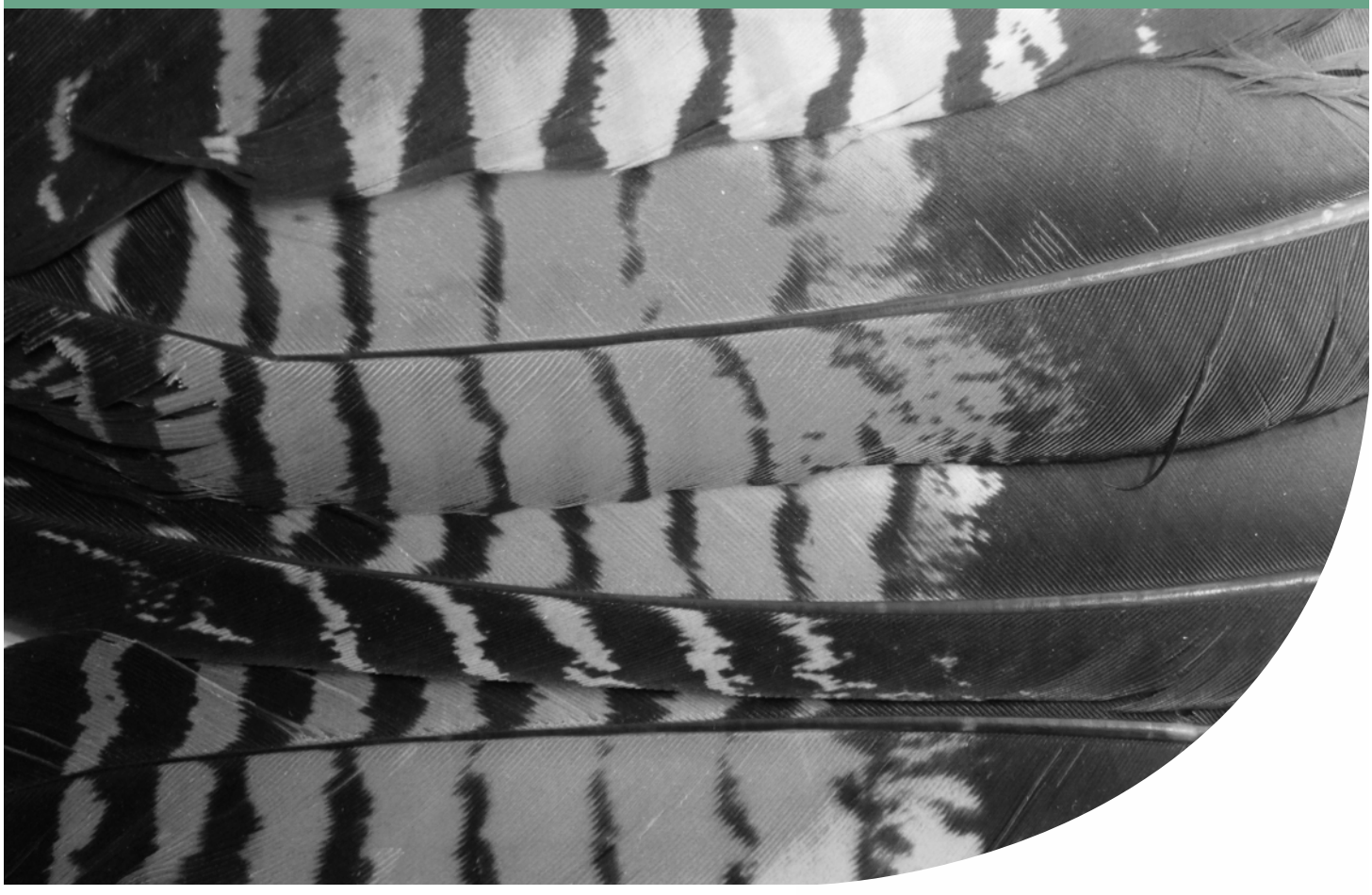
Basic Fauna and Targeted Black Cockatoo Assessment

Lot 332 Marginata Crescent and Reserve 26242, Dwellingup

Project No: EP24-104(02)

Prepared for Shire of Murray
March 2025



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Executive Summary

The Shire of Murray engaged Emerge Associates to conduct a basic fauna and a targeted black cockatoo assessment within Lot 332 Marginata Crescent and Reserve 26242 in Dwellingup (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 19 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 four broad habitat types:
  - **Eucalypt forest**: forest of *Corymbia calophylla* and *Eucalyptus marginata* over native shrubs and grasses (4.28 hectares (ha)).
  - **Scattered trees**: scattered non-native garden vegetation in residential lots (0.01 ha).
  - **Shrubland:** native and non-native shrubs and grasses along the edge of the eucalypt forest habitat and vehicle tracks (0.24 ha).
  - **Bare ground and grassland**: areas of bare ground adjacent to residential lots and some walking and vehicle tracks (0.3 ha).
- A total of 17 native and two non-native fauna species were recorded within the site.
- Two threatened and one priority species were recorded during the survey:
  - *Zanda latirostris* (Carnaby's black cockatoo (endangered (EN) under the *Environment Protection and Biodiversity Conservation Act* (EPBC Act) and *Biodiversity Conservation Act* (BC Act)))
  - *Calyptorhynchus banksii naso* (Forest red-tailed black cockatoo (vulnerable (VU) under the EPBC Act and BC Act))
  - *Isoodon fusciventer* (quenda (priority 4 in WA (P4))).
- 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 (EN under the EPBC Act and BC Act))
  - *Dasyurus geoffroii* (chuditch (VU under the EPBC Act and BC Act))
  - *Apus pacificus* (Pacific swift (migratory under the EPBC Act))
  - *Falsistrellus mackenziei* (Western false pipistrelle (P4 in WA))
  - *Notamacropus irma* (Western brush wallaby (P4 in WA))
  - *Falco peregrinus* (Peregrine falcon (other specially protected in WA))
  - *Phascogale tapoatafa wambenger* (South-western brush-tailed phascogale (conservation dependent in WA))

Outcomes of the targeted black cockatoo survey include the following:

- The site occurs within the modelled distribution of all three species of black cockatoo but only within the breeding distribution of Carnaby's black cockatoo.

- The site contains 232 habitat trees none of which contain hollows suitable for use by black cockatoos for breeding. Therefore, the site does not currently provide suitable nesting habitat for any species of black cockatoo.
- White-tailed black cockatoo and forest red-tailed black cockatoo roosts occur in close proximity to the site (Birdlife Australia 2024). No roosts or evidence of roosting by any species of black cockatoo was recorded within the site during the field survey. Tall native and non-native trees within the site represent suitable roosting habitat for black cockatoos.
- A total of 4.25 ha of native primary foraging habitat for all three species of black cockatoo was mapped within the site.
- Additional areas of foraging habitat of similar or higher value occur adjacent to the site and in the wider local area.

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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
WALGA	Western Australian Local Governments Association
WALIA	Western Australian Land Information Authority

Table A2: Abbreviations – Conservation codes

Conservation Codes	
CD	Conservation dependent
CR	Critically endangered
EN	Endangered
MI	Migratory
P1	Priority 1
P2	Priority 2
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*
CALM Act	*Conservation and Land Management Act 1984*
EBPC Act	*Environment Protection and Biodiversity Conservation Act 1999*
LA Act	*Land Administration Act 1997*
SCRM Act	*Swan and Canning Rivers Management Act 2006*

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
mm	Millimetre

Table A5: Abbreviations - General

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

1 Introduction

1.1 Purpose

Emerge Associates (Emerge) were engaged by Shire of Murray to conduct a basic fauna and targeted black cockatoo assessment within Reserve 26242 and the extension of Forrest Street and Lot 332 Marginata Crescent (including a 6 m wide Asset Protection Zone) in Dwellingup as shown **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).

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

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

- Desktop study to provide contextual information and determine the likelihood of occurrence of threatened, specially protected and priority fauna.
- A 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 Shire of Murray in the Peel region of Western Australia and extends over 4.83 hectares (ha) as shown in **Figure 1**. The site is separated into two portions: part of Reserve 26242 including the extension of Forrest Street and Lot 332 Marginata Crescent (referred to herein as the 'site'). The part of Reserve 26242 and the extension of Forrest Street is bounded by Dwellingup State Forest to the east, west and south and Church St to the north while Lot 332 Marginata Crescent is bounded by Dwellingup State Forest to the north and east, Marginata Crescent to the west and Pinjarra-Williams Road to the south.

2.1.2 Climate

The Peel 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 (see **Plate 1**) (BoM 2024). Basic fauna surveys can be undertaken at any time but targeted surveys should be undertaken during the season that is most suitable for detection and identification of the targeted species (EPA 2020).

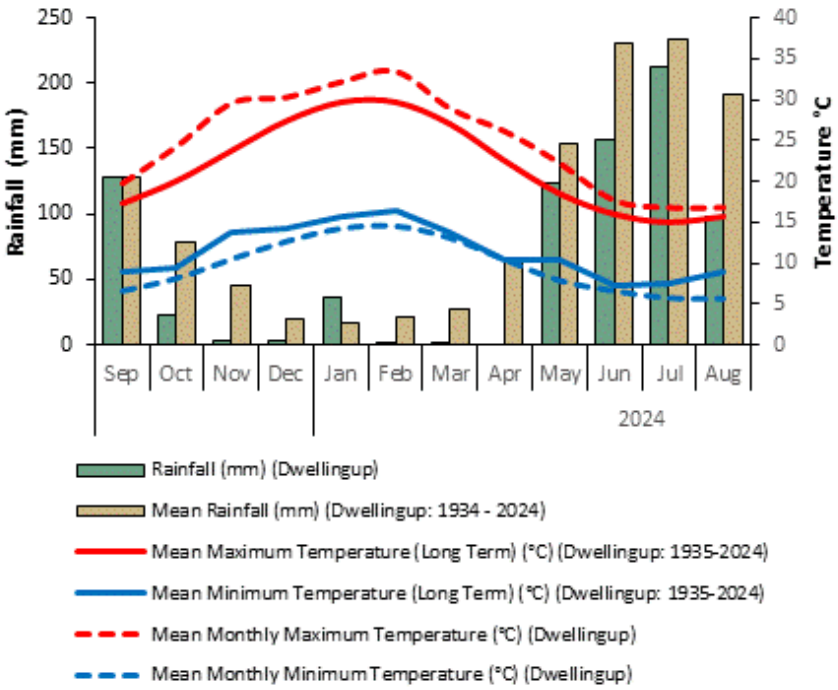

Plate 1: Rainfall and temperature 12 months prior to survey compared to long-term means

2.1.3 Geomorphology and soils

The site occurs on the Darling Plateau which is an ancient erosion surface capped with laterite and dissected by drainage channels (Beard 1990). The eastern part of the Plateau is characterised by flat-topped hills bound by breakaways and more prominent hills (monadnocks) which protrude above the general level of the plateau (Gozzard 2011). The western part comprises valleys with steep, rocky slopes and narrow, flat floors (Gozzard 2011).

Fine scale soil mapping by DPIRD (2022a) shows two units as occurring within the site, as described in **Table 1** and shown in **Figure 2**.

Table 1: Soil landscape mapping units within the site (DPIRD 2022a)

Soil landscape unit	Location within site	Description
Yarragil Subsystem	Northern portion of Marginata Crescent	Shallow, narrow, upper valleys of the deeply dissected Murray, Bindoon and Helena units. Alluvial, clay and loam soils, moderately well drained, often gravelly, with some sands and loams. Salt prone. Woodland of *E. wandoo, E. accedