows by Carnaby's Cockatoo and the fate of large hollow-bearing trees at Coomallo Creek, Western Australia 1969-2013.*, Biological Conservation, 177: 185-193.

Saunders, D. A., Smith, G. T. and Rowley, I. 1982, *The availability and dimensions of Tree Hollows that Provide Nest Sites for Cockatoos (Psittaciformes) in Western Australia*, Australian Wildlife Research, 9: 541-556.

Seddon, G. 2004, *A Sense of Place: a response to an environment, the Swan Coastal Plain Western Australia*, Blooming Books, Melbourne.

Shah, B. 2006, *Conservation of Carnaby's Black Cockatoo on the Swan Coastal Plain, Western Australia*, Birds Australia, Perth.

Western Australian Land Information Authority (WALIA) 2024, *Landgate Map Viewer Plus*, <https://map-viewer-plus.app.landgate.wa.gov.au/index.html>.

Western Australian Museum (WAM) 2022, *Checklist of the Terrestrial Vertebrate Fauna of Western Australia*, Perth, WA.

Wetlands Advisory Committee 1977, *The status of reserves in System Six*, Environmental Protection Authority, Perth.

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	9 October 2024	Atlas of Living Australia – Spatial Portal
BirdLife International (2024)	9 October 2024	Important Bird Areas
BoM (2024)	10 October 2024	Climate Data Online
DAWE (2024)	10 October 2024	Species Profile and Threats Database
DBCA (2024)	9 October 2024	Dandjoo
DCCEEW (2024)	10 October 2024	Australian Faunal Directory
DCCEEW (2024)	9 October 2024	Protected Matters Search Tool
WALIA (2024)	10 October 2024	Landgate Map Viewer

This page has been left blank intentionally.

Figures

Figure 1: Site Location

Project:	Basic Fauna and Targeted Black Cockatoo Assessment Peel Health Campus, Greenfields
Client:	Department of Finance

Plan Number:
EP24-094(03)--F11

Drawn:	CTH
Date:	09/10/2024
Checked:	NAW
Approved:	RAW
Date:	16/10/2024

N

0 100 200
Metres

Scale: 1:6,000@A4

GDA2020 MGA Zone 50

emerge ASSOCIATES

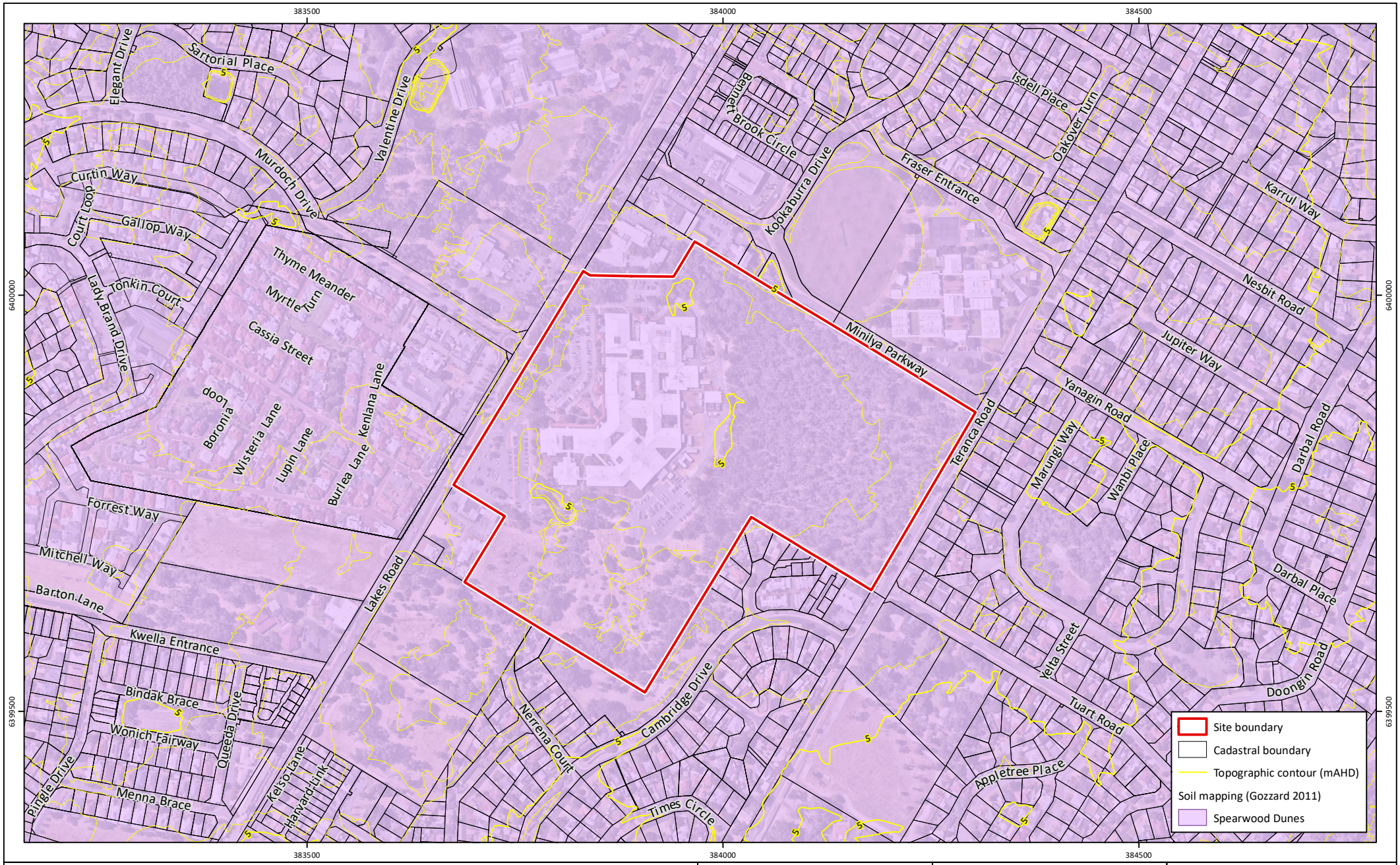

Figure 2: Soils and Topography

Project:	Basic Fauna and Targeted Black Cockatoo Assessment Peel Health Campus, Greenfields
Client:	Department of Finance

Plan Number:
EP24-094(03)--F12

Drawn:	CTH
Date:	09/10/2024
Checked:	NAW
Approved:	RAW
Date:	16/10/2024

N

0 100 200
Metres

Scale: 1:6,000@A4

GDA2020 MGA Zone 50

emerge ASSOCIATES

Figure 3: Hydrography and Environmental Features

Project:	Basic Fauna and Targeted Black Cockatoo Assessment Peel Health Campus, Greenfields
Client:	Department of Finance

Plan Number:
EP24-094(03)--F13

Drawn:	CTH
Date:	09/10/2024
Checked:	NAW
Approved:	RAW
Date:	16/10/2024

N

0 100 200
Metres

Scale: 1:6,000@A4

GDA2020 MGA Zone 50

emerge ASSOCIATES

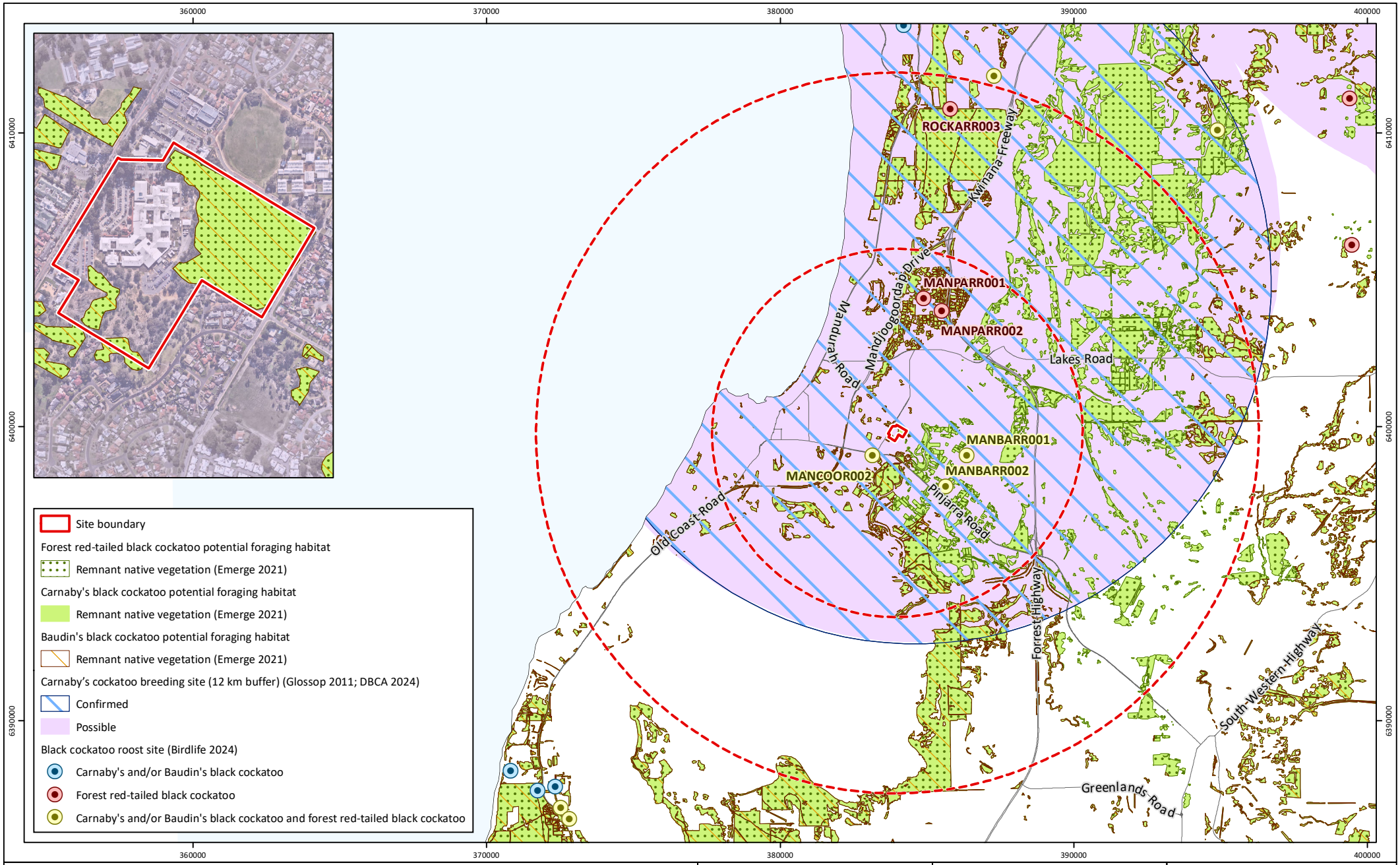

Figure 4: Black Cockatoo Habitat Context

Project: Basic Fauna and Targeted Black Cockatoo Assessment
Peel Health Campus, Greenfields
Client: Department of Finance

Plan Number:
EP24-094(03)--F14
Drawn: CTH
Date: 09/10/2024
Checked: NAW
Approved: RAW
Date: 16/10/2024

N

0 2 4 6
Kilometers
Scale: 1:170,000@A4
GDA 2020 MGA Zone 50

emerge ASSOCIATES

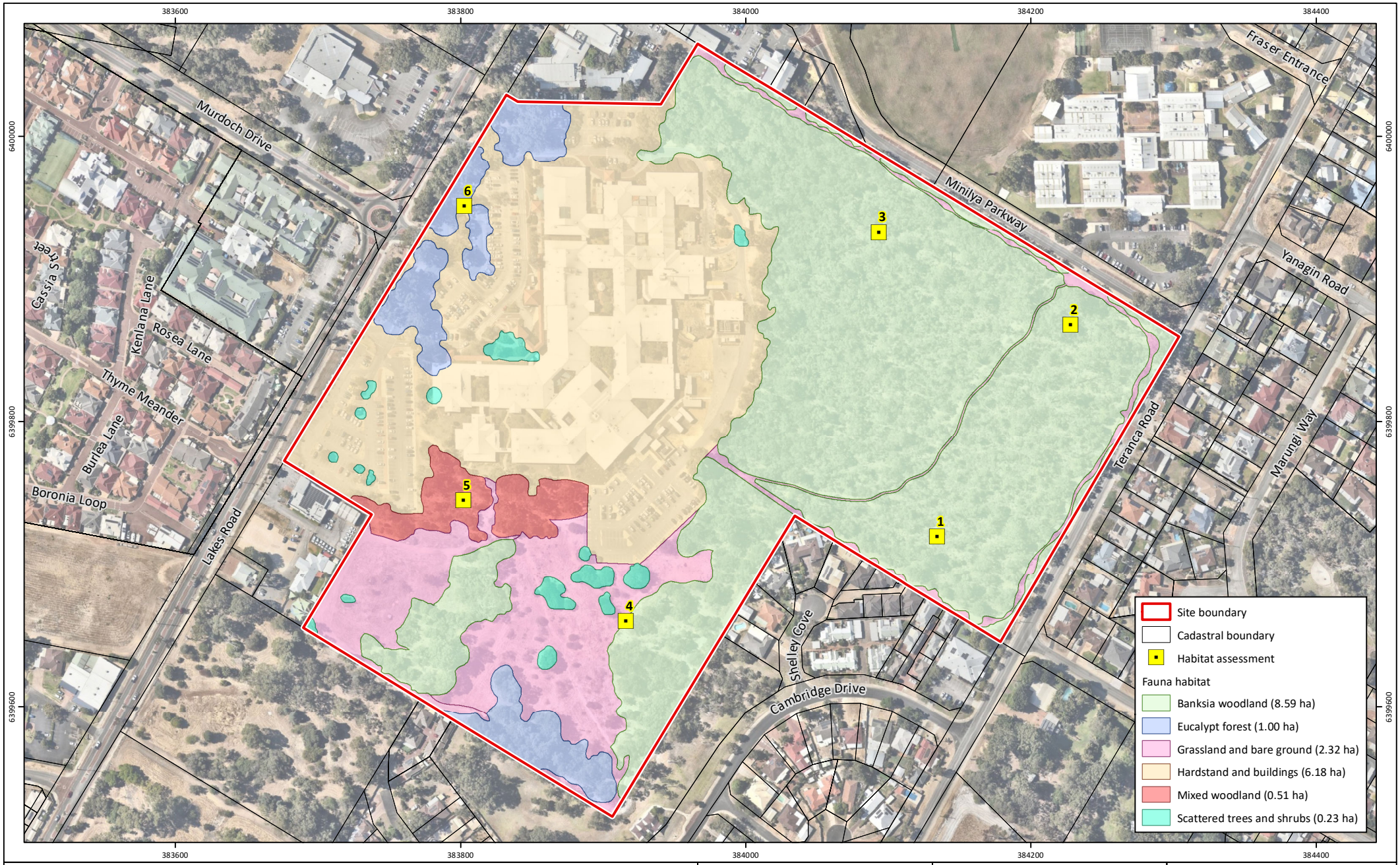

Figure 5: Fauna Habitat

Project: Basic Fauna and Targeted Black Cockatoo Assessment
Peel Health Campus, Greenfields

Client: Department of Finance

Plan Number:
EP24-094(03)--F15

Drawn:	CTH
Date:	09/10/2024
Checked:	NAW
Approved:	RAW
Date:	16/10/2024

N

0 50 100
Metres

Scale: 1:3,500@A4

GDA2020 MGA Zone 50

emerge ASSOCIATES

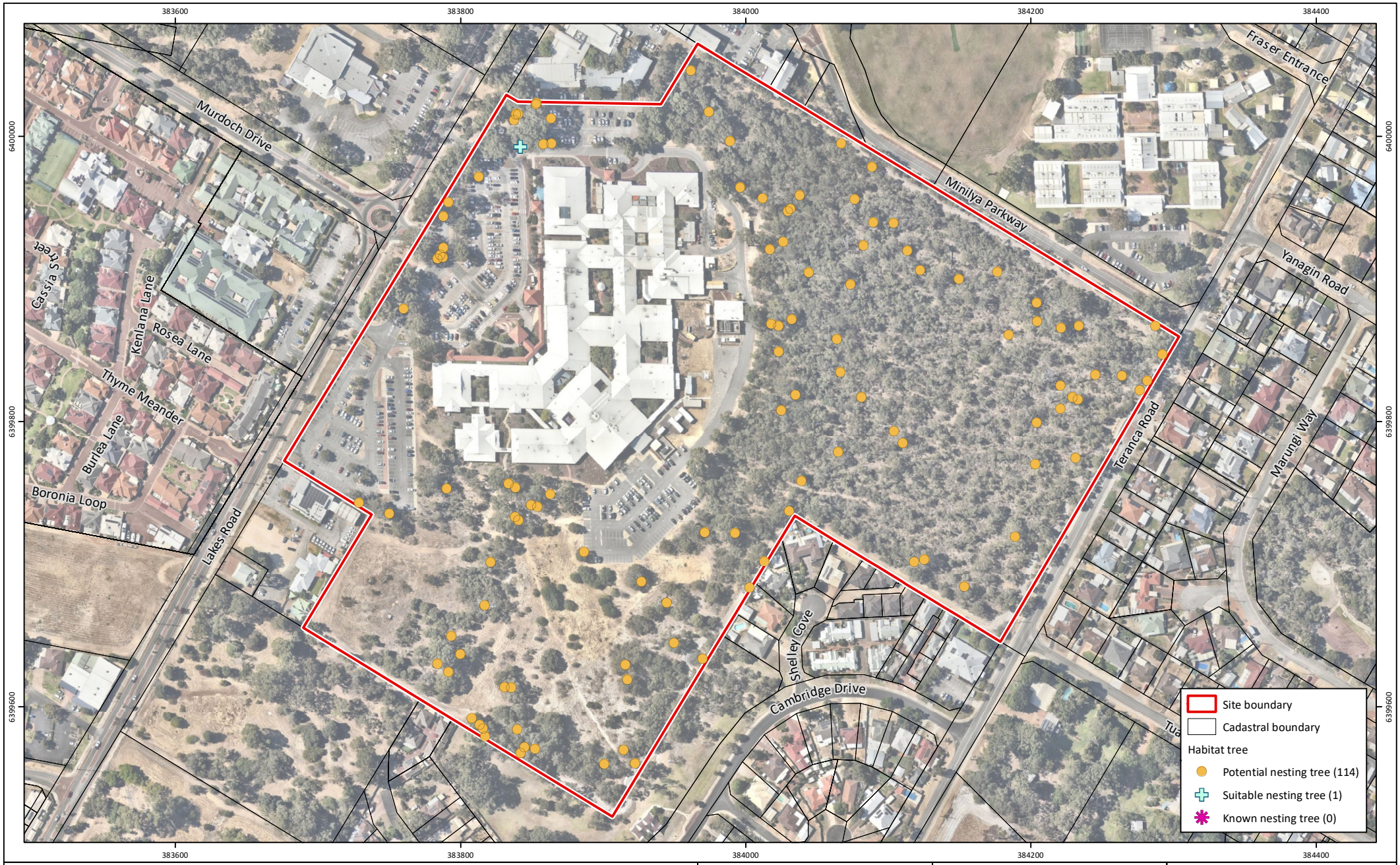

Figure 6: Black Cockatoo Habitat Trees

Project:	Basic Fauna and Targeted Black Cockatoo Assessment Peel Health Campus, Greenfields
Client:	Department of Finance

Plan Number:
EP24-094(03)--F16

Drawn:	CTH
Date:	09/10/2024
Checked:	NAW
Approved:	RAW
Date:	16/10/2024

N

0 50 100
Metres

Scale: 1:3,500@A4

GDA2020 MGA Zone 50

emerge ASSOCIATES

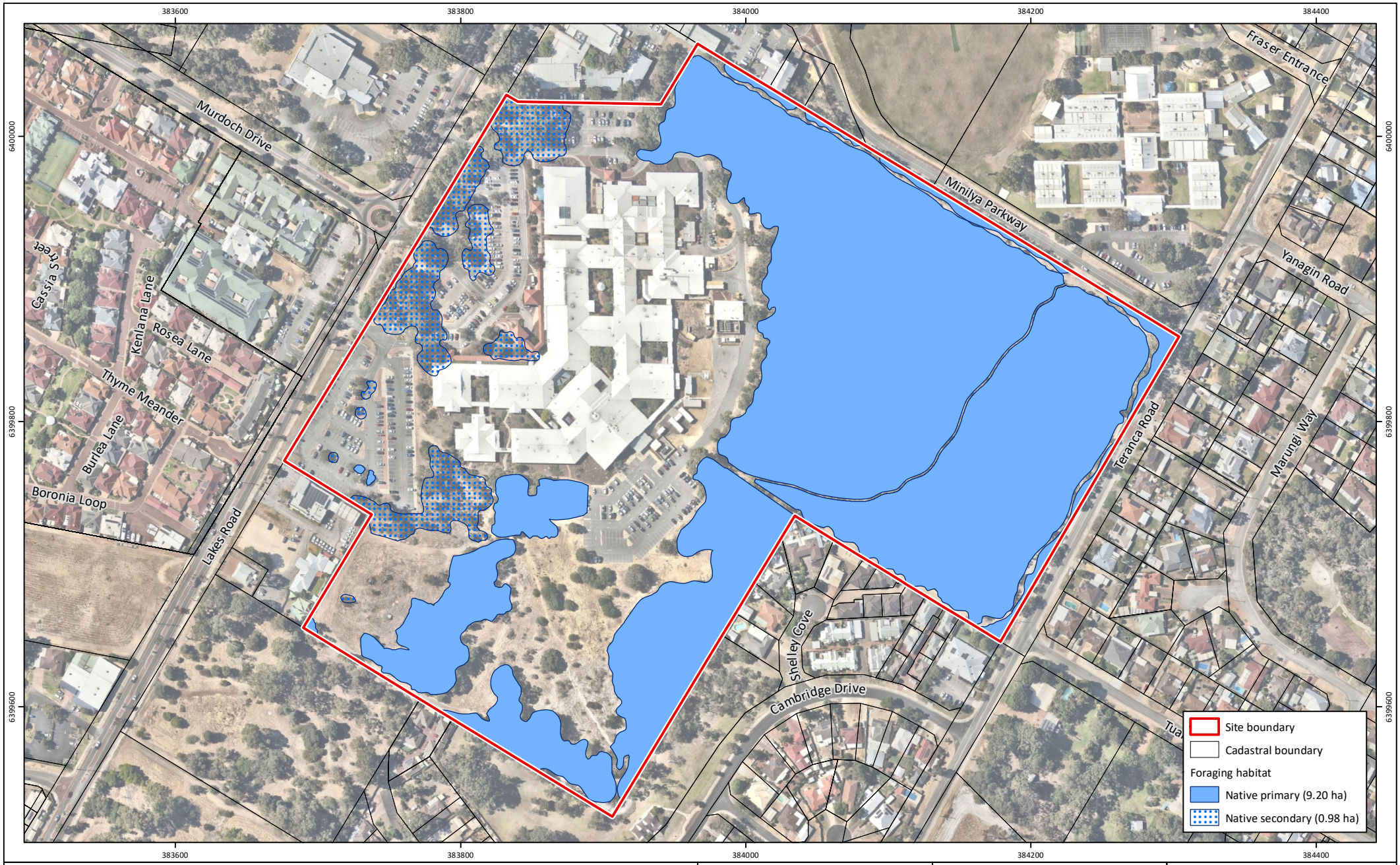

Figure 7: Carnaby's Black Cockatoo Foraging Habitat

Project:	Basic Fauna and Targeted Black Cockatoo Assessment Peel Health Campus, Greenfields
Client:	Department of Finance

Plan Number:
EP24-094(03)--F17

Drawn:	CTH
Date:	09/10/2024
Checked:	NAW
Approved:	RAW
Date:	16/10/2024

N

0 50 100
Metres

Scale: 1:3,500@A4

GDA2020 MGA Zone 50

emerge ASSOCIATES

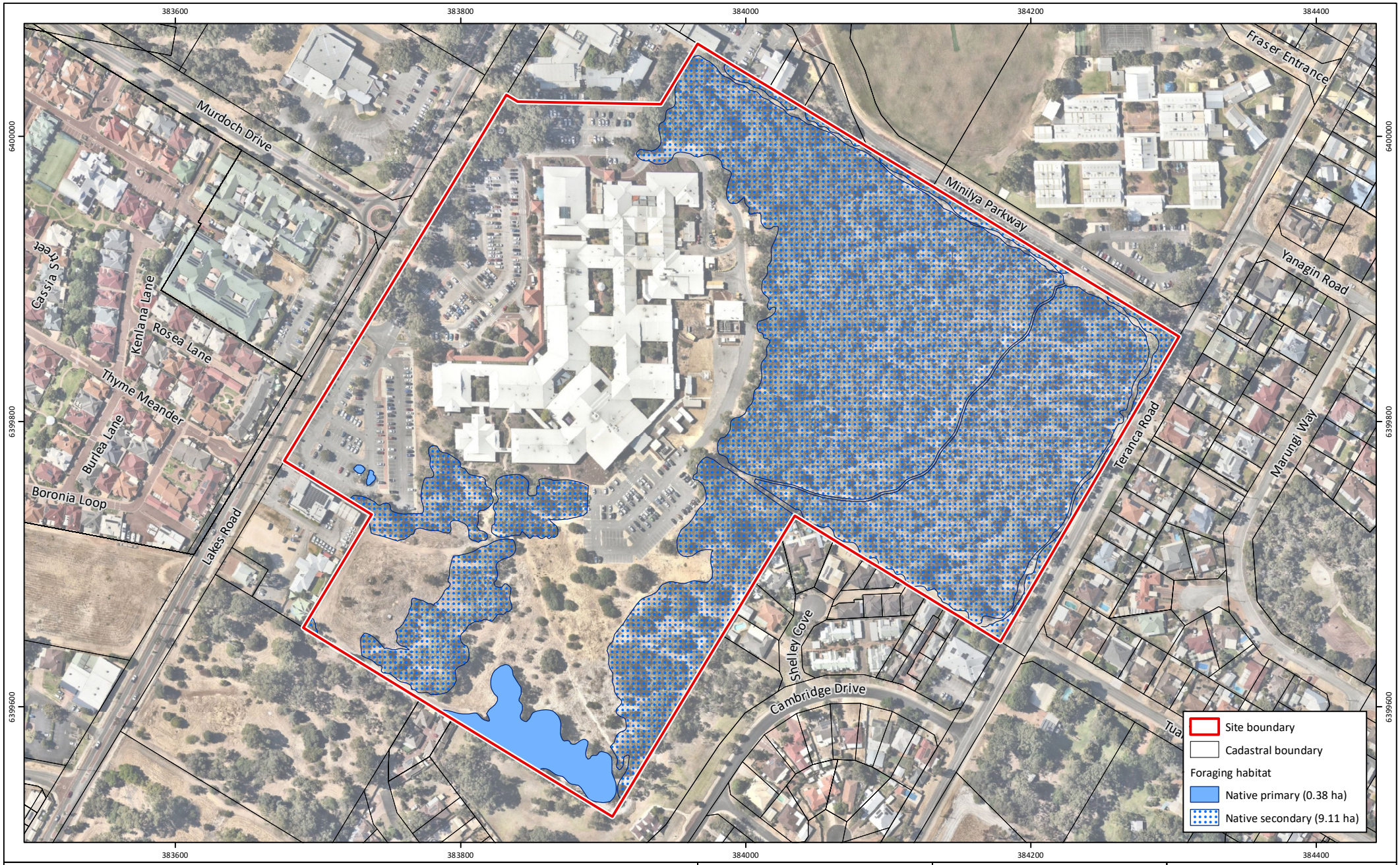

Figure 8: Baudin's Black Cockatoo Foraging Habitat

Project:	Basic Fauna and Targeted Black Cockatoo Assessment Peel Health Campus, Greenfields
Client:	Department of Finance

Plan Number:
EP24-094(03)--F18

Drawn:	CTH
Date:	09/10/2024
Checked:	NAW
Approved:	RAW
Date:	16/10/2024

N

0 50 100
Metres

Scale: 1:3,500@A4

GDA2020 MGA Zone 50

emerge ASSOCIATES

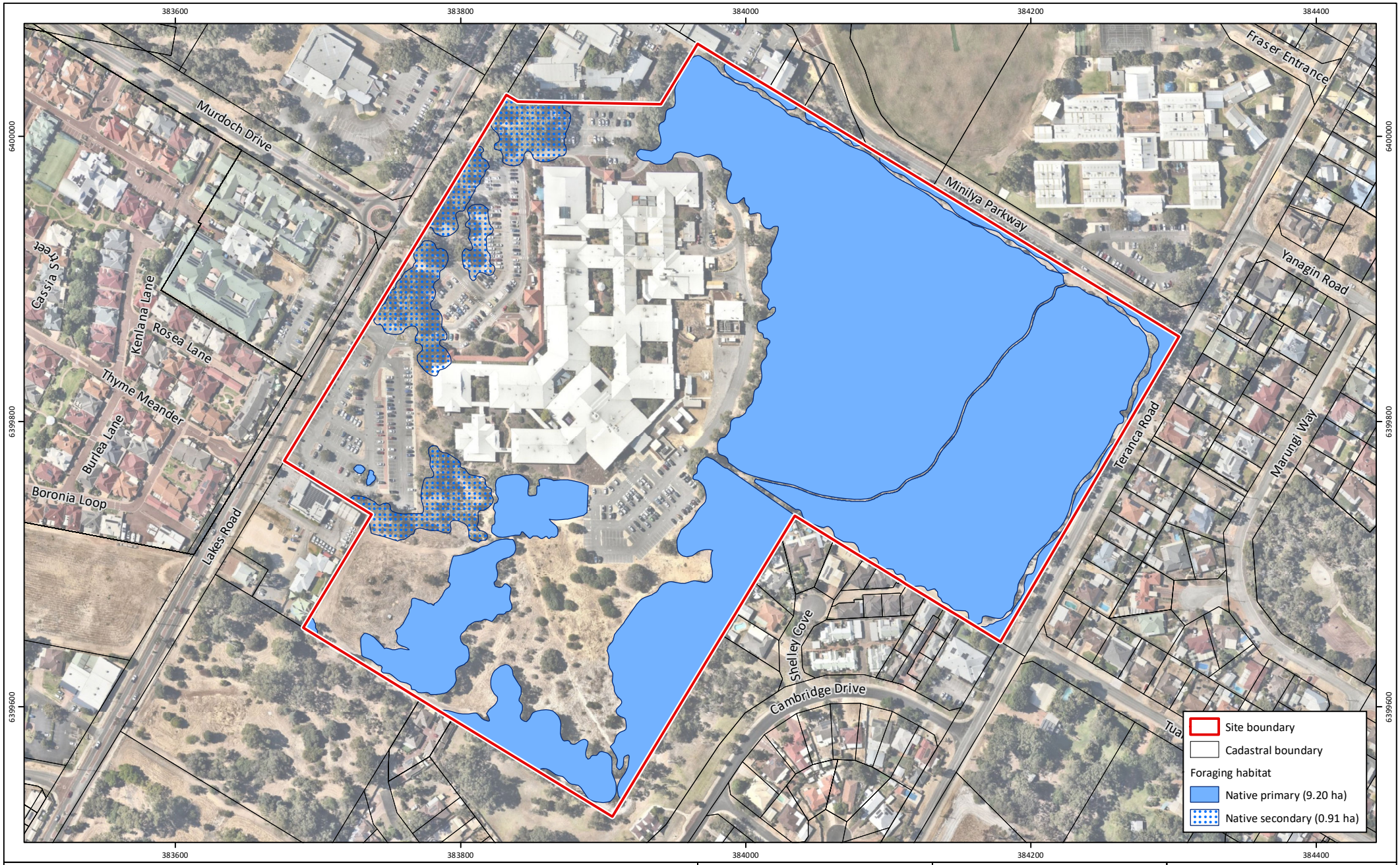

Figure 9: Forest Red-tailed Black Cockatoo Foraging Habitat

Project: Basic Fauna and Targeted Black Cockatoo Assessment
Peel Health Campus, Greenfields
Client: Department of Finance

Plan Number:
EP24-094(03)--F19
Drawn: CTH
Date: 09/10/2024
Checked: NAW
Approved: RAW
Date: 16/10/2024

N

0 50 100
Metres

Scale: 1:3,500@A4

GDA2020 MGA Zone 50

emerge ASSOCIATES

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[#]	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[#]	Threatened Fauna – Critically Endangered Taxa which are considered to be facing an extremely high risk of extinction in the wild.
EN[#]	Threatened Fauna – Endangered Taxa which are considered to be facing a very high risk of extinction in the wild.
VU[#]	Threatened Fauna – Vulnerable Taxa which are considered to be facing a high risk of extinction in the wild.
Migratory[#]	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

[#]matters of national environmental significance (MNES) under the EPBC Act

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.

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	Priority 1 – Poorly known 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.
P2	Priority 2 – Poorly known 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.
P3	Priority 3 – Poorly known 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.
P4	(a) Priority 4 – Rare species 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. (b) Priority 4 – Near Threatened 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. (c) Priority 4 – Other Species that have been removed from the list of threatened species during the past five years for reasons other than taxonomy.

Black cockatoos

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

- *Zanda*[1] *latirostris* (Carnaby's black cockatoo) which is listed as 'endangered' under the EPBC Act and the BC Act.
- *Zanda*[1] *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

[1] Previously *Calyptorhynchus*

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.

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), Pizzey and Knight (2012), Slater *et al.* (2003)
Mammals	Menkhorst and Knight (2011), Triggs (2003)
Amphibia	Tyler and Doughty (2009), Bush *et al.* (2002)
Reptiles	Bush *et al.* (2002), Wilson and Swan (2021)

References

General references

Birdlife Australia 2023, *Great Cocky Count Roost Dataset*,

Bush, B., Maryan, B., Browne-Cooper, R. and Robinson, D. 2002, *Reptiles and Frogs of the Perth Region*, UWA Press, Crawley.

Department of Agriculture, Water and the Environment (DAWE) 2022, *Referral guideline for 3 WA threatened black cockatoo species: Carnaby's Cockatoo, Baudin's Cockatoo and the Forest Red-tailed Black cockatoo*, Canberra.

department of biodiversity Conservation and Attractions (DBCA) 2017a, *Fauna Profile - Forest red-tailed black cockatoo Calyptorhynchus banksii naso*, Perth, Western Australia.

Department of Biodiversity, Conservation and Attractions (DBCA) 2017b, *A methodology for the evaluation of wetlands on the Swan Coastal Plain*, draft prepared by the Wetlands Section of the Department of Biodiversity, Conservation and Attractions and the Urban Water Branch of the Department of Water and Environmental Regulation, Perth.

Department of Biodiversity, Conservation and Attractions (DBCA) 2018a, *Geomorphic Wetlands, Swan Coastal Plain (DBCA-019)*.

Department of Biodiversity, Conservation and Attractions (DBCA) 2018b, *Threatened and Priority Fauna List 15 February 2018*, Perth.

Department of Biodiversity Conservation and Attractions (DBCA) 2019a, *Conservation Codes for Western Australian Flora and Fauna - last updated 3 January 2019*.

Department of Biodiversity Conservation and Attractions (DBCA) 2019b, *Vegetation Complexes - South West forest region of Western Australia (DBCA-047)*, Kensington.

Department of Biodiversity Conservation and Attractions (DBCA) 2021, *Vegetation Complexes - Swan Coastal Plain (DBCA_046)*, Perth, Western Australia.

Department of Environment and Energy (DoEE) 2016a, *Modelled distribution for Baudin's Cockatoo (Calyptorhynchus baudinii)*, Canberra.

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

Department of Parks and Wildlife (DPaW) 2013, *Carnaby's Cockatoo (Calyptorphynchus latirostris) Recovery Plan*.

Department of Primary Industries and Regional Development (DPIRD) 2018, *Pre-European Vegetation – Western Australia (DPIRD-006)*, South Perth.

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

Department of Sustainability, Environment, Water, Population and Communities (DSEWPaC) 2011, *Modelled distribution of Carnaby's black cockatoo (Calyptorhynchus latirostris)*, Commonwealth of Australia, Canberra, Australian Capital Territory.

Forest Products Commission 2020, *Forest Products Commission Plantations (FPC-001)*.

Glossop, B., Clarke, K., Mitchell, D. and Barrett, G. 2011, *Methods for mapping Carnaby's cockatoo habitat*, Department of Environment and Conservation, Perth.

Johnstone, R. E. and Storr, G. M. 1998a, *Handbook of Western Australian Birds. Volume 2 - Passerines (Blue-Winged Pitta to Goldfinch)*, Western Australian Museum, Perth.

Johnstone, R. E. and Storr, T. 1998b, *Handbook of Western Australian Birds: Volume 1 - Non-passerines (Emu to Dollarbird)*, Western Australian Museum, Perth.

Menkhorst, P. and Knight, F. 2011, *Field guide to the mammals of Australia (Third edition)*, Oxford University Press Australia & New Zealand, Melbourne, VIC, Australia.

Pizzey, G. and Knight, F. 2012, *The Fieldguide to the Birds of Australia*, Harper Collins Publishers, Sydney, Australia.

Semeniuk, C. A. 1987, *Wetlands of the Darling System - a geomorphic approach to habitat classification*, Journal of the Royal Society of Western Australia, 69: 95-112.

Semeniuk, C. A. and Semeniuk, V. 1995, *A Geomorphic Approach to Global Classification for Inland Wetlands*, Vegetatio, 118(1/2): 103-124.

Slater, P., Slater, P. and Slater, R. 2003, *The Slater Field Guide to Australian Birds*, Reed New Holland, Australia.

Triggs, B. 2003, *Tracks, Scats and Other Traces A Field Guide to Australian Mammals*, Oxford University Press Australia, Melbourne, Victoria.

Tyler, M. J. and Doughty, P. 2009, *Field Guide to Frogs of Western Australia*, Western Australian Museum, Perth, Western Australia.

Wilson, S. and Swan, G. 2021, *A Complete Guide to Reptiles of Australia*, New Holland Publishers, Sydney, Australia.

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: 09-Oct-2024

Summary

Matters of National Environment Significance

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

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Importance (Ramsar	2
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	1
Listed Threatened Ecological Communities:	6
Listed Threatened Species:	69
Listed Migratory Species:	68

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.

Commonwealth Lands:	10
Commonwealth Heritage Places:	None
Listed Marine Species:	94
Whales and Other Cetaceans:	12
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Australian Marine Parks:	None
Habitat Critical to the Survival of Marine Turtles:	None

Extra Information

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

State and Territory Reserves:	15
Regional Forest Agreements:	None
Nationally Important Wetlands:	2
EPBC Act Referrals:	35
Key Ecological Features (Marine):	2
Biologically Important Areas:	9
Bioregional Assessments:	None
Geological and Bioregional Assessments:	None

Details

Matters of National Environmental Significance

Wetlands of International Importance (Ramsar Wetlands) [Resource Information]

Ramsar Site Name	Proximity	Buffer Status
Becher point wetlands	Within 10km of Ramsar site	In buffer area only
Peel-yalgorup system	Within Ramsar site	In feature area

Commonwealth Marine Area [Resource Information]

Approval is required for a proposed activity that is located within the Commonwealth Marine Area which has, will have, or is likely to have a significant impact on the environment. Approval may be required for a proposed action taken outside a Commonwealth Marine Area but which has, may have or is likely to have a significant impact on the environment in the Commonwealth Marine Area.

Feature Name	Buffer Status
Commonwealth Marine Areas (EPBC Act)	In buffer area only

Listed Threatened Ecological Communities [Resource Information]

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

Community Name	Threatened Category	Presence Text	Buffer Status
Banksia Woodlands of the Swan Coastal Plain ecological community	Endangered	Community likely to occur within area	In feature area
Clay Pans of the Swan Coastal Plain	Critically Endangered	Community likely to occur within area	In buffer area only
Empodisma peatlands of southwestern Australia	Endangered	Community may occur within area	In buffer area only
Honeymyrtle shrubland on limestone ridges of the Swan Coastal Plain Bioregion	Critically Endangered	Community may occur within area	In buffer area only
Subtropical and Temperate Coastal Saltmarsh	Vulnerable	Community likely to occur within area	In buffer area only
Tuart (Eucalyptus gomphocephala) Woodlands and Forests of the Swan Coastal Plain ecological community	Critically Endangered	Community likely to occur within area	In feature area

Listed Threatened Species [Resource Information]

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

Scientific Name	Threatened Category	Presence Text	Buffer Status
BIRD			
Anous tenuirostris melanops Australian Lesser Noddy [26000]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Ardenna grisea Sooty Shearwater [82651]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Arenaria interpres Ruddy Turnstone [872]	Vulnerable	Roosting known to occur within area	In buffer area only
Botaurus poiciloptilus Australasian Bittern [1001]	Endangered	Species or species habitat likely to occur within area	In feature area
Calidris acuminata Sharp-tailed Sandpiper [874]	Vulnerable	Roosting known to occur within area	In feature area
Calidris canutus Red Knot, Knot [855]	Vulnerable	Species or species habitat known to occur within area	In feature area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area	In feature area
Calidris tenuirostris Great Knot [862]	Vulnerable	Roosting known to occur within area	In buffer area only
Calyptorhynchus banksii naso Forest Red-tailed Black-Cockatoo, Karrak [67034]	Vulnerable	Species or species habitat known to occur within area	In feature area
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat known to occur within area	In feature area
Charadrius mongolus Lesser Sand Plover, Mongolian Plover [879]	Endangered	Roosting known to occur within area	In buffer area only
Diomedea amsterdamensis Amsterdam Albatross [64405]	Endangered	Species or species habitat may occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Diomedea dabbenena Tristan Albatross [66471]	Endangered	Species or species habitat may occur within area	In buffer area only
Diomedea epomophora Southern Royal Albatross [89221]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Diomedea exulans Wandering Albatross [89223]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Diomedea sanfordi Northern Royal Albatross [64456]	Endangered	Species or species habitat may occur within area	In feature area
Falco hypoleucos Grey Falcon [929]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Halobaena caerulea Blue Petrel [1059]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Leipoa ocellata Malleefowl [934]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Limosa lapponica menzbieri Northern Siberian Bar-tailed Godwit, Russkoye Bar-tailed Godwit [86432]	Endangered	Species or species habitat known to occur within area	In feature area
Limosa limosa Black-tailed Godwit [845]	Endangered	Roosting known to occur within area	In buffer area only
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area	In buffer area only
Macronectes halli 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
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area	In feature area
Pachyptila turtur subantarctica Fairy Prion (southern) [64445]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Phaethon rubricauda westralis Red-tailed Tropicbird (Indian Ocean), Indian Ocean Red-tailed Tropicbird [91824]	Endangered	Species or species habitat may occur within area	In buffer area only
Phoebetria fusca Sooty Albatross [1075]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Pterodroma mollis Soft-plumaged Petrel [1036]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Rostratula australis Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur within area	In feature area
Sternula nereis nereis Australian Fairy Tern [82950]	Vulnerable	Foraging, feeding or related behaviour known to occur within area	In feature area
Thalassarche carteri Indian Yellow-nosed Albatross [64464]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
Thalassarche cauta Shy Albatross [89224]	Endangered	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Thalassarche impavida Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Thalassarche melanophris 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
Thalassarche steadi			
White-capped Albatross [64462]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Tringa nebularia			
Common Greenshank, Greenshank [832]	Endangered	Species or species habitat known to occur within area	In feature area
Zanda baudinii listed as Calyptorhynchus baudinii			
Baudin's Cockatoo, Baudin's Black-Cockatoo, Long-billed Black-cockatoo [87736]	Endangered	Species or species habitat known to occur within area	In feature area
Zanda latirostris listed as Calyptorhynchus latirostris			
Carnaby's Black Cockatoo, Short-billed Black-cockatoo [87737]	Endangered	Species or species habitat known to occur within area	In feature area
MAMMAL			
Balaenoptera musculus			
Blue Whale [36]	Endangered	Species or species habitat likely to occur within area	In buffer area only
Bettongia penicillata ogilbyi			
Woylie [66844]	Endangered	Species or species habitat likely to occur within area	In buffer area only
Dasyurus geoffroii			
Chuditch, Western Quoll [330]	Vulnerable	Species or species habitat known to occur within area	In feature area
Eubalaena australis			
Southern Right Whale [40]	Endangered	Breeding known to occur within area	In buffer area only
Neophoca cinerea			
Australian Sea-lion, Australian Sea Lion [22]	Endangered	Species or species habitat may occur within area	In buffer area only
Pseudocheirus occidentalis			
Western Ringtail Possum, Ngwayir, Womp, Woder, Ngoor, Ngoolangit [25911]	Critically Endangered	Species or species habitat likely to occur within area	In feature area
Setonix brachyurus			
Quokka [229]	Vulnerable	Species or species habitat may occur within area	In buffer area only
OTHER			

Scientific Name	Threatened Category	Presence Text	Buffer Status
Westralunio carteri			
Carter's Freshwater Mussel, Freshwater Mussel [86266]	Vulnerable	Species or species habitat known to occur within area	In buffer area only
PLANT			
Andersonia gracilis			
Slender Andersonia [14470]	Endangered	Species or species habitat may occur within area	In feature area
Banksia mimica			
Summer Honeypot [82765]	Endangered	Species or species habitat may occur within area	In buffer area only
Caladenia huegelii			
King Spider-orchid, Grand Spider-orchid, Rusty Spider-orchid [7309]	Endangered	Species or species habitat may occur within area	In feature area
Diuris drummondii			
Tall Donkey Orchid [4365]	Vulnerable	Species or species habitat known to occur within area	In feature area
Diuris micrantha			
Dwarf Bee-orchid [55082]	Vulnerable	Species or species habitat known to occur within area	In feature area
Diuris purdiei			
Purdie's Donkey-orchid [12950]	Endangered	Species or species habitat likely to occur within area	In feature area
Drakaea elastica			
Glossy-leafed Hammer Orchid, Glossy-leaved Hammer Orchid, Warty Hammer Orchid [16753]	Endangered	Species or species habitat known to occur within area	In feature area
Drakaea micrantha			
Dwarf Hammer-orchid [56755]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Morelotia australiensis listed as Tetraria australiensis			
Southern Tetraria [92784]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Synaphea sp. Fairbridge Farm (D.Papenfus 696)			
Selena's Synaphea [82881]	Critically Endangered	Species or species habitat likely to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
[Synaphea sp. Pinjarra Plain (A.S.George 17182)](#) [86878]	Endangered	Species or species habitat may occur within area	In buffer area only
[Synaphea sp. Serpentine (G.R.Brand 103)](#) [86879]	Critically Endangered	Species or species habitat may occur within area	In feature area
[Synaphea stenoloba](#) Dwellingup Synaphea [66311]	Endangered	Species or species habitat known to occur within area	In buffer area only
REPTILE			
[Caretta caretta](#) Loggerhead Turtle [1763]	Endangered	Foraging, feeding or related behaviour known to occur within area	In buffer area only
[Chelonia mydas](#) Green Turtle [1765]	Vulnerable	Foraging, feeding or related behaviour known to occur within area	In buffer area only
[Dermochelys coriacea](#) Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Foraging, feeding or related behaviour known to occur within area	In buffer area only
[Natator depressus](#) Flatback Turtle [59257]	Vulnerable	Foraging, feeding or related behaviour known to occur within area	In buffer area only
SHARK			
[Carcharias taurus (west coast population)](#) Grey Nurse Shark (west coast population) [68752]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
[Carcharodon carcharias](#) White Shark, Great White Shark [64470]	Vulnerable	Species or species habitat known to occur within area	In buffer area only
[Galeorhinus galeus](#) School Shark, Eastern School Shark, Snapper Shark, Tope, Soupfin Shark [68453]	Conservation Dependent	Species or species habitat may occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Pristis pristis Freshwater Sawfish, Largetooth Sawfish, River Sawfish, Leichhardt's Sawfish, Northern Sawfish [60756]	Vulnerable	Species or species habitat may occur within area	In feature area
Rhincodon typus Whale Shark [66680]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Sphyrna lewini Scalloped Hammerhead [85267]	Conservation Dependent	Species or species habitat likely to occur within area	In buffer area only

Listed Migratory Species [Resource Information]

Scientific Name	Threatened Category	Presence Text	Buffer Status
Migratory Marine Birds			
Anous stolidus Common Noddy [825]		Species or species habitat may occur within area	In buffer area only
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area	In feature area
Ardenna carneipes Flesh-footed Shearwater, Fleshy-footed Shearwater [82404]		Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Ardenna grisea Sooty Shearwater [82651]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Diomedea amsterdamensis Amsterdam Albatross [64405]	Endangered	Species or species habitat may occur within area	In buffer area only
Diomedea dabbenena Tristan Albatross [66471]	Endangered	Species or species habitat may occur within area	In buffer area only
Diomedea epomophora Southern Royal Albatross [89221]	Vulnerable	Species or species habitat may occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Diomedea exulans Wandering Albatross [89223]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Diomedea sanfordi Northern Royal Albatross [64456]	Endangered	Species or species habitat may occur within area	In feature area
Hydroprogne caspia Caspian Tern [808]		Foraging, feeding or related behaviour known to occur within area	In buffer area only
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area	In buffer area only
Macronectes halli Northern Giant Petrel [1061]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Onychoprion anaethetus Bridled Tern [82845]		Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Phoebetria fusca Sooty Albatross [1075]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Sterna dougallii Roseate Tern [817]		Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Sternula albifrons Little Tern [82849]		Species or species habitat may occur within area	In buffer area only
Thalassarche carteri Indian Yellow-nosed Albatross [64464]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Thalassarche cauta			
Shy Albatross [89224]	Endangered	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Thalassarche impavida			
Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Thalassarche melanophris			
Black-browed Albatross [66472]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Thalassarche steadi			
White-capped Albatross [64462]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Migratory Marine Species			
Balaenoptera edeni			
Bryde's Whale [35]		Species or species habitat may occur within area	In buffer area only
Balaenoptera musculus			
Blue Whale [36]	Endangered	Species or species habitat likely to occur within area	In buffer area only
Caperea marginata			
Pygmy Right Whale [39]		Species or species habitat may occur within area	In buffer area only
Carcharhinus longimanus			
Oceanic Whitetip Shark [84108]		Species or species habitat may occur within area	In buffer area only
Carcharias taurus			
Grey Nurse Shark [64469]		Species or species habitat likely to occur within area	In buffer area only
Carcharodon carcharias			
White Shark, Great White Shark [64470]	Vulnerable	Species or species habitat known to occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Caretta caretta Loggerhead Turtle [1763]	Endangered	Foraging, feeding or related behaviour known to occur within area	In buffer area only
Chelonia mydas Green Turtle [1765]	Vulnerable	Foraging, feeding or related behaviour known to occur within area	In buffer area only
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Foraging, feeding or related behaviour known to occur within area	In buffer area only
Eubalaena australis as Balaena glacialis australis Southern Right Whale [40]	Endangered	Breeding known to occur within area	In buffer area only
Lamna nasus Porbeagle, Mackerel Shark [83288]		Species or species habitat may occur within area	In buffer area only
Megaptera novaeangliae Humpback Whale [38]		Species or species habitat known to occur within area	In buffer area only
Mobula alfredi as Manta alfredi Reef Manta Ray, Coastal Manta Ray [90033]		Species or species habitat likely to occur within area	In buffer area only
Mobula birostris as Manta birostris Giant Manta Ray [90034]		Species or species habitat likely to occur within area	In buffer area only
Natator depressus Flatback Turtle [59257]	Vulnerable	Foraging, feeding or related behaviour known to occur within area	In buffer area only
Orcinus orca Killer Whale, Orca [46]		Species or species habitat may occur within area	In buffer area only
Pristis pristis Freshwater Sawfish, Largetooth Sawfish, River Sawfish, Leichhardt's Sawfish, Northern Sawfish [60756]	Vulnerable	Species or species habitat may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
[Rhincodon typus](#) Whale Shark [66680]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Migratory Terrestrial Species			
[Motacilla cinerea](#) Grey Wagtail [642]		Species or species habitat may occur within area	In feature area
Migratory Wetlands Species			
[Actitis hypoleucos](#) Common Sandpiper [59309]		Species or species habitat known to occur within area	In feature area
[Arenaria interpres](#) Ruddy Turnstone [872]	Vulnerable	Roosting known to occur within area	In buffer area only
[Calidris acuminata](#) Sharp-tailed Sandpiper [874]	Vulnerable	Roosting known to occur within area	In feature area
[Calidris alba](#) Sanderling [875]		Roosting known to occur within area	In buffer area only
[Calidris canutus](#) Red Knot, Knot [855]	Vulnerable	Species or species habitat known to occur within area	In feature area
[Calidris ferruginea](#) Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area	In feature area
[Calidris melanotos](#) Pectoral Sandpiper [858]		Species or species habitat known to occur within area	In feature area
[Calidris pugnax as Philomachus pugnax](#) Ruff [91256]		Roosting known to occur within area	In buffer area only
[Calidris ruficollis](#) Red-necked Stint [860]		Roosting known to occur within area	In buffer area only
[Calidris subminuta](#) Long-toed Stint [861]		Roosting known to occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Calidris tenuirostris Great Knot [862]	Vulnerable	Roosting known to occur within area	In buffer area only
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat known to occur within area	In feature area
Charadrius mongolus Lesser Sand Plover, Mongolian Plover [879]	Endangered	Roosting known to occur within area	In buffer area only
Gallinago megala Swinhoe's Snipe [864]		Roosting likely to occur within area	In buffer area only
Gallinago stenura Pin-tailed Snipe [841]		Roosting likely to occur within area	In buffer area only
Limicola falcinellus Broad-billed Sandpiper [842]		Roosting known to occur within area	In buffer area only
Limosa lapponica Bar-tailed Godwit [844]		Species or species habitat known to occur within area	In feature area
Limosa limosa Black-tailed Godwit [845]	Endangered	Roosting known to occur within area	In buffer area only
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area	In feature area
Numenius minutus Little Curlew, Little Whimbrel [848]		Roosting likely to occur within area	In buffer area only
Numenius phaeopus Whimbrel [849]		Roosting known to occur within area	In buffer area only
Pandion haliaetus Osprey [952]		Breeding known to occur within area	In feature area
Pluvialis fulva Pacific Golden Plover [25545]		Roosting known to occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
[Tringa brevipes](#) Grey-tailed Tattler [851]		Roosting known to occur within area	In buffer area only
[Tringa glareola](#) Wood Sandpiper [829]		Roosting known to occur within area	In buffer area only
[Tringa nebularia](#) Common Greenshank, Greenshank [832]	Endangered	Species or species habitat known to occur within area	In feature area
[Tringa stagnatilis](#) Marsh Sandpiper, Little Greenshank [833]		Roosting known to occur within area	In buffer area only
[Tringa totanus](#) Common Redshank, Redshank [835]		Roosting known 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 - [50429]	WA	In buffer area only
Commonwealth Land - [50644]	WA	In buffer area only
Commonwealth Land - [50681]	WA	In buffer area only
Commonwealth Land - [50414]	WA	In buffer area only
Commonwealth Land - [50408]	WA	In buffer area only
Commonwealth Land - [51112]	WA	In buffer area only
Commonwealth Land - [51114]	WA	In buffer area only
Commonwealth Land - [51109]	WA	In buffer area only
Commonwealth Land - [51492]	WA	In feature area
Commonwealth Land - [50426]	WA	In buffer area only

Listed Marine Species [Resource Information]

Scientific Name	Threatened Category	Presence Text	Buffer Status
Bird			
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat known to occur within area	In feature area
Anous stolidus Common Noddy [825]		Species or species habitat may occur within area	In buffer area only
Anous tenuirostris melanops Australian Lesser Noddy [26000]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area overfly marine area	In feature area
Ardenna carneipes as Puffinus carneipes Flesh-footed Shearwater, Fleshy-footed Shearwater [82404]		Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Ardenna grisea as Puffinus griseus Sooty Shearwater [82651]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Arenaria interpres Ruddy Turnstone [872]	Vulnerable	Roosting known to occur within area	In buffer area only
Bubulcus ibis as Ardea ibis Cattle Egret [66521]		Species or species habitat may occur within area overfly marine area	In feature area
Calidris acuminata Sharp-tailed Sandpiper [874]	Vulnerable	Roosting known to occur within area	In feature area
Calidris alba Sanderling [875]		Roosting known to occur within area	In buffer area only
Calidris canutus Red Knot, Knot [855]	Vulnerable	Species or species habitat known to occur within area overfly marine area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area overfly marine area	In feature area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat known to occur within area overfly marine area	In feature area
Calidris pugnax as Philomachus pugnax Ruff [91256]		Roosting known to occur within area overfly marine area	In buffer area only
Calidris ruficollis Red-necked Stint [860]		Roosting known to occur within area overfly marine area	In buffer area only
Calidris subminuta Long-toed Stint [861]		Roosting known to occur within area overfly marine area	In buffer area only
Calidris tenuirostris Great Knot [862]	Vulnerable	Roosting known to occur within area overfly marine area	In buffer area only
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat known to occur within area	In feature area
Charadrius mongolus Lesser Sand Plover, Mongolian Plover [879]	Endangered	Roosting known to occur within area	In buffer area only
Charadrius ruficapillus Red-capped Plover [881]		Roosting known to occur within area overfly marine area	In buffer area only
Diomedea amsterdamensis Amsterdam Albatross [64405]	Endangered	Species or species habitat may occur within area	In buffer area only
Diomedea dabbenena Tristan Albatross [66471]	Endangered	Species or species habitat may occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Diomedea epomophora Southern Royal Albatross [89221]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Diomedea exulans Wandering Albatross [89223]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Diomedea sanfordi Northern Royal Albatross [64456]	Endangered	Species or species habitat may occur within area	In feature area
Gallinago megala Swinhoe's Snipe [864]		Roosting likely to occur within area overfly marine area	In buffer area only
Gallinago stenura Pin-tailed Snipe [841]		Roosting likely to occur within area overfly marine area	In buffer area only
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat known to occur within area	In feature area
Halobaena caerulea Blue Petrel [1059]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Himantopus himantopus Pied Stilt, Black-winged Stilt [870]		Roosting known to occur within area overfly marine area	In buffer area only
Hydroprogne caspia as Sterna caspia Caspian Tern [808]		Foraging, feeding or related behaviour known to occur within area	In buffer area only
Limicola falcinellus Broad-billed Sandpiper [842]		Roosting known to occur within area overfly marine area	In buffer area only
Limosa lapponica Bar-tailed Godwit [844]		Species or species habitat known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Limosa limosa Black-tailed Godwit [845]	Endangered	Roosting known to occur within area overfly marine area	In buffer area only
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area	In buffer area only
Macronectes halli Northern Giant Petrel [1061]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area overfly marine area	In feature area
Motacilla cinerea Grey Wagtail [642]		Species or species habitat may occur within area overfly marine area	In feature area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area	In feature area
Numenius minutus Little Curlew, Little Whimbrel [848]		Roosting likely to occur within area overfly marine area	In buffer area only
Numenius phaeopus Whimbrel [849]		Roosting known to occur within area	In buffer area only
Onychoprion anaethetus as Sterna anaethetus Bridled Tern [82845]		Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Pachyptila turtur Fairy Prion [1066]		Species or species habitat likely to occur within area	In feature area
Pandion haliaetus Osprey [952]		Breeding known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
[Phoebetria fusca](#) Sooty Albatross [1075]	Vulnerable	Species or species habitat may occur within area	In buffer area only
[Pluvialis fulva](#) Pacific Golden Plover [25545]		Roosting known to occur within area	In buffer area only
[Pterodroma mollis](#) Soft-plumaged Petrel [1036]	Vulnerable	Species or species habitat may occur within area	In buffer area only
[Puffinus assimilis](#) Little Shearwater [59363]		Foraging, feeding or related behaviour known to occur within area	In buffer area only
[Recurvirostra novaehollandiae](#) Red-necked Avocet [871]		Roosting known to occur within area overfly marine area	In buffer area only
[Rostratula australis as Rostratula benghalensis (sensu lato)](#) Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur within area overfly marine area	In feature area
[Stercorarius antarcticus as Catharacta skua](#) Brown Skua [85039]		Species or species habitat may occur within area	In buffer area only
[Sterna dougallii](#) Roseate Tern [817]		Foraging, feeding or related behaviour likely to occur within area	In buffer area only
[Sternula albifrons as Sterna albifrons](#) Little Tern [82849]		Species or species habitat may occur within area	In buffer area only
[Thalassarche carteri](#) Indian Yellow-nosed Albatross [64464]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
[Thalassarche cauta](#) Shy Albatross [89224]	Endangered	Foraging, feeding or related behaviour likely to occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Thalassarche impavida Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Thalassarche melanophris Black-browed Albatross [66472]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Thalassarche steadi White-capped Albatross [64462]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Thinornis cucullatus as Thinornis rubricollis Hooded Plover, Hooded Dotterel [87735]		Species or species habitat known to occur within area overfly marine area	In buffer area only
Tringa brevipes as Heteroscelus brevipes Grey-tailed Tattler [851]		Roosting known to occur within area	In buffer area only
Tringa glareola Wood Sandpiper [829]		Roosting known to occur within area overfly marine area	In buffer area only
Tringa nebularia Common Greenshank, Greenshank [832]	Endangered	Species or species habitat known to occur within area overfly marine area	In feature area
Tringa stagnatilis Marsh Sandpiper, Little Greenshank [833]		Roosting known to occur within area overfly marine area	In buffer area only
Tringa totanus Common Redshank, Redshank [835]		Roosting known to occur within area overfly marine area	In buffer area only
Fish			
Acentronura australe Southern Pygmy Pipehorse [66185]		Species or species habitat may occur within area	In buffer area only
Campichthys galei Gale's Pipefish [66191]		Species or species habitat may occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Heraldia nocturna Upside-down Pipefish, Eastern Upside-down Pipefish, Eastern Upside-down Pipefish [66227]		Species or species habitat may occur within area	In buffer area only
Hippocampus angustus Western Spiny Seahorse, Narrow-bellied Seahorse [66234]		Species or species habitat may occur within area	In buffer area only
Hippocampus breviceps Short-head Seahorse, Short-snouted Seahorse [66235]		Species or species habitat may occur within area	In buffer area only
Hippocampus subelongatus West Australian Seahorse [66722]		Species or species habitat may occur within area	In buffer area only
Histiogamphelus cristatus Rhino Pipefish, Macleay's Crested Pipefish, Ring-back Pipefish [66243]		Species or species habitat may occur within area	In buffer area only
Lissocampus caudalis Australian Smooth Pipefish, Smooth Pipefish [66249]		Species or species habitat may occur within area	In buffer area only
Lissocampus fatiloquus Prophet's Pipefish [66250]		Species or species habitat may occur within area	In buffer area only
Lissocampus runa Javelin Pipefish [66251]		Species or species habitat may occur within area	In buffer area only
Maroubra perserrata Sawtooth Pipefish [66252]		Species or species habitat may occur within area	In buffer area only
Mitotichthys meraculus Western Crested Pipefish [66259]		Species or species habitat may occur within area	In buffer area only
Nannocampus subosseus Bonyhead Pipefish, Bony-headed Pipefish [66264]		Species or species habitat may occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Phycodurus eques Leafy Seadragon [66267]		Species or species habitat may occur within area	In buffer area only
Phyllopteryx taeniolatus Common Seadragon, Weedy Seadragon [66268]		Species or species habitat may occur within area	In buffer area only
Pugnaso curtirostris Pugnose Pipefish, Pug-nosed Pipefish [66269]		Species or species habitat may occur within area	In buffer area only
Solegnathus lettiensis Gunther's Pipehorse, Indonesian Pipefish [66273]		Species or species habitat may occur within area	In buffer area only
Stigmatopora argus Spotted Pipefish, Gulf Pipefish, Peacock Pipefish [66276]		Species or species habitat may occur within area	In buffer area only
Stigmatopora nigra Widebody Pipefish, Wide-bodied Pipefish, Black Pipefish [66277]		Species or species habitat may occur within area	In buffer area only
Urocampus carinirostris Hairy Pipefish [66282]		Species or species habitat may occur within area	In buffer area only
Vanacampus margaritifer Mother-of-pearl Pipefish [66283]		Species or species habitat may occur within area	In buffer area only
Vanacampus phillipi Port Phillip Pipefish [66284]		Species or species habitat may occur within area	In buffer area only
Vanacampus poecilolaemus Longsnout Pipefish, Australian Long-snout Pipefish, Long-snouted Pipefish [66285]		Species or species habitat may occur within area	In buffer area only
Mammal			
Arctocephalus forsteri Long-nosed Fur-seal, New Zealand Fur-seal [20]		Species or species habitat may occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Neophoca cinerea Australian Sea-lion, Australian Sea Lion [22]	Endangered	Species or species habitat may occur within area	In buffer area only
Reptile			
Caretta caretta Loggerhead Turtle [1763]	Endangered	Foraging, feeding or related behaviour known to occur within area	In buffer area only
Chelonia mydas Green Turtle [1765]	Vulnerable	Foraging, feeding or related behaviour known to occur within area	In buffer area only
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Foraging, feeding or related behaviour known to occur within area	In buffer area only
Hydrophis kingii as Disteira kingii Spectacled Sea Snake [93511]		Species or species habitat may occur within area	In buffer area only
Natator depressus Flatback Turtle [59257]	Vulnerable	Foraging, feeding or related behaviour known to occur within area	In buffer area only

Whales and Other Cetaceans			[Resource Information]
Current Scientific Name	Status	Type of Presence	Buffer Status
Mammal			
Balaenoptera acutorostrata Minke Whale [33]		Species or species habitat may occur within area	In buffer area only
Balaenoptera edeni Bryde's Whale [35]		Species or species habitat may occur within area	In buffer area only
Balaenoptera musculus Blue Whale [36]	Endangered	Species or species habitat likely to occur within area	In buffer area only

Current Scientific Name	Status	Type of Presence	Buffer Status
Caperea marginata Pygmy Right Whale [39]		Species or species habitat may occur within area	In buffer area only
Delphinus delphis Common Dolphin, Short-beaked Common Dolphin [60]		Species or species habitat may occur within area	In buffer area only
Eubalaena australis Southern Right Whale [40]	Endangered	Breeding known to occur within area	In buffer area only
Grampus griseus Risso's Dolphin, Grampus [64]		Species or species habitat may occur within area	In buffer area only
Megaptera novaeangliae Humpback Whale [38]		Species or species habitat known to occur within area	In buffer area only
Orcinus orca Killer Whale, Orca [46]		Species or species habitat may occur within area	In buffer area only
Stenella attenuata Spotted Dolphin, Pantropical Spotted Dolphin [51]		Species or species habitat may occur within area	In buffer area only
Tursiops aduncus Indian Ocean Bottlenose Dolphin, Spotted Bottlenose Dolphin [68418]		Species or species habitat likely to occur within area	In buffer area only
Tursiops truncatus s. str. Bottlenose Dolphin [68417]		Species or species habitat may occur within area	In buffer area only

Extra Information

State and Territory Reserves			[Resource Information]
Protected Area Name	Reserve Type	State	Buffer Status
Austin Bay	Nature Reserve	WA	In buffer area only
Boodalan	Nature Reserve	WA	In buffer area only
Creery Island	Nature Reserve	WA	In buffer area only

Protected Area Name	Reserve Type	State	Buffer Status
Goegrup Lake	Nature Reserve	WA	In buffer area only
Len Howard	Conservation Park	WA	In buffer area only
NTWA Bushland covenant (0014)	Conservation Covenant	WA	In buffer area only
Unnamed WA35283	Nature Reserve	WA	In buffer area only
Unnamed WA38749	Conservation Park	WA	In buffer area only
Unnamed WA41102	5(1)(h) Reserve	WA	In buffer area only
Unnamed WA44986	Nature Reserve	WA	In buffer area only
Unnamed WA45089	Nature Reserve	WA	In buffer area only
Unnamed WA46661	Nature Reserve	WA	In buffer area only
Unnamed WA50750	Nature Reserve	WA	In buffer area only
Unnamed WA51945	5(1)(h) Reserve	WA	In buffer area only
Unnamed WA51946	5(1)(h) Reserve	WA	In buffer area only

Nationally Important Wetlands

[Resource Information]

Wetland Name	State	Buffer Status
Barraghup Swamp	WA	In buffer area only
Peel-Harvey Estuary	WA	In buffer area only

EPBC Act Referrals

[Resource Information]

Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Marina Quay Residential Development	2023/09673		Completed	In buffer area only
Marine Route Survey for Subsea Fibre Optic Data Cable System - Australia West	2024/09826		Completed	In buffer area only
Controlled action				
'Lakelands East' residential development, Mandurah, WA	2013/7048	Controlled Action	Post-Approval	In buffer area only
Austin Cove Estate Phase II Residential Development	2007/3885	Controlled Action	Post-Approval	In buffer area only
Construction of New Perth Bunbury Highway project	2005/2193	Controlled Action	Post-Approval	In feature area
Halls Head Shopping Centre stages 2 & 3 expansion	2010/5636	Controlled Action	Post-Approval	In buffer area only

Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Controlled action				
Lot 505 Hungerford Avenue, Halls Head, WA Residential Development	2009/4789	Controlled Action	Post-Approval	In buffer area only
Mandurah Junction Commercial and Residential Development	2010/5410	Controlled Action	Completed	In buffer area only
Mixed Use Residential and Commercial Development	2009/4919	Controlled Action	Post-Approval	In buffer area only
Parklands West Estate Development	2010/5693	Controlled Action	Post-Approval	In buffer area only
Proposed Urban Development	2008/3984	Controlled Action	Post-Approval	In buffer area only
Residential Development Lot 518 Stock Road, Stakehill, WA	2019/8483	Controlled Action	Assessment Approach	In buffer area only
Residential development of Lot 105 Stock Road, Lakelands, WA	2017/8041	Controlled Action	Post-Approval	In buffer area only
Urban Development Ravendale Drive, Coodanup Drive & Wanjeep Street	2011/5928	Controlled Action	Post-Approval	In buffer area only
Not controlled action				
'Looping 10' gas transmission pipeline from Kwinana to Hopelands	2005/2212	Not Controlled Action	Completed	In buffer area only
Bushfire Mitigation Works - City of Mandurah	2020/8674	Not Controlled Action	Completed	In buffer area only
Construction of Secret Harbour High School	2004/1489	Not Controlled Action	Completed	In buffer area only
Demolish and replace Old Mandurah Traffic Bridge, Mandurah, WA	2015/7415	Not Controlled Action	Completed	In buffer area only
Improving rabbit biocontrol: releasing another strain of RHDV, sthrn two thirds of Australia	2015/7522	Not Controlled Action	Completed	In feature area
INDIGO Central Submarine Telecommunications Cable	2017/8127	Not Controlled Action	Completed	In feature area
Kennedy Park Estate Residential Development	2003/1044	Not Controlled Action	Completed	In buffer area only
Lot 101 Mandurah Road, Madora Bay, WA	2012/6466	Not Controlled Action	Completed	In buffer area only
Mandurah Quay Residential Development	2010/5754	Not Controlled Action	Completed	In buffer area only

Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Not controlled action				
Residential development, Lot 179 and part Lot 180 Riverside Dr, and Lot 198 Ronlyn Rd, Furnissdale,	2016/7799	Not Controlled Action	Completed	In buffer area only
Residential Subdivision, Lot 90 Leisure Way, Halls Head, WA	2018/8175	Not Controlled Action	Completed	In buffer area only
Urban development, Lot 805 Mandurah Road, Karnup, WA	2015/7481	Not Controlled Action	Completed	In buffer area only
urban residential development	2006/2924	Not Controlled Action	Completed	In buffer area only
Not controlled action (particular manner)				
Construction of Mandurah Entrance Road	2009/4692	Not Controlled Action (Particular Manner)	Post-Approval	In buffer area only
Coodanup residential development	2006/3073	Not Controlled Action (Particular Manner)	Post-Approval	In buffer area only
Dredging of the Yunderup Approach Channel	2007/3415	Not Controlled Action (Particular Manner)	Post-Approval	In buffer area only
INDIGO Marine Cable Route Survey (INDIGO)	2017/7996	Not Controlled Action (Particular Manner)	Post-Approval	In feature area
Maintenance Channel Dredging	2010/5528	Not Controlled Action (Particular Manner)	Post-Approval	In buffer area only
Multipurpose development stage 1 within 340ha	2004/1913	Not Controlled Action (Particular Manner)	Post-Approval	In buffer area only
South West Metropolitan Railway Project	2003/1175	Not Controlled Action (Particular Manner)	Post-Approval	In feature area
Referral decision				
Lakelands Station	2020/8718	Referral Decision	Completed	In buffer area only

Key Ecological Features [Resource Information]

Key Ecological Features are the parts of the marine ecosystem that are considered to be important for the biodiversity or ecosystem functioning and integrity of the Commonwealth Marine Area.

Name	Region	Buffer Status
Commonwealth marine environment within and adjacent to the west coast inshore lagoons	South-west	In buffer area only
Western rock lobster	South-west	In buffer area only

Biologically Important Areas [Resource Information]

Scientific Name	Behaviour	Presence	Buffer Status
Seabirds			
Ardenna pacifica			
Wedge-tailed Shearwater [84292]	Foraging (in high numbers)	Known to occur	In buffer area only
Eudyptula minor			
Little Penguin [1085]	Foraging (provisioning young)	Known to occur	In buffer area only
Hydroprogne caspia			
Caspian Tern [808]	Foraging (provisioning young)	Known to occur	In buffer area only
Onychoprion anaethetus			
Bridled Tern [82845]	Foraging (in high numbers)	Known to occur	In buffer area only
Puffinus assimilis tunneyi			
Little Shearwater [59363]	Foraging (in high numbers)	Known to occur	In buffer area only
Sterna dougallii			
Roseate Tern [817]	Foraging	Known to occur	In buffer area only
Sternula nereis			
Fairy Tern [82949]	Foraging (in high numbers)	Known to occur	In buffer area only
Whales			
Balaenoptera musculus brevicauda			
Pygmy Blue Whale [81317]	Migration	Known to occur	In buffer area only
Megaptera novaeangliae			
Humpback Whale [38]	Migration (north and south)	Known to occur	In buffer area only

Scientific Name	Behaviour	Presence	Buffer Status

Caveat

1 PURPOSE

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

The report contains the mapped locations of:

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

2 DISCLAIMER

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

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

3 DATA SOURCES

Threatened ecological communities

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

Threatened, migratory and marine species

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

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

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

4 LIMITATIONS

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

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

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

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

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

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

Acknowledgements

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

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

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

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

Department of Climate Change, Energy, the Environment and Water
GPO Box 3090
Canberra ACT 2601 Australia
+61 2 6274 1111

Class	Taxon
Amphibia	Crinia georgiana
	Crinia glauerti
	Crinia insignifera
	Heleioporus eyrei
	Limnodynastes dorsalis
	Litoria adelaidensis
	Litoria moorei
	Litoria raniformis
	Neobatrachus pelobatoides
	Pseudophryne guentheri
Aves	Acanthiza (Acanthiza) apicalis
	Acanthiza (Geobasileus) chrysorrhoa
	Acanthiza (Geobasileus) inornata
	Acanthiza (Subacanthiza) nana
	Acanthorhynchus superciliosus
	Accipiter (Leucospiza) fasciatus
	Accipiter (Paraspizias) cirrocephalus
	Acrocephalus (Acrocephalus) australis
	Actitis hypoleucos
	Aegotheles (Aegotheles) cristatus
	Anas (Anas) platyrhynchos
	Anas (Anas) superciliosa
	Anas (Nettion) castanea
	Anas (Nettion) gracilis
	Anas gracilis
	Anas superciliosa X platyrhynchos
	Anhinga novaehollandiae
	Anous tenuirostris
	Anthochaera (Anellobia) chrysoptera
	Anthochaera (Anellobia) lunulata
	Anthochaera (Anthochaera) carunculata
	Anthus (Anthus) novaeseelandiae
	Apus (Apus) pacificus
	Aquila (Uroaetus) audax
	Ardea alba
	Ardea pacifica
	Ardenna pacifica
	Ardeotis australis
	Arenaria interpres
	Artamus (Angroyan) cinereus
	Artamus (Angroyan) cyanopterus
	Aythya (Nyroca) australis
	Barnardius zonarius
	Biziura lobata
	Botaurus poiciloptilus
	Bubulcus ibis
	Cacatua (Cacatua) galerita
	Cacatua (Licmetis) pastinator

Class	Taxon
	Cacatua (Licmetis) sanguinea
	Cacatua (Licmetis) tenuirostris
	Cacomantis (Vidgenia) flabelliformis
	Cairina moschata
	Calidris (Calidris) canutus
	Calidris (Calidris) falcinellus
	Calidris (Calidris) tenuirostris
	Calidris (Crocethia) alba
	Calidris (Ereunetes) minuta
	Calidris (Ereunetes) ruficollis
	Calidris (Ereunetes) subminuta
	Calidris (Erolia) acuminata
	Calidris (Erolia) ferruginea
	Calidris (Erolia) melanotos
	Calidris pugnax
	Calonectris leucomelas
	Calyptorhynchus (Calyptorhynchus) banksii
	Carduelis carduelis
	Ceyx azureus
	Chalcites basalis
	Chalcites lucidus
	Charadrius (Charadrius) dubius
	Charadrius (Charadrius) leschenaultii
	Charadrius (Charadrius) mongolus
	Charadrius (Charadrius) ruficapillus
	Chenonetta jubata
	Chlidonias (Chlidonias) leucopterus
	Chlidonias (Pelodes) hybrida
	Chroicocephalus novaehollandiae
	Cincloramphus (Cincloramphus) cruralis
	Cincloramphus (Maclennania) mathewsi
	Circus approximans
	Circus assimilis
	Cladorhynchus leucocephalus
	Climacteris (Climacteris) rufus
	Colluricincla (Colluricincla) harmonica
	Columba (Columba) livia
	Coracina (Coracina) novaehollandiae
	Corvus bennetti
	Corvus coronoides
	Coturnix (Coturnix) pectoralis
	Cracticus nigrogularis
	Cracticus torquatus
	Cygnus (Chenopis) atratus
	Cygnus atratus
	Dacelo (Dacelo) novaeguineae
	Daphoenositta (Neositta) chrysoptera
	Daption capense

Class	Taxon
	Dicaeum (Dicaeum) hirundinaceum
	Dromaius novaehollandiae
	Drymodes brunneopygia
	Egretta garzetta
	Egretta novaehollandiae
	Egretta sacra
	Elanus axillaris
	Elseyornis melanops
	Eolophus roseicapilla
	Eopsaltria (Eopsaltria) griseogularis
	Epthianura (Epthianura) albifrons
	Erythrogonys cinctus
	Eudynamys orientalis
	Eudyptula minor
	Falco (Falco) longipennis
	Falco (Hierofalco) peregrinus
	Falco (Ieracidea) berigora
	Falco (Tinnunculus) cenchroides
	Fulica atra
	Gallinula (Gallinula) tenebrosa
	Gavicalis virescens
	Gelochelidon macrotarsa
	Gelochelidon nilotica
	Gerygone fusca
	Glareola (Glareola) maldivarum
	Gliciphila melanops
	Grallina cyanoleuca
	Gymnorhina tibicen
	Haematopus fuliginosus
	Haematopus longirostris
	Haliaeetus (Pontoaetus) leucogaster
	Haliastur sphenurus
	Halobaena caerulea
	Heteroscenes pallidus
	Hieraaetus (Hieraaetus) morphnoides
	Himantopus himantopus
	Hirundo (Hirundo) neoxena
	Hydroprogne caspia
	Hypotaenidia philippensis
	Lalage (Lalage) tricolor
	Larus dominicanus
	Larus pacificus
	Lichmera (Lichmera) indistincta
	Limosa lapponica
	Limosa limosa
	Lophoictinia isura
	Macronectes giganteus
	Macronectes halli

Class	Taxon
	Malacorhynchus membranaceus
	Malurus (Leggeornis) elegans
	Malurus (Leggeornis) lamberti
	Malurus (Malurus) splendens
	Manorina (Myzantha) flavigula
	Melithreptus (Melithreptus) chloropsis
	Melithreptus (Melithreptus) lunatus
	Melopsittacus undulatus
	Merops (Merops) ornatus
	Microcarbo melanoleucos
	Microeca (Microeca) fascinans
	Milvus migrans
	Morus serrator
	Motacilla (Budytes) tschutschensis
	Myiagra (Seisura) inquieta
	Neochmia (Aegintha) temporalis
	Neophema (Neonanodes) elegans
	Neophema (Neonanodes) petrophila
	Ninox (Hieracoglaux) connivens
	Ninox (Ninox) boobook
	Ninox (Ninox) novaeseelandiae
	Numenius (Numenius) madagascariensis
	Numenius (Phaeopus) phaeopus
	Nycticorax caledonicus
	Ocyphaps lophotes
	Onychoprion anaethetus
	Oxyura australis
	Pachycephala (Alisterornis) rufiventris
	Pachycephala (Pachycephala) pectoralis
	Pachycephala (Timixos) inornata
	Pandion haliaetus
	Pardalotus (Pardalotinus) striatus
	Pardalotus (Pardalotus) punctatus
	Parvipsitta porphyrocephala
	Pelecanus conspicillatus
	Petrochelidon (Hylochelidon) nigricans
	Petrochelidon (Petrochelidon) ariel
	Petroica (Petroica) boodang
	Petroica (Petroica) goodenovii
	Phalacrocorax (Phalacrocorax) carbo
	Phalacrocorax (Phalacrocorax) sulcirostris
	Phalacrocorax (Phalacrocorax) varius
	Phalaropus lobatus
	Phaps (Phaps) chalcoptera
	Phaps (Phaps) elegans
	Phoebetria fusca
	Phylidonyris (Meliornis) niger
	Phylidonyris (Meliornis) novaehollandiae

Class	Taxon
	Platalea (Platalea) regia
	Platalea (Platibis) flavipes
	Platycercus (Violania) icterotis
	Plegadis falcinellus
	Pluvialis fulva
	Pluvialis squatarola
	Podargus strigoides
	Podiceps cristatus
	Poliocephalus poliocephalus
	Polytelis anthopeplus
	Poodytes gramineus
	Porphyrio (Porphyrio) porphyrio
	Porzana (Porzana) fluminea
	Psephotus haematonotus
	Pterodroma (Pterodroma) lessonii
	Pterodroma (Pterodroma) macroptera
	Ptilotula ornata
	Purpureicephalus spurius
	Recurvirostra novaehollandiae
	Rhipidura (Rhipidura) albiscapa
	Rhipidura (Rhipidura) fuliginosa
	Rhipidura (Sauloprocta) leucophrys
	Sericornis (Sericornis) frontalis
	Smicrornis brevirostris
	Spatula rhynchotis
	Spilopelia chinensis
	Spilopelia senegalensis
	Stercorarius parasiticus
	Sterna (Sterna) dougallii
	Sterna (Sterna) hirundo
	Sterna (Sterna) paradisaea
	Sternula albifrons
	Sternula nereis
	Stiltia isabella
	Stipiturus malachurus
	Strepera (Neostrepera) versicolor
	Synoicus ypsilophora
	Tachybaptus novaehollandiae
	Tadorna (Casarca) tadornoides
	Thalassarche chlororhynchos
	Thalassarche chrysostoma
	Thalassarche melanophris
	Thalasseus bergii
	Thinornis cucullatus
	Threskiornis moluccus
	Threskiornis spinicollis
	Todiramphus (Todiramphus) sanctus
	Tribonyx ventralis

Class	Taxon
	Trichoglossus haematodus
	Tringa (Glottis) nebularia
	Tringa (Heteroscelus) brevipes
	Tringa (Rhyacophilus) glareola
	Tringa (Rhyacophilus) stagnatilis
	Turnix (Austroturnix) varius
	Tyto javanica
	Vanellus (Lobivanellus) tricolor
	Xenus cinereus
	Zanda baudinii
	Zanda latirostris
	Zapornia pusilla
	Zapornia tabuensis
	Zosterops lateralis
Mammalia	Arctocephalus tropicalis
	Cercartetus concinnus
	Eubalaena australis
	Felis catus
	Globicephala macrorhynchus
	Hydromys chrysogaster
	Isoodon fusciventer
	Isoodon obesulus
	Lobodon carcinophaga
	Macropus fuliginosus
	Mus musculus
	Notamacropus irma
	Oryctolagus cuniculus
	Phascogale tapoatafa
	Pseudocheirus occidentalis
	Rattus rattus
	Tachyglossus aculeatus
	Trichosurus vulpecula
	Tursiops aduncus
	Tursiops truncatus
	Vespadelus regulus
	Vulpes vulpes
Reptilia	Acritoscincus trilineatus
	Anilios australis
	Aprasia repens
	Caretta caretta
	Chelodina (Macrochelodina) oblonga
	Christinus marmoratus
	Cryptoblepharus buchananii
	Ctenotus australis
	Ctenotus fallens
	Ctenotus impar
	Demansia reticulata
	Echiopsis curta

Class	Taxon
	Egernia kingii
	Egernia napoleonis
	Elapognathus coronatus
	Hemidactylus frenatus
	Hemiergis quadrilineata
	Hydrophis elegans
	Lampropholis guichenoti
	Lerista elegans
	Lerista lineata
	Lialis burtonis
	Menetia greyii
	Moloch horridus
	Morethia lineoocellata
	Neelaps calonotus
	Notechis scutatus
	Pletholax gracilis
	Pogona barbata
	Pogona minor
	Pseudonaja affinis
	Pseudonaja mengdeni
	Simoselaps bertholdi
	Simoselaps littoralis
	Suta gouldii
	Tiliqua rugosa
	Underwoodisaurus milii
	Varanus gouldii
	Varanus tristis

Class	Taxon
ACTINOPTERYGII	Crenimugil crenilabis (ForsskÃ¥l, 1775)
	Hyperlophus vittatus (Castelnau, 1875)
	Hyporhamphus regularis (GÃ¼nther, 1866)
	Liza argentea (Quoy & Gaimard, 1825)
AMPHIBIA	Crinia georgiana Tschudi, 1838
	Crinia glauerti (Loveridge, 1933)
	Crinia insignifera (Moore, 1954)
	Heleioporus eyrei (Gray, 1845)
	Heleioporus psammophilus (Lee & Main, 1954)
	Limnodynastes dorsalis (Gray, 1841)
	Litoria
	Litoria adelaidensis (Gray, 1841)
	Litoria moorei (Copland, 1957)
	Litoria Tschudi, 1838
	Neobatrachus pelobatoides (Werner, 1914)
	Pseudophryne guentheri Boulenger, 1882
ARACHNIDA	Aname L. Koch, 1873
	Arachnura higginsi (L. Koch, 1872)
	Argiope trifasciata (ForsskÃ¥l, 1775)
	Austracantha minax (Thorell, 1859)
	Backobourkia heroine (L. Koch, 1871)
	Baiami Lehtinen, 1967
	Clubiona Latreille, 1804
	Cyclosa trilobata (Urquhart, 1885)
	Hortophora biapicata (L. Koch, 1871)
	Idiommata blackwalli (O. Pickard-Cambridge, 1870)
	Isopeda leishmanni Hogg, 1903
	Lampona brevipes L. Koch, 1872
	Lampona cylindrata (L. Koch, 1866)
	Latrodectus hasselti Thorell, 1870
	Lychas C.L. Koch, 1845
	Missulena granulosa (O. P.-Cambridge, 1869)
	Missulena hoggi Womersley, 1943
	Missulena occatoria Walckenaer, 1805
	Nicodamus mainae Harvey, 1995
	Olpiidae Banks, 1895
	Oxyopes gracilipes (White, 1849)
	Oxyopes Latreille, 1804
	Pinkfloydia harveyi Dimitrov & Hormiga, 2011
	Raveniella peckorum Rix & Harvey, 2010
	Tasmanicosa leuckarti (Thorell, 1870)
	Trichonephila edulis (LabillardiÃ¨re, 1799)
	Venator immansuetus (Simon, 1909)
AVES	Acanthiza apicalis Gould, 1847
	Acanthiza chrysorrhoa (Quoy & Gaimard, 1830)
	Accipiter cirrocephalus (Vieillot, 1817)
	Acrocephalus australis (Gould, 1838)
	Anas castanea (Eyton, 1838)

Class	Taxon
	Anas gracilis Buller, 1869
	Anas superciliosa Gmelin, 1789
	Anhinga melanogaster Pennant, 1769
	Anhinga novaehollandiae novaehollandiae (Gould, 1847)
	Anthochaera carunculata (Shaw, 1790)
	Anthochaera lunulata Gould, 1838
	Ardea alba modesta JE Gray, 1831
	Ardea garzetta nigripes Temminck, 1840
	Ardea pacifica Latham, 1802
	Aythya australis (Eyton, 1838)
	Barnardius zonarius (Shaw, 1805)
	Barnardius zonarius semitorquatus (Quoy & Gaimard, 1830)
	Biziura lobata (Shaw, 1796)
	Cacatua galerita (Latham, 1790)
	Cacatua roseicapilla Vieillot, 1817
	Cacomantis flabelliformis (Latham, 1802)
	Chalcites basalis (Horsfield, 1821)
	Chalcites lucidus (Gmelin & JF, 1788)
	Charadrius melanops Vieillot, 1818
	Charadrius ruficapillus Temminck, 1822
	Chenonetta jubata (Latham, 1802)
	Chroicocephalus novaehollandiae novaehollandiae Stephens, 1826
	Chroicocephalus novaehollandiae Stephens, 1826
	Circus approximans Peale, 1848
	Cladorhynchus leucocephalus (Vieillot, 1816)
	Colluricincla harmonica (Latham, 1802)
	Colluricincla harmonica rufiventris Gould, 1841
	Columba livia Gmelin, 1789
	Coracina novaehollandiae (Gmelin, 1789)
	Corvus coronoides perplexus Mathews, 1912
	Corvus coronoides Vigors & Horsfield, 1827
	Coturnix pectoralis Gould, 1837
	Cracticus torquatus (Latham, 1802)
	Cygnus atratus (Latham, 1790)
	Daphoenositta chrysoptera pileata (Gould, 1838)
	Daption capense (Linnaeus, 1758)
	Dicaeum hirundinaceum (Shaw, 1792)
	Egretta novaehollandiae (Latham, 1790)
	Elanus axillaris (Latham, 1802)
	Eopsaltria griseogularis Gould, 1838
	Eopsaltria griseogularis griseogularis Gould, 1838
	Epthianura albifrons (Jardine & Selby, 1828)
	Erythrogonys cinctus Gould, 1838
	Falco cenchroides Vigors & Horsfield, 1827
	Fulica atra australis Gould, 1845
	Gallinula tenebrosa tenebrosa Gould, 1846
	Gavicalis virescens (Vieillot, 1817)
	Gerygone fusca (Gould, 1838)

Class	Taxon
	Gerygone fusca fusca (Gould, 1838)
	Grallina cyanoleuca (Latham, 1802)
	Gymnorhina tibicen (Latham, 1802)
	Gymnorhina tibicen dorsalis Campbell, 1895
	Haematopus longirostris Vieillot, 1817
	Haliastur sphenurus (Vieillot, 1818)
	Hieraaetus morphnoides (Gould, 1841)
	Himantopus himantopus (Linnaeus, 1758)
	Hirundo neoxena Gould, 1842
	Lichmera indistincta (Vigors & Horsfield, 1827)
	Lichmera indistincta indistincta (Vigors & Horsfield, 1827)
	Malacorhynchus membranaceus (Latham, 1802)
	Malurus splendens (Quoy & Gaimard, 1830)
	Megalurus gramineus (Gould, 1845)
	Melithreptus chloropsis Gould, 1848
	Microcarbo melanoleucos (Vieillot, 1817)
	Ninox boobook boobook (Latham, 1801)
	Nycticorax caledonicus (Gmelin, 1789)
	Pachycephala fuliginosa occidentalis Ramsay, 1878
	Pachycephala rufiventris (Latham, 1802)
	Pardalotus striatus (Gmelin, 1789)
	Pardalotus striatus westraliensis Mathews, 1912
	Pelecanus conspicillatus Temminck, 1824
	Petrochelidon nigricans (Vieillot, 1817)
	Phalacrocorax carbo (Linnaeus, 1758)
	Phalacrocorax carbo novaehollandiae Stephens, 1826
	Phalacrocorax sulcirostris (von Brandt, 1837)
	Phalacrocorax varius (Gmelin, 1789)
	Phylidonyris niger (Bechstein, 1811)
	Phylidonyris novaehollandiae (Latham, 1790)
	Platalea flavipes Gould, 1838
	Platycercus icterotis (Temminck & Kuhl, 1820)
	Platycercus spurius (Kuhl, 1820)
	Podiceps cristatus (Linnaeus, 1758)
	Podiceps cristatus australis Gould, 1844
	Poliocephalus poliocephalus (Jardine & Selby, 1827)
	Porphyrio porphyrio bellus Gould, 1841
	Pterodroma lessonii (Garnot, 1826)
	Ptilotula ornata (Gould, 1838)
	Purpureicephalus spurius
	Recurvirostra novaehollandiae Vieillot, 1816
	Rhipidura albiscapa Gould, 1840
	Rhipidura albiscapa preissi Cabanis, 1850
	Rhipidura leucophrys (Latham, 1802)
	Rhipidura leucophrys leucophrys (Latham, 1802)
	Sericornis frontalis (Vigors & Horsfield, 1827)
	Sericornis frontalis maculatus Gould, 1847
	Smicrornis brevirostris (Gould, 1838)

Class	Taxon
	Spatula rhynchotis (Latham, 1802)
	Spilopelia chinensis (Scopoli, 1786)
	Spilopelia senegalensis (Linnaeus, 1766)
	Sternula nereis Gould, 1843
	Strepera versicolor (Latham, 1802)
	Tachybaptus novaehollandiae novaehollandiae (Stephens, 1826)
	Tadorna tadornoides (Jardine & Selby, 1828)
	Threskiornis moluccus (Cuvier, 1829)
	Threskiornis spinicollis (Jameson, 1835)
	Todiramphus sanctus (Vigors & Horsfield, 1827)
	Todiramphus sanctus sanctus (Vigors & Horsfield, 1837)
	Tribonyx ventralis (Gould, 1837)
	Vanellus tricolor (Vieillot, 1818)
	Zapornia tabuensis (Gmelin, 1789)
	Zosterops lateralis (Latham, 1802)
	Zosterops lateralis chloronotus Gould, 1841
CHILOPODA	Cormocephalus aurantiipes (Newport, 1844)
	Cormocephalus turneri Pocock, 1901
CHONDRICHTHYES	Trygonoptera mucosa (Whitley, 1939)
	Trygonoptera personata Last & Gomon, 1987
	Urolophus lobatus McKay, 1966
DIPLOPODA	Akamptogonus novarae (Humbert & de Saussure, 1869)
INSECTA	Alphitobius diaperinus (Panzer, 1797)
	Amegilla (Notomegilla) chlorocyanea (Cockerell, 1914)
	Astraeus (Astraeus) crassus van de Poll, 1889
	Austrolestes aleison Watson & Moulds, 1979
	Austrolestes analis (Rambur, 1842)
	Austrolestes annulosus (Selys, 1862)
	Austrolestes io (Selys, 1862)
	Callipappus
	Calolampra Saussure, 1893
	Castiarina aquila (Barker, 1980)
	Cermatulus nasalis (Westwood, 1837)
	Coranus mundus (Miller, 1954)
	Coranus trabeatus HorvÃ¡th, 1902
	Cylindraustralia kochii de Saussure, 1877
	Diphucrania parva (Blackburn, 1887)
	Gryllotalpa Latreille, 1802
	Hemiptera
	Hesperilla trimaculata occidentalis (Moulds & Atkins, 1986)
	Heterotermes occiduus (Hill, 1927)
	Leioproctus (Ceratocolletes) antennatus (Smith, 1879)
	Lipotriches (Austronomia) flavoviridis (Cockerell, 1905)
	Malachiinae
	Megachile (Eutricharaea) chrysopyga Smith, 1853
	Megachile (Hackeriapis) Cockerell, 1922
	Megachile (Mitchellapis) Michener, 1965
	Megachile erythropyga Smith, 1853

Class	Taxon
	Megachile fultoni Cockerell, 1913
	Megachile ignita Smith, 1853
	Melobasis Laporte & Gory, 1837
	Numilia
	Nyllius asperatus StÃ¥l, 1859
	Odonata
	Oechalia schellenbergii (GuÃ©rin, 1831)
	Orcus australasiae (Boisduval, 1835)
	Papilio (Princeps) demoleus sthenelus Macleay, 1826
	Paralasonia
	Phoracantha punctipennis (Blackburn, 1889)
	Poecilometis
	Poecilometis patruelis patruelis StÃ¥l, 1860
	Polyzosteria cuprea Saussure, 1863
	Ponerotilla lissantyx Brothers, 1994
	Protestrica montana Gross, 1975
	Pseudoanthidium (Immanthidium) repetitum (Schultz, 1906)
	Reduviidae
	Rhipicera Latreille, 1817
	Rutilia
	Sericophorus
	Sericophorus punctum Lomholdt, 2010
	Simosyrphus grandicornis (Macquart, 1842)
	Temognatha conspicillata (White, 1843)
	Testrica
	Thyreus waroonensis (Cockerell, 1913)
	Urophorus humeralis (Fabricius, 1798)
MAMMALIA	Austronomus australis Gray, 1838
	Chalinolobus gouldii (Gray, 1841)
	Felis catus Linnaeus, 1758
	Globicephala macrorhynchus Gray, 1846
	Isoodon obesulus (Shaw, 1797)
	Lobodon carcinophagus (Hombron & Jacquinot, 1842)
	Macropus fuliginosus (Desmarest, 1817)
	Mus musculus Linnaeus, 1758
	Phascogale tapoatafa (Meyer, 1793)
	Rattus fuscipes (Waterhouse, 1839)
	Rattus rattus (Linnaeus, 1758)
	Trichosurus vulpecula (Kerr, 1793)
	Trichosurus vulpecula hypoleucus (Wagner, 1855)
	Trichosurus vulpecula vulpecula (Kerr, 1793)
	Tursiops truncatus truncatus Montague, 1821
	Vespadelus regulus (Thomas, 1906)
REPTILIA	Acritoscincus trilineatus (Gray, 1839)
	Anilios australis Gray, 1845
	Aprasia repens (Fry, 1914)
	Chelodina oblonga Gray, 1841
	Christinus marmoratus (Gray, 1845)

Class	Taxon
	Cryptoblepharus buchananii (Gray, 1838)
	Ctenotus
	Ctenotus australis (Gray, 1838)
	Ctenotus fallens Storr, 1974
	Ctenotus impar Storr, 1969
	Delma fraseri Gray, 1831
	Delma grayii Smith, 1849
	Demansia psammophis (Schelgel, 1837)
	Demansia reticulata (Gray, 1842)
	Echiopsis curta (Schlegel, 1837)
	Egernia kingii (Gray, 1838)
	Egernia napoleonis (Gray, 1838)
	Hemiergis quadrilineata (Dumeril & Bibron, 1839)
	Hemiergis quadrilineatus (Dumeril, Shaw & Bibron, 1839)
	Hydrophis elegans (Gray, 1842)
	Hydrophis platurus platurus (Linnaeus, 1766)
	Lerista Bell, 1833
	Lerista elegans (Gray, 1845)
	Lialis
	Lialis burtonis Gray, 1835
	Menetia greyii Gray, 1845
	Moloch horridus Gray, 1841
	Morethia lineoocellata (Dumeril & Bibron, 1839)
	Narophis bimaculatus (A.M.C. DumÃ©ril, Bibron & A. DumÃ©ril, 1854)
	Notechis scutatus (Peters, 1861)
	Pogona minor (Sternfeld, 1919)
	Pogona minor minor (Sternfeld, 1919)
	Pseudonaja affinis affinis GÃ¼nther, 1872
	Pseudonaja affinis Gunther, 1872
	Pseudonaja nuchalis GÃ¼nther, 1858
	Simoselaps bertholdi (Jan, 1859)
	Strophurus spinigerus (Gray, 1842)
	Strophurus spinigerus spinigerus (Gray, 1842)
	Suta gouldii (Gray, 1841)
	Tiliqua occipitalis (Peters, 1863)
	Tiliqua rugosa (Gray, 1825)
	Tiliqua rugosa rugosa (Gray, 1825)
	Varanus gouldii (Gray, 1838)
	Varanus tristis (Schlegel, 1839)
	Varanus tristis tristis (Schlegel, 1839)
UNCLASSIFIED	Acanthopagrus butcheri (Munro, 1949)
	Aphrodroma brevirostris (Lesson, 1831)
	Archiargiolestes parvulus (Watson, 1977)
	Candalides heathi heathi (Cox, 1873)
	Castiarina aureola (Carter, 1913)
	Castiarina cupreoflava (Saunders, 1869)
	Castiarina picta (Gory & Laporte, 1838)
	Castiarina placida (Thomson, 1879)

Class	Taxon
	Ceratitis capitata (Wiedemann, 1824)
	Chrysopogon albopunctatus (Macquart, 1846)
	Coleotichus costatus (Fabricius, 1787)
	Coptotermes acinaciformis (Froggatt, 1898)
	Coptotermes michaelseni Silvestri, 1909
	Craterocephalus mugiloides (McCulloch, 1912)
	Croitana croites (Hewitson, 1874)
	Dictyotus caenosus (Westwood, 1837)
	Dictyotus conspicuus Gross, 1975
	Dictyotus roei (Westwood, 1837)
	Erina acasta (Cox, 1873)
	Favonigobius lentiginosus (Richardson, 1844)
	Geitoneura klugii (GuÃ©rin-MÃ©neville, 1830)
	Hyleoides zonalis Smith, 1853
	Hypotaenidia philippensis (Linnaeus, 1766)
	Jalmenus icilius Hewitson, 1865
	Jalmenus inous Hewitson, 1865
	Jalmenus inous inous Hewitson, 1865
	Kalkadoona enchylaenae Gross, 1976
	Lampides boeticus (Linnaeus, 1767)
	Macrocarenoides scutellatus (Distant, 1899)
	Megacmonotus magnus (McLachlan, 1871)
	Melanacanthus scutellaris (Dallas, 1852)
	Melangyna collatus (Walker, 1852)
	Mictis profana (Fabricius, 1803)
	Neolucia agricola occidens Waterhouse & Lyell, 1914
	Neuroctenus transitus Monteith, 1997
	Ommatoiulus moreleti (Lucas, 1860)
	Oncocoris apicalis (Dallas, 1851)
	Paracapritermes kraepelinii (Silvestri, 1909)
	Poecilometis lineatus (Westwood, 1837)
	Pseudogobius olorum (Sauvage, 1880)
	Regalecus glesne Ascanius, 1772
	Saprinus chalcites (Illiger, 1807)
	Servaea melaina Richardson & Gunter, 2012
	Theclinesthes hesperia hesperia Sibatani & Grund, 1978
	Theclinesthes hesperia Sibatani & Grund, 1978
	Tholosanus proximus (Dallas, 1851)
	Tyto javanica delicatula (Gould, 1837)
	Uracanthus triangularis Hope, 1833
	Zonioploca pallida Shelford, 1909
	Antichiropus variabilis
	Arachnura higginsi
	Araneus cyphoxis
	Araneus eburneiventris
	Araneus senicaudatus
	Argiope protensa
	Argiope trifasciata

Class	Taxon
	Artoria flavimana
	Artoria linnaei
	Artoria taeniifera
	Asadipus kunderang
	Austracantha minax
	Austroconops mcmillani
	Backobourkia heroine
	Badumna insignis
	Baetidae sp.
	Ballarra longipalpus
	Caenidae sp.
	Celaenia excavata
	Ceratopogonidae sp.
	Cercophonius sulcatus
	Ceryerda cursitans
	Cherax cainii
	Cherax destructor
	Cherax preissii
	Cherax quinquecarinatus
	Cherax sp.
	Chironominae sp.
	Clynotis severus
	Coenagrionidae sp.
	Corixidae sp.
	Cormocephalus aurantiipes
	Cormocephalus novaehollandiae
	Cormocephalus rubriceps
	Cryptoerithus quobba
	Cyclosa trilobata
	Cyrtophora parnasia
	Daphnia carinata
	Dingosa serrata
	Dinocambala ingens
	Dytiscidae sp.
	earthworm sp.
	Eodelena convexa
	Eodelena lapidicola
	Eriophora biapicata
	Erythracarus decoris
	Gea theridioides
	Glossiphoniidae sp.
	Gomphidae sp.
	Gripopterygidae sp.
	Gyrinidae sp.
	Henicops dentatus
	Hogna crispipes
	Hydrometridae sp.
	Hydrophilidae sp.

Class	Taxon
	Hydropsychidae sp.
	Hydroptilidae sp.
	Hyriidae sp.
	Idiommata blackwalli
	Idiosoma sigillatum
	Isometroides vescus
	Isopeda leishmanni
	Ixodes australiensis
	Kangarosa ludwigi
	Kangarosa properipes
	Karaops ellenae
	Lampona brevipes
	Lampona cylindrata
	Latrodectus hasseltii
	Leioproctus contrarius
	Leioproctus douglasiellus
	Leptoceridae sp.
	Leptophlebiidae sp.
	Leucauge dromedaria
	Libellulidae sp.
	Longepi woodman
	Longrita insidiosa
	Lychas sp.
	Lycosa ariadnae
	Lycosa gilberta
	Maratus mungaich
	Maratus pavonis
	Marsupiopus antechinus
	Missulena granulosa
	Missulena hoggi
	Missulena occatoria
	Mituliodon tarantulinus
	Mitzoruga insularis
	Neopasiphae simplicior
	Nephila edulis
	Nicodamus mainae
	Notiasemus glauerti
	Notonectidae sp.
	Ocrisiona leucocomis
	Oligochaeta sp.
	Ommatoiulus moreleti
	Ommatoiulus moreletii
	Orthocladiinae sp.
	Oxidus gracilis
	Oxyopes gracilipes
	Oxyopes punctatus
	Palaemonidae sp.
	Paralamyctes cammooensis

Class	Taxon
	Parastacidae sp.
	Pediana occidentalis
	Phenasteron longiconductor
	Phryganoporus candidus
	Physidae sp.
	Pinkfloydia harveii
	Planorbidae sp.
	Podykipus collinus
	Poltys laciniosus
	Polygonarea repanda
	Prionosternum scutatum
	Raveniella cirrata
	Raveniella peckorum
	Richardsonianidae sp.
	Scolopendra laeta
	Scolopendra morsitans
	Servaea melaina
	Simaetha tenuior
	Simuliidae sp.
	Smeringopus natalensis
	Solaenodolichopus pruvoti
	Steatoda capensis
	Steatoda grossa
	Supunna funerea
	Supunna picta
	Synemon gratiosa
	Synothele rastelloides
	Tabanidae sp.
	Tamopsis perthensis
	Tanypodinae sp.
	Tasmanicosa leuckartii
	Tetragnatha demissa
	Throscodectes xiphos
	Tinytrema yarra
	Tipulidae sp.
	Urodacus novaehollandiae
	Urodacus planimanus
	Venator immansueta
	Venatrix pullastra
	Westralunio carteri
	Withius piger
MAMMAL	Antechinus flavipes subsp. leucogaster
	Austronomus australis
	Canis lupus subsp. familiaris
	Cercartetus concinnus
	Chalinolobus gouldii
	Chalinolobus morio
	Dasyurus geoffroii

Class	Taxon
	Felis cattus
	Felis catus
	Funambulus pennanti
	Hydromys chrysogaster
	Isoodon fusciventer
	Isoodon obesulus
	Isoodon obesulus fusciventer
	Isoodon obesulus subsp. fusciventer
	Macropus fuliginosus
	Macropus irma
	Mormopterus sp. 4
	Mus musculus
	Myrmecobius fasciatus
	Notamacropus irma
	Nyctophilus geoffroyi
	Nyctophilus major
	Nyctophilus major major
	Nyctophilus timoriensis subsp. timoriensis
	Oryctolagus cuniculus
	Ozimops kitcheneri
	Phascogale tapoatafa subsp. tapoatafa
	Phascogale tapoatafa subsp. wambenger
	Pteropus scapulatus
	Rattus fuscipes
	Rattus norvegicus
	Rattus rattus
	Setonix brachyurus
	Sminthopsis gilberti
	Sminthopsis murina
	Tachyglossus aculeatus
	Tadarida australis
	Tarsipes rostratus
	Trichosurus vulpecula
	Trichosurus vulpecula subsp. vulpecula
	Vespadelus regulus
	Vulpes vulpes
REPTILE	Acanthophis antarcticus
	Acritoscincus trilineata
	Acritoscincus trilineatum
	Acritoscincus trilineatus
	Anilios australis
	Aprasia pulchella
	Aprasia repens
	Brachyurophis semifasciatus
	Chelodina colliei
	Chelodina oblonga
	Christinus marmoratus
	Cryptoblepharus buchananii

Class	Taxon
	Cryptoblepharus plagiocephalus
	Cryptoblepharus sp.
	Ctenophorus adelaidensis
	Ctenotus australis
	Ctenotus delli
	Ctenotus fallens
	Ctenotus gemmula
	Ctenotus impar
	Ctenotus labillardieri
	Ctenotus ora
	Delma fraseri
	Delma grayii
	Delma sp.
	Demansia psammophis
	Demansia psammophis subsp. reticulata
	Diplodactylus granariensis subsp. granariensis
	Diplodactylus lateroides
	Diplodactylus polyophthalmus
	Diplodactylus sp.
	Echiopsis curta
	Egernia kingii
	Egernia kingii (King's Skink)
	Egernia napoleonis
	Elapognathus coronatus
	Gehyra variegata
	Hemiergis initialis subsp. initialis
	Hemiergis quadrilineata
	Lerista distinguenda
	Lerista elegans
	Lerista lineata
	Lialis burtonis
	Menetia greyii
	Menetia sp.
	Morelia spilota subsp. imbricata
	Morethia lineoocellata
	Morethia obscura
	Neelaps bimaculatus
	Neelaps calonotos
	Notechis scutatus
	Parasuta gouldii
	Parasuta nigriceps
	Pletholax gracilis
	Pletholax gracilis subsp. gracilis
	Pogona minima
	Pogona minor
	Pogona minor subsp. minima
	Pogona minor subsp. minor
	Pseudechis australis

Class	Taxon
	Pseudonaja affinis
	Pseudonaja affinis subsp. affinis
	Pseudonaja affinis subsp. exilis
	Pseudonaja mengdeni
	Pygopus lepidopodus
	Ramphotyphlops australis
	Ramphotyphlops pinguis
	Ramphotyphlops waitii
	Simoselaps bertholdi
	Tiliqua occipitalis
	Tiliqua rugosa
	Tiliqua rugosa rugosa
	Tiliqua rugosa subsp. aspera
	Tiliqua rugosa subsp. rugosa
	Underwoodisaurus milii
	Varanus gouldii
	Varanus rosenbergi
	Varanus rosenbergii
	Varanus tristis

Appendix C

Conservation significant species and likelihood of occurrence assessment

Species name	Common name	Level of significance		Habitat	Likelihood of occurrence
		WA	EPBC Act		
Birds					
Actitis hypoleucos	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
Anous stolidus	Common noddy	MI	MI	Tropical and subtropical seas, cayes, reefs, buoys and piles (Pizzey & Knight 2012).	Negligible
Anous tenuirostris melanops	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).	Negligible
Apus pacificus	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
Ardenna carneipes	Flesh-footed shearwater	VU	MI	Marine species that breeds on islands off south coast from near Cape Leeuwin (Johnstone and Storr 1998).	Low
Ardenna grisea	Sooty shearwater	MI	MI	Marine, migratory species that may visit south-western Australian waters from June to October (Pizzey & Knight 2012).	Negligible

Species name	Common name	Level of significance		Habitat	Likelihood of occurrence
		WA	EPBC Act		
Ardenna pacifica	Wedge-tailed Shearwater	MI	MI	Pelagic species that inhabits tropical and subtropical seas. Common in western and eastern Australian seas. In western Australia breeds on offshore islands from Montebello to Rottnest/Carnac (Morcombe & Stewart 2021; Pizzey & Knight 2012).	Low
Arenaria interpres	Ruddy turnstone	VU (MI)	VU (MI)	Tidal mud and reef flats, sheltered rocky coasts, stony and seaweedy beaches and sandpits, dry coral ridges (Abrolhos) and pebbly shores of near-coastal saltlakes (including saltwork ponds) (Johnstone and Storr 1998).	Low
Botaurus poiciloptilus	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).	Negligible
Calidris acuminata	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).	Low
Calidris alba	Sanderling	MI	MI	Mainly steeply shelving sandy beaches exposed to ocean swell. Also sandy inlets, estuarine sandbanks and near-coastal saltlakes (including saltwork ponds) (Johnstone & Storr 1998).	Low

Species name	Common name	Level of significance		Habitat	Likelihood of occurrence
		WA	EPBC Act		
Calidris canutus	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).	Low
Calidris falcinellus	Broad-billed sandpiper	MI	MI, MA	Tidal mudflats, reefs, saltmarsh, freshwater wetlands, sewage ponds, favours muddy ooze (Pizzey & Knight 2012).	Low
Calidris ferruginea	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).	Low
Calidris melanotos	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).	Low
Calidris pugnax	Ruff	MI	MI	Fresh, brackish and saline wetlands; tidal mudflats, saltfields, sewage ponds (Pizzey & Knight 2012).	Low
Calidris ruficollis	Red-necked stint	MI	MI	Tidal mudflats, saltmarshes, sandy or shelly beaches, saline and freshwater wetlands (coastal and inland), saltfields, sewage ponds (Pizzey and Knight 2012).	Low

Species name	Common name	Level of significance		Habitat	Likelihood of occurrence
		WA	EPBC Act		
Calidris subminuta	Long-toed stint	MI	MI	Mainly freshwater swamps (especially when drying and where vegetation is short), river pools, lagoons and claypans; also brackish pools, sewage ponds and samphire flats around estuaries and saltlakes (Johnstone & Storr 1988).	Low
Calidris tenuirostris	Great knot	CR	CR (MI)	Mud or sand flats in estuaries and on sheltered coasts. Also near-coastal saltlakes, including saltwork ponds (Johnstone & Storr 1988).	Low
Calonectris leucomelas	Streaked shearwater	MI	MI	Regular non-breeding visitor to western Australian north of Geraldton (Pizzey & Knight 2012).	Negligible
Calyptorhynchus banksii naso	Forest red-tailed black cock	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
Charadrius dubius	Little ringed plover	MI	MI	Open, muddy or sandy shores of lakes, swamps, tidal areas, sewage ponds or farm dams. Rare but regular summer migrant to Australia (Pizzey & Knight 2012).	Low
Charadrius leschenaultii	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).	Low

Species name	Common name	Level of significance		Habitat	Likelihood of occurrence
		WA	EPBC Act		
Charadrius mongolus	Lesser sand plover	EN	EN (MI)	Sandy beaches and tidal estuarine flats. Also near-coastal saltlakes, including saltwork ponds (Johnstone & Storr 1998).	Low
Chlidonias leucopterus	White-winged black tern	MI	MI	Vegetated and open wetlands, brackish and saline lakes, saltfields, irrigated lands, sewage ponds and occasionally offshore (Pizzey & Knight 2012).	Negligible
Diomedea amsterdamensis	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)	Negligible
Diomedea dabbenena	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).	Negligible
Diomedea epomophora	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).	Negligible
Diomedea exulans	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).	Negligible

Species name	Common name	Level of significance		Habitat	Likelihood of occurrence
		WA	EPBC Act		
Diomedea sanfordi	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.	Negligible
Falco hypoleucos	Grey falcon	VU	-	Species occurs in arid and semi-arid Australia, where it inhabits timbered lowland plains. In particular Acacia shrublands and that are crossed by tree-lined water courses. Species has also been observed hunting in treeless areas and frequenting tussock grassland and open woodlands (TSSC 2020).	Negligible
Falco peregrinus	Peregrine falcon	OS	-	Mainly found around cliffs along coasts, rivers, ranges and around wooded watercourses and lakes (Johnstone and Storr 1998).	Moderate
Gallinago megala	Swinhoe's snipe	MI	MI	Wet, grassy ground; edges of reedy swamps (Pizzey & Knight 2012).	Negligible

Species name	Common name	Level of significance		Habitat	Likelihood of occurrence
		WA	EPBC Act		
Gallinago stenura	Pin-tailed snipe	MI	MI	Boggy edges of vegetated wetlands; sewage and other ponds; stubbles, grasslands with shrubs, pastures (Pizzey & Knight 2012).	Negligible
Gelochelidon nilotica	Gull-billed tern	MI	MI	Beaches, mudflats; fresh, brackish wetlands, including far inland; grasslands, crops, ploughed fields, airfields (Pizzey & Knight 2012).	Negligible
Glareola maldivarum	Oriental pratincole	MI	MI	Plains, shallow wet and dry edges of open bare wetlands, tidal mudflats and beaches (Pizzey & Knight 2012).	Negligible
Halobaena caerulea	Blue petrel	MI	VU (MI)	Marine species that breeds on southern subantarctic and northern artic islands. Only an accidental or uncommon visitor to Western Australian waters (Johnstone & Storr 1998).	Negligible
Hydroprogne caspia	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 (DCCEEW 2023).	Low

Species name	Common name	Level of significance		Habitat	Likelihood of occurrence
		WA	EPBC Act		
Leipoa ocellata	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).	Nil
Limicola falcinellus	Broad-billed sandpiper	-	MI, MA	Parts of the coast between Onslow and Broome, in estuarine mudflats, saltmarshes, shallow freshwater lagoons, saltworks and sewage farms, and in areas with large soft intertidal mudflats. They have also been recorded in creeks, swamps and lakes near the coast, particularly those with bare mudflats or sand exposed by receding water. Have been record in Augusta (DCCEEW 2023).	Negligible
Limosa lapponica	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).	Low
Thinornis cucullatus	Hooded plover	P4	VU	Margins and shallows of saltlakes, sandy and seaweedy beaches and estuaries; also dams (Johnstone and Storr 1998).	Low
Limosa limosa	Black-tailed godwit	EN MI	EN (MI)	Tidal mudflats, estuaries, sewage ponds, shallow river margins, brackish or saline inland lakes, flooded pastures, airfields (Pizzey & Knight 2012).	Low

Species name	Common name	Level of significance		Habitat	Likelihood of occurrence
		WA	EPBC Act		
Macronectes giganteus	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).	Negligible
Macronectes halli	Northern giant petrel	MI	VU (MI)	Breeds on subantarctic islands. May visit Western Australian water from February to September (Johnstone and Storr 1998).	Negligible
Motacilla cinerea	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).	Negligible
Numenius madagascariensis	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).	Low
Numenius minutus	Little curlew	MI	MI	Dry grasslands, floodplains, margins of drying swamps; tidal mudflats, airfields, playing fields, crops, commercial saltfields, sewage ponds (Pizzey & Knight 2012).	Negligible
Numenius phaeopus	Whimbrel	MI	MI	Estuaries, mangroves, tidal flats, coral cays, exposed reefs, flooded paddocks, sewage ponds, bare grasslands, sportsgrounds and lawns (Pizzey & Knight 2012).	Low
Onychoprion anaethetus	Bridled tern	MI	MI	Tropical and subtropical seas, offshore islands, rarely coasts (Pizzey & Knight 2012).	Low

Species name	Common name	Level of significance		Habitat	Likelihood of occurrence
		WA	EPBC Act		
Oxyura australis	Blue-billed duck	P4	-	Mainly deeper freshwater swamps and lakes; occasionally saltlakes and estuaries freshened by flood waters (Johnstone and Storr 1998).	Low
Pachyptila turtur subantarctica	Fairy prion	-	VU	Breeds on subantarctic islands and is presumed to frequent subtropical waters during non-breeding period (TSSC 2015).	Negligible
Pandion haliaetus	Osprey	MI	MI	Coasts, estuaries, bays, inlets, islands, and surrounding waters; coral atolls, reefs, lagoons, rock cliffs, stacks (Pizzey & Knight 2012).	Low
Phaethon rubricauda westralis	Red-tailed tropicbird	P4 (MI)	EN (MI)	Spend most of their lives at sea and rarely venture near land. This bird is normally found in tropical and subtropical seas around northern Australia. Though rarely seen in colder areas, a few pairs breed on Sugarloaf Rock, south of Cape Naturaliste (DPAW 2017b). Are known to breed on Rottnest Island (DCCEEW 2023).	Nil
Phalaropus lobatus	Red-necked phalarope	MI	MI	Shallow pools in commercial saltfields, tidal mudflats, beaches, saltmarshes, freshwater wetlands (Pizzey & Knight 2012).	Negligible
Phoebetria fusca	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).	Negligible

Species name	Common name	Level of significance		Habitat	Likelihood of occurrence
		WA	EPBC Act		
Plegadis falcinellus	Glossy Ibis	MI	MI	Well-vegetated wetlands, wet pasture, ricefields, floodwaters, floodplains, brackish or occasionally saline wetlands, mangroves, mudflats and occasionally dry grassland (Pizzey & Knight 2012).	Low
Pluvialis fulva	Pacific golden plover	MI	MI	Estuaries, mudflats, saltmarshes, mangroves; rocky reefs and stranded seaweed on ocean shores; margins of shallow open inland swamps; sewage ponds, short-grass paddocks, sportsgrounds, airfields, ploughed land (Pizzey & Knight 2012).	Low
Pluvialis squatarola	Grey Plover	VU (MI)	VU (MI)	Mudflats, saltmarsh, tidal reefs and estuaries, rarely inland (Pizzey and Knight 2012).	Low
Pterodroma mollis	Soft-plumaged petrel	MI	VU (MI)	Marine species that breeds on temperate and subantarctic islands in south Atlantic and south Indian Ocean. Visitor to West Australian waters from March to September. Rarely observed inshore (Johnstone & Storr 1998).	Nil
Rostratula australis	Australian painted snipe	EN	EN	Mainly shallow terrestrial freshwater (occasionally brackish) wetlands, including temporary and permanent lakes, swamps and claypans (Marchant and Higgins 1993).	Negligible
Stercorarius parasiticus	Arctic skua	MI	MI	Offshore waters, bays and harbours, seldom ashore. Also follows ships (Pizzey & Knight 2012).	Negligible
Sterna dougallii	Roseate tern	MI	MI	Offshore waters, islands, coral reefs, sand cays, beaches, tidal inlets (Pizzey & Knight 2012).	Nil

Species name	Common name	Level of significance		Habitat	Likelihood of occurrence
		WA	EPBC Act		
Sterna hirundo	Common tern	MI	MI	Offshore waters, beaches, reefs, bays, estuaries, sandflats, saltfields, sewage ponds, freshwater wetlands (Pizzey & Knight 2012).	Low
Sterna paradisaea	Arctic tern	MI	MI	Sheltered coasts, estauries and near-coastal lakes. Scarce passage migrant and accidental visitor (Johnston and Storr 1998).	Low
Sternula albifrons	Little tern	MI	MI	Species is mainly coastal, being found on beaches, sheltered inlets, estuaries, lakes, sewage farms, lagoons, river mouths and deltas (Pizzey & Knight 2012).	Low
Sternula nereis nereis	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).	Low
Thalassarche carteri	Indian yellow-nosed albatro	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
Thalassarche cauta	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
Thalassarche chlororhynchos	Atlantic yellow-nosed albat	VU	MI	Marine migratory species that breeds on the Tristan da Cunha group and on Gough Island. Sparse visitor to Australian waters/shores (ACAP, undated)	Nil

Species name	Common name	Level of significance		Habitat	Likelihood of occurrence
		WA	EPBC Act		
Thalassarche chrysostoma	Grey-headed albatross	VU	EN (MI)	Marine migratory species that remains at sea for most of its life. Breeding habitat on subantarctic and Antarctic islands of the Indian and Atlantic Oceans and seas south of New Zealand (Marchant and Higgins 1993).	Nil
Thalassarche impavida	Campbell albatross	VU	VU (MI)	Scarce visitor to south-western and western Australian seas. Breeds on Campbell Island (Pizzey & Knight 2012).	Nil
Thalassarche melanophris	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
Thalassarche steadi	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
Thalasseus bergii	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 (DCCEEW 2023).	Low
Thinornis rubricollis	Hooded plover	P4	VU	Margins and shallows of saltlakes, sandy and seaweedy beaches and estuaries; also dams (Johnstone and Storr 1998).	Low

Species name	Common name	Level of significance		Habitat	Likelihood of occurrence
		WA	EPBC Act		
Tringa glareola	Wood sandpiper	MI	MI	Mainly shallow fresh waters (lagoons, swamps, claypans, river pools, dams, bore overflows and sewage ponds); occasionally brackish swamps, rarely saltlakes and estuaries (Pizzey & Knight 2012).	Low
Tringa brevipes	Grey-tailed tattler	P4 (MI)	MI	Tidal mud and reef flats, sheltered rocky coasts, stony and seaweedy beaches and sandpits, dry coral ridges (Abrolhos) and pebbly shores of near-coastal saltlakes (including saltwork ponds) (Johnstone and Storr 1998).	Low
Tringa nebularia	Common greenshank	EN (MI)	EN (MI)	Mudflats, estuaries, saltmarshes, margins of lakes, wetlands, claypans (fresh and saline), commercial saltfields, sewage ponds (Pizzey & Knight 2012).	Low
Tringa stagnatilis	Marsh sandpiper	MI	MI	Mainly shallow fresh or brackish waters: swamps, lakes, river pools, soaks, sewage ponds and bore overflows. Occasionally estuaries and salt ponds, and rarely coasts (DCCEEW 2023).	Low
Tringa totanus	Common redshank	MI	MI	Sheltered coastal wetlands such as bays, river estuaries, lagoons, inlets and saltmarsh (with bare open flats and banks of mud or sand). Also found around saltlakes, freshwater lagoons, artificial wetlands and saltworks and sewage farms (Higgins & Davies 1999).	Negligible

Species name	Common name	Level of significance		Habitat	Likelihood of occurrence
		WA	EPBC Act		
Xenus cinereus	Terek sandpiper	VU (MI)	VU (MI)	Tidal mudflats, estuaries; shores and reefs of islands; coastal swamps, commercial saltfields (Pizzey & Knight 2012).	Low
Zanda baudinii	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
Zanda latirostris	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
Invertebrates					
Cherax tenuimanus	Margaret River marron	CR	CR	Occurs primarily in the upper reaches of the Margaret River. Prefers sandy areas, particularly where detritus (organic matter) accumulates, and requires in-stream structural diversity for protection (DoE 2013)	Nil
Idiosoma sigillatum	Swan Coastal Plain shield-b	P3	-	Widely distributed in sandy areas on the Swan Coastal Plain and on Rottnest Island (Prince 2003). Species predominantly recorded from remnant banksia woodland vegetation and heath on sandy soils (Rix et. al 2018).	Negligible

Species name	Common name	Level of significance		Habitat	Likelihood of occurrence
		WA	EPBC Act		
Synemon gratiosa	Graceful sun-moth	P4	-	Coastal heathland on Quindalup dunes where it is restricted to secondary sand dunes due to the abundance of the preferred host plant Lomandra maritima. Banksia woodland on Spearwood and Bassendean dunes, where the second known host plant L. hermaphrodita is widespread (DEC 2011).	Moderate
Westralunio carteri	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-stream farm dams. Salinity tolerance quite low (Morgan et al. 2011).	Nil
Mammals					
Bettongia penicillata ogilbyi	Woylie	CR	EN	Woodlands and adjacent heaths with a dense understorey of shrubs, particularly Gastrolobium spp. (TSSC 2018).	Negligible
Dasyurus geoffroii	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).	Negligible

Species name	Common name	Level of significance		Habitat	Likelihood of occurrence
		WA	EPBC Act		
Hydromys chrysogaster	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).	Nil
Isoodon fusciventer	Quenda	P4	-	Dense scrubby, often swampy, vegetation with dense cover up to one metre high (DEC 2012)	High
Myrmecobius fasciatus	Numbat	EN	EN	Generally dominated by Eucalyptus spp. that provide hollow logs and branches for shelter and termites for food (van Dyck & Strahan 2008).	Nil
Notamacropus irma	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).	Negligible
Phascogale tapoatafa wambenger	South-western brush-tailed	CD	-	Dry sclerophyll forests and open woodlands that contain hollow-bearing trees but a sparse ground cover (Triggs 2003).	Low
Pseudocheirus occidentalis	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).	Low
Setonix brachyurus	Quokka	VU	VU	On the mainland mostly dense streamside vegetation or shrubland and heath areas, particularly around swamps (Cronin 2007).	Nil
Reptiles					

Species name	Common name	Level of significance		Habitat	Likelihood of occurrence
		WA	EPBC Act		
Lerista lineata	Perth slider	P3	-	Sandy coastal heath and low scrubland. Banksia spp. woodland, Eucalyptus gomphocephala open woodland over deep sands, and coastal dunes immediately adjacent to the beach (Wilson and Swan 2021).	Moderate
Neelaps calonotos	Black-striped snake	P3	-	Coastal and near-coastal dunes, sandplains supporting heathlands and Banksia spp. woodlands (Bush et al. 2010).	Moderate

Note: CR=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 with a high or moderate likelihood to occur within the site are shaded green.

Species name	Common name	Level of significance		Habitat	Likelihood of occurrence
		WA	EPBC Act		

References

Bush, B., Maryan, B., Browne-Cooper, R. and Robinson, D. 2007, Reptiles and Frogs in the Bush: Southwestern Australia, UWA Press, Nedlands.

Bray, D. J. and Gomon, M. F. 2018, Pouch Lamprey, Geotria australis.

Christensen, P. and Strahan, R. 1984, The Australian Museum Complete Book of Australian Mammals, Angus and Robertson Publishers, Sydney.

Cronin, L. 2007, Cronin's Key Guide to Australian Wildlife, Oxford University Press, Oxford, United Kingdom.

Department of Biodiversity, Conservation and Attractions (DBCA) 2017, Fauna Profile: Western Ringtail Possum Pseudocheirus occidentalis, Perth, Western Australia.

Johnstone, R. E. and Storr, G. M. 1998, Handbook of Western Australian Birds. Volume 1 - Non-Passerines (Emu to Dollarbird), Western Australian Museum, Perth.

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.

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.

Morcombe, M. 2004, Field Guide to Australian Birds, Steve Parish Publishing, Archerfield, Queensland.

Nevill, S. 2005, Guide to the Wildlife of the Perth Region, Simon Nevill Publications, Perth, Western Australia.

Pizzey, G. and Knight, F. 2012, The Fieldguide to the Birds of Australia, Harper Collins Publishers, Sydney, Australia.

Rentz, D. C. F. 1993, Tettigoniidae of Australia 2. The Austrosaginae, Zaprochilinae and Phasmodinae, CSIRO.

Threatened Species Scientific Committee (TSSC) 2018, Conservation advice for Bettongia penicillata (woylie), Department of the Environment, Canberra.

Triggs, B. 2003, Tracks, Scats and Other Traces A Field Guide to Australian Mammals, Oxford University Press Australia, Melbourne, Victoria.

Department of Environment and Conservation (DEC) 2012, Fauna profiles, Quenda Isoodon obesulus (Shaw, 1797), Perth.

Van Dyck, S. and Strahan, R. 2008, The Mammals of Australia, Queensland Museum, Brisbane.

Wilson, S. and Swan, G. 2008, A Complete Guide to Reptiles of Australia, Reed New Holland, Sydney.

Appendix D

Black cockatoo foraging plants species list

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

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

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

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

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

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

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

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

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

References

Department of the Environment and Energy (DoEE) 2017, 'Revised draft referral guideline for three threatened black cockatoo species: Carnaby's Cockatoo, Baudin's Cockatoo and the Forest Red-tailed Black Cockatoo, Commonwealth of Australia.

Department of Sustainability, Environment, Water, Population and Communities (DSEWPaC) 2012, EPBC Act referral guidelines for three threatened black cockatoo species, Australian Government, Canberra.

Groom, C. 2011, Plants Used by Carnaby's Black Cockatoo, Department of Environment and Conservation, Perth.

Groom C. J , Mawson P. R , Roberts J. D. and Mitchell N. J. 2014, Meeting an expanding human population's needs whilst conserving a threatened parrot species in an urban environment, WIT Transactions on Ecology and The Environment, 191: 1199-1212.Johnstone, R. E. and Storr, G. M. 1998, *Handbook of Western Australian Birds. Volume 1 - Non-Passerines (Emu to Dollarbird)*, Western Australian Museum, Perth.

Johnstone, R. E. and Kirkby, T. 1999, Food of the Red-tailed Forest Black Cockatoo *Calyptorhynchus banksii naso* in Western Australia, Western Australian Naturalist, 22: 167-178.

Johnstone, R. E. and Kirkby, T. 2008, Distribution, status, social organisation, movements and conservation of Baudin's cockatoo (*Calyptorhynchus baudinii*) in South-west Western Australia, Records of the Western Australian Museum, 25: 107-118.

Johnstone, R. E. and Storr, G. M. 1998, Handbook of Western Australian Birds. Volume 1 - Non-Passerines (Emu to Dollarbird), Western Australian Museum, Perth.

Johnstone, R. E., Johnstone, C. and Kirkby, T. 2010, Black Cockatoos on the Swan Coastal Plain: Carnaby's Cockatoo (*Calyptorhynchus latirostris*), Baudin's Cockatoo (*Calyptorhynchus baudinii*) and the Forest Red-tailed Black Cockatoo (*Calyptorhynchus banksii naso*) on the Swan Coastal Plain (Lancelin–Dunsborough), Western Australia. Studies on distribution, status, breeding, food, movements and historical changes., Department of Planning, Western Australia.

Johnstone, R. E., Kirkby, T. and Sarti, K. 2017, The distribution, status movements and diet of the forest red-tailed black cockatoo in the south-west with emphasis on the greater Perth region, Western Australia, The West Australian Naturalist, 30(4): 193-219.

Saunders, D. A. 1979, Distribution and taxonomy of the white-tailed and yellow-tailed Black-Cockatoos *Calyptorhynchus* spp., Emu, 79(215-227).

Saunders, D. A. 1980, Food and Movements of the Short-billed Form of the White-tailed Black Cockatoo, Australian Wildlife Research, 7: 257-269.

Appendix E

Black cockatoo roost counts

Table 1: White-tailed black cockatoo recorded in known roosts within 12 km of the site since 2015.

Roost ID	Year and number of individuals									
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
MANBARR001	NS	NS	NS	NS	0	NS	0	0	1	0
MANBARR002	NS	NS	NS	NS	0	NS	NS	NS	0	80
MANCOOR002	0	2	0	0	0	NS	NS	NS	NS	0

NS = not surveyed

Table 2: Forest red-tailed black cockatoo recorded in known roosts within 12 km of the site since 2015

Roost ID	Year and number of individuals									
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
MANBARR001	NS	NS	NS	NS	0	NS	10	31	63	0
MANBARR002	NS	NS	NS	NS	0	NS	NS	NS	20	0
MANCOOR002	0	2	0	0	0	NS	NS	NS	NS	0
MANPARR001	NS	0	0	0	0	NS	0	8	NS	0
MANPARR002	NS	NS	NS	NS	0	NS	NS	13	14	0
ROCKARR003	NS	NS	NS	NS	NS	NS	NS	NS	NS	4

NS = not surveyed

Appendix F

Species list

Species list
Peel Health Campus, Greenfields

Category	Status	Species name	Common name	Record type
Birds				
		Anthochaera carunculata	Red wattlebird	Sight, call
		Anthochaera lunulata	Western wattlebird	Sight, call
		Barnardius zonarius	Australian ringneck	Sight, call
		Cacomantis flabelliformis	Fan-tailed cuckoo	Call
		Chalcites lucidus	Shining bronze cuckoo	Call
		Coracina novaehollandiae	Black-faced cuckoo-shrike	Sight, call
		Corvus coronoides	Australian raven	Sight, call
	*	*Dacelo novaeguineae*	Laughing kookaburra	Sight, call
		Eolophus roseicapilla	Galah	Sight, call
		Gerygone fusca	Western gerygone	Call
		Grallina cyanoleuca	Magpie-lark	Sight, call
		Lichmera indistincta	Brown honeyeater	Sight, call
		Neophema elegans	Elegant parrot	Sight, call
		Pachycephala rufiventris	Rufous whistler	Sight, call
		Pardalotus striatus	Striated pardalote	Call
		Petrochelidon nigricans	Tree martin	Sight
		Polytelis anthopeplus	Regent parrot	Sight, call
		Purpureicephalus spurius	Red-capped parrot	Sight, call
		Rhipidura albiscapa	Grey fantail	Sight, call
		Sericornis frontalis	Spotted scrubwren	Sight, call
		Smicrornis brevirostris	Weebill	Sight, call
		Zosterops lateralis	Silvereye	Sight, call
Mammals				
		Macropus fuliginosus	Western grey kangaroo	Tracks
	DP(C3)	*Oryctolagus cuniculus*	Rabbit	Diggings
Reptiles				
		Tiliqua rugosa	Bobtail	Sight

Note: * denotes introduced fauna species, DP=declared pest under the BAM Act, EN=Endangered under the BC and EPBC Acts, P4=Priority 4 in WA, VU=Vulnerable under the BC and EPBC Acts

Category	Species name	Habitat ID					
		Banksia woodland	Eucalypt forest	Grassland and bare ground	Hardstand and buildings	Mixed woodland	Scattered trees and shrubs
Birds							
	Anthochaera carunculata	X	X	X	X	X	X
	Anthochaera lunulata	X					
	Barnardius zonarius	X	X	X	X	X	X
	Cacomantis flabelliformis	X					
	Chalcites lucidus	X					
	Coracina novaehollandiae	X	X	X		X	X
	Corvus coronoides	X	X	X	X	X	X
	Dacelo novaeguineae			X		X	
	Eolophus roseicapilla	X	X	X	X	X	X
	Gerygone fusca	X					
	Grallina cyanoleuca	X	X	X	X	X	X
	Lichmera indistincta	X	X			X	X
	Neophema elegans	X					
	Pachycephala rufiventris	X					X
	Pardalotus striatus	X					X
	Petrochelidon nigricans	X		X			X
	Polytelis anthopeplus	X					
	Purpureicephalus spurius	X					
	Rhipidura albiscapa	X				X	X
	Sericornis frontalis	X					
	Smicrornis brevirostris	X					X
	Zosterops lateralis	X					
Mammals							
	Macropus fuliginosus			X			X
	Oryctolagus cuniculus	X		X			X
Reptiles							
	Tiliqua rugosa			X			X

Appendix G

Habitat Assessment Sample Data

Habitat Assessment

Peel Health Campus, Greenfields

Sample Name: 1

Project no.:	EP24-194(03)	**Easting**	384134.22
Date:	6/09/2024	**Northing**	6399719.40
Author:	NAW,AJU	**Datum/zone:**	GDA2020/Zone 51

Sample details

Dominant Vegetation	Banksia spp., Eucalyptus marginata, Acacia sp.		
Habitat Type	Woodland		
Soil Type	Sand,Clay	Rock Features	None
Tree Layer	Present	Shrub Layer	Present
Ground layer	Present	Bare ground Cover	Present
Litter Cover	Present	Fire age	>5 yr
Microhabitats	woody debris, dense leaf litter		
Water features	None		
Disturbances	rubbish, walking tracks		
Notes	N/A		

Habitat Assessment
Peel Health Campus, Greenfields

Sample Name: 2

Project no.:	EP24-194(03)	**Easting**	384227.75
Date:	6/09/2024	**Northing**	6399868.63
Author:	NAW,AJU	**Datum/zone:**	GDA2020/Zone 51

Sample details

Dominant Vegetation	Eucalyptus gomphocephala, Banksia spp., Acacia sp.		
Habitat Type	Woodland		
Soil Type	Sand,Clay	Rock Features	None
Tree Layer	Present	Shrub Layer	Present
Ground layer	Present	Bare ground Cover	Absent
Litter Cover	Present	Fire age	>5 yr
Microhabitats	woody debris, dense leaf litter, hollows		
Water features	None		
Disturbances	rubbish, walking tracks		
Notes	N/A		

Habitat Assessment
Peel Health Campus, Greenfields

Sample Name: 3

Project no.:	EP24-194(03)	**Easting**	384093.24
Date:	6/09/2024	**Northing**	384093.24
Author:	NAW,AJU	**Datum/zone:**	GDA2020/Zone 51

Sample details

Dominant Vegetation	Eucalyptus marginata, Allocasuarina fraseriana, Acacia sp.		
Habitat Type	Woodland		
Soil Type	Sand,Clay	Rock Features	None
Tree Layer	Present	Shrub Layer	Present
Ground layer	Present	Bare ground Cover	Absent
Litter Cover	Present	Fire age	>5 yr
Microhabitats	woody debris, dense leaf litter, fallen logs, runnels		
Water features	None		
Disturbances	rubbish, walking tracks		
Notes	N/A		

Habitat Assessment
Peel Health Campus, Greenfields

Sample Name: 4

Project no.:	EP24-194(03)	**Easting**	383915.64
Date:	6/09/2024	**Northing**	6399659.51
Author:	NAW,AJU	**Datum/zone:**	GDA2020/Zone 51

Sample details

Dominant Vegetation	Eucalyptus marginata, Acacia sp., Macrozamia sp.		
Habitat Type	Scattered trees and shrubs		
Soil Type	Sand,Clay	Rock Features	None
Tree Layer	Absent	Shrub Layer	Present
Ground layer	Present	Bare ground Cover	Present
Litter Cover	Absent	Fire age	>5 yr
Microhabitats	woody debris		
Water features	None		
Disturbances	rubbish, walking tracks		
Notes	N/A		

Habitat Assessment
Peel Health Campus, Greenfields

Sample Name: 5

Project no.:	EP24-194(03)	**Easting**	383831.23
Date:	6/09/2024	**Northing**	6399755.69
Author:	NAW,AJU	**Datum/zone:**	GDA2020/Zone 51

Sample details

Dominant Vegetation	Eucalyptus gomphocephala, Eucalyptus marginata, Eucalyptus camaldulensis, Banksia attenuata		
Habitat Type	Woodland		
Soil Type	Sand,Clay	Rock Features	None
Tree Layer	Present	Shrub Layer	Absent
Ground layer	Present	Bare ground Cover	Present
Litter Cover	Absent	Fire age	>5 yr
Microhabitats	woody debris		
Water features	None		
Disturbances	rubbish, walking tracks		
Notes	N/A		

Habitat Assessment
Peel Health Campus, Greenfields

Sample Name: 6

Project no.:	EP24-194(03)	**Easting**	383806.88
Date:	6/09/2024	**Northing**	6399954.27
Author:	NAW,AJU	**Datum/zone:**	GDA2020/Zone 51

Sample details

Dominant Vegetation	Corymbia calophylla, Eucalyptus gomphocephala		
Habitat Type	Forest		
Soil Type	Sand,Clay	Rock Features	None
Tree Layer	Present	Shrub Layer	Present
Ground layer	Absent	Bare ground Cover	Present
Litter Cover	Absent	Fire age	>5 yr
Microhabitats	None		
Water features	None		
Disturbances	rubbish, walking tracks		
Notes	N/A		

Appendix H

Black cockatoo habitat tree data

Tag No.	Easting	Northing	DBH (cm)	Species	Category	Notes
501	383842.021	6399567.64	85	*Corymbia calophylla*	Potential nesting tree	
502	383844.792	6399571.664	73	*Corymbia calophylla*	Potential nesting tree	
503	383817.275	6399579.438	97	*Corymbia calophylla*	Potential nesting tree	
504	383815.613	6399585.074	52	*Corymbia calophylla*	Potential nesting tree	
504	383791.581	6399624.514	58	*Eucalyptus marginata*	Potential nesting tree	
505	383813.238	6399587.375	65	*Corymbia calophylla*	Potential nesting tree	
505	383807.682	6399592.068	65	*Corymbia calophylla*	Potential nesting tree	
505	383886.388	6399708.512	50	*Eucalyptus marginata*	Potential nesting tree	
506	383835.572	6399613.358	56	*Corymbia calophylla*	Potential nesting tree	
507	383830.873	6399613.636	52	*Corymbia calophylla*	Potential nesting tree	
508	383783.623	6399630.273	99	*Eucalyptus gomphocephala*	Potential nesting tree	
509	383799.797	6399636.781	98	*Eucalyptus marginata*	Potential nesting tree	
51	384039.213	6399758.261	52	*Eucalyptus marginata*	Potential nesting tree	
510	383817.054	6399671.243	114	*Eucalyptus marginata*	Potential nesting tree	
52	384113.287	6399919.738	60	*Eucalyptus marginata*	Potential nesting tree	
54	384103.913	6399793.263	94	Stag	Potential nesting tree	
55	384149.612	6399899.844	80	*Eucalyptus marginata*	Potential nesting tree	
57	384032.279	6399871.839	90	*Eucalyptus gomphocephala*	Potential nesting tree	
593	383862.874	6399749.164	50	*Eucalyptus marginata*	Potential nesting tree	
62	384122.323	6399906.201	101	*Eucalyptus marginata*	Potential nesting tree	
661	383788.016	6399943.571	86	*Eucalyptus gomphocephala*	Potential nesting tree	
662	383787.874	6399921.776	58	*Eucalyptus gomphocephala*	Potential nesting tree	
663	383787.527	6399915.095	68	*Eucalyptus gomphocephala*	Potential nesting tree	
664	383783.82	6399913.996	69	*Eucalyptus gomphocephala*	Potential nesting tree	
665	383833.454	6399756.418	90	*Eucalyptus gomphocephala*	Potential nesting tree	
665	383759.966	6399879.072	56	*Stag*	Potential nesting tree	
684	383728.739	6399743.273	68	*Eucalyptus marginata*	Potential nesting tree	
685	383820.997	6399701.289	120	*Eucalyptus marginata*	Potential nesting tree	
686	383750.008	6399735.59	>50	*Eucalyptus marginata*	Potential nesting tree	Estimated DBH
688	383790.287	6399752.881	66	*Eucalyptus marginata*	Potential nesting tree	
691	383838.318	6399733.115	60	*Eucalyptus gomphocephala*	Potential nesting tree	

Tag No.	Easting	Northing	DBH (cm)	Species	Category	Notes
692	383840.681	6399730.854	65	*Eucalyptus gomphocephala*	Potential nesting tree	
693	383838.436	6399753.429	157	*Eucalyptus gomphocephala*	Potential nesting tree	
694	383849.396	6399741.273	148	*Eucalyptus gomphocephala*	Potential nesting tree	
695	383793.65	6399649.675	78	*Eucalyptus marginata*	Potential nesting tree	
698	383785.76	6399916.806	61	*Eucalyptus gomphocephala*	Potential nesting tree	
703	384184.634	6399860.629	76	*Eucalyptus marginata*	Potential nesting tree	
714	384017.852	6399868.312	82	*Eucalyptus gomphocephala*	Potential nesting tree	
715	383915.548	6399629.547	50	*Eucalyptus marginata*	Potential nesting tree	
716	384044.141	6399904.54	84	*Eucalyptus marginata*	Potential nesting tree	
717	384073.512	6399895.895	135	*Eucalyptus marginata*	Potential nesting tree	
718	384082.708	6399923.56	80	*Eucalyptus marginata*	Potential nesting tree	
724	384204.023	6399883.389	76	*Eucalyptus gomphocephala*	Potential nesting tree	
877	384066.262	6399834.574	110	*Eucalyptus marginata*	Potential nesting tree	
879	384063.95	6399857.692	64	*Eucalyptus marginata*	Potential nesting tree	
886	384176.626	6399904.885	77	*Eucalyptus marginata*	Potential nesting tree	
893	384081.23	6399816.909	103	Stag	Potential nesting tree	
953	383863.734	6399994.993	130	*Eucalyptus gomphocephala*	Potential nesting tree	
954	383863.532	6400012.399	107	*Eucalyptus gomphocephala*	Potential nesting tree	
954	384233.052	6399815.338	179	Stag	Potential nesting tree	
955	383852.80	6400022.36	150	*Eucalyptus gomphocephala*	Potential nesting tree	
955	384245.28	6399832.74	75	*Eucalyptus gomphocephala*	Potential nesting tree	
956	383853.26	6400023.48	108	*Eucalyptus gomphocephala*	Potential nesting tree	
956	383791.53	6399953.90	65	*Eucalyptus marginata*	Potential nesting tree	
959	383838.79	6400015.33	81	*Eucalyptus gomphocephala*	Potential nesting tree	
960	383840.20	6400015.23	83	*Eucalyptus gomphocephala*	Potential nesting tree	
961	383837.43	6400011.21	52	*Eucalyptus gomphocephala*	Potential nesting tree	
962	383841.78	6399992.63	200	*Eucalyptus gomphocephala*	Suitable nesting tree	Hollow too tall for pole camera.
963	383858.10	6399994.48	64	*Eucalyptus marginata*	Potential nesting tree	
964	383974.22	6400017.12	65	*Eucalyptus marginata*	Potential nesting tree	
965	383961.39	6400045.91	60	*Eucalyptus marginata*	Potential nesting tree	
966	383988.92	6399996.56	105	*Eucalyptus marginata*	Potential nesting tree	Small hollow

Tag No.	Easting	Northing	DBH (cm)	Species	Category	Notes
967	384067.00	6399994.91	76	Stag	Potential nesting tree	Bees and small hollow
968	384088.51	6399978.31	107	*Eucalyptus marginata*	Potential nesting tree	
970	383996.06	6399964.04	65	*Eucalyptus gomphocephala*	Potential nesting tree	
970	384263.88	6399832.06	52	*Eucalyptus gomphocephala*	Potential nesting tree	
971	384011.74	6399956.57	69	*Eucalyptus marginata*	Potential nesting tree	Multiple hollows
971	384287.22	6399866.98	80	*Eucalyptus gomphocephala*	Potential nesting tree	
972	384029.60	6399947.47	75	*Eucalyptus marginata*	Potential nesting tree	
972	384204.51	6399870.37	80	*Eucalyptus gomphocephala*	Potential nesting tree	
973	384031.36	6399949.15	100	*Eucalyptus marginata*	Potential nesting tree	Multiple hollows
973	384089.48	6399939.49	91	*Eucalyptus marginata*	Potential nesting tree	
974	384038.02	6399958.43	90	*Eucalyptus marginata*	Potential nesting tree	
974	384276.41	6399821.92	87	*Eucalyptus gomphocephala*	Potential nesting tree	
975	384026.37	6399926.03	59	*Eucalyptus marginata*	Potential nesting tree	
975	383812.82	6399971.59	109	*Eucalyptus gomphocephala*	Potential nesting tree	
976	384016.76	6399920.48	76	*Eucalyptus marginata*	Potential nesting tree	Fork hollow
976	384076.53	6399955.89	93	*Eucalyptus marginata*	Potential nesting tree	
977	384023.13	6399848.82	85	*Eucalyptus marginata*	Potential nesting tree	
977	384022.96	6399866.98	56	*Eucalyptus marginata*	Potential nesting tree	
978	384034.94	6399818.80	119	*Eucalyptus marginata*	Potential nesting tree	
978	384292.48	6399847.01	140	*Eucalyptus gomphocephala*	Potential nesting tree	
979	384064.81	6399778.67	108	*Eucalyptus marginata*	Potential nesting tree	
979	384281.79	6399828.44	142	*Eucalyptus gomphocephala*	Potential nesting tree	
980	384024.92	6399807.82	115	*Eucalyptus marginata*	Potential nesting tree	Multiple hollows
980	383839.59	6399584.23	51	*Corymbia calophylla*	Potential nesting tree	
981	384030.53	6399737.36	77	*Eucalyptus marginata*	Potential nesting tree	
981	383852.24	6399570.56	54	*Corymbia calophylla*	Potential nesting tree	
982	384125.32	6399703.20	115	*Eucalyptus marginata*	Potential nesting tree	
982	384233.76	6399866.98	77	*Eucalyptus gomphocephala*	Potential nesting tree	
983	384153.53	6399684.13	83	*Eucalyptus marginata*	Potential nesting tree	
983	384103.77	6399939.25	89	*Eucalyptus marginata*	Potential nesting tree	
984	384013.00	6399702.12	75	*Eucalyptus marginata*	Potential nesting tree	

Tag No.	Easting	Northing	DBH (cm)	Species	Category	Notes
984	384221.30	6399865.51	57	*Eucalyptus gomphocephala*	Potential nesting tree	
985	383992.67	6399721.96	107	*Eucalyptus gomphocephala*	Potential nesting tree	
985	384220.76	6399825.25	82	*Eucalyptus marginata*	Potential nesting tree	
986	383971.16	6399722.26	80	*Eucalyptus marginata*	Potential nesting tree	Estimated DBH
986	384229.15	6399816.96	52	*Eucalyptus gomphocephala*	Potential nesting tree	
987	384002.70	6399683.60	84	*Eucalyptus marginata*	Potential nesting tree	
987	384220.66	6399808.91	102	*Eucalyptus marginata*	Potential nesting tree	
988	384204.03	6399799.20	71	*Eucalyptus marginata*	Potential nesting tree	
989	383944.49	6399672.83	120	Stag	Potential nesting tree	
989	384231.31	6399774.45	142	Stag	Potential nesting tree	
990	383969.84	6399633.65	62	*Eucalyptus marginata*	Potential nesting tree	
990	384203.32	6399770.02	98	*Eucalyptus marginata*	Potential nesting tree	
991	383949.61	6399644.84	61	*Eucalyptus marginata*	Potential nesting tree	
991	384189.09	6399719.08	70	*Eucalyptus marginata*	Potential nesting tree	
992	383926.75	6399687.82	86	*Eucalyptus marginata*	Potential nesting tree	
992	384118.08	6399701.58	70	*Eucalyptus marginata*	Potential nesting tree	
994	383917.13	6399619.07	114	*Eucalyptus marginata*	Potential nesting tree	
995	383922.41	6399560.26	108	*Eucalyptus marginata*	Potential nesting tree	Small hollow
996	383914.32	6399569.92	62	*Eucalyptus marginata*	Potential nesting tree	
997	383900.72	6399559.78	50	*Eucalyptus marginata*	Potential nesting tree	
-	384110.19	6399784.90	70	*Eucalyptus marginata*	Potential nesting tree	
-	383853.98	6399740.28	64	*Eucalyptus gomphocephala*	Potential nesting tree	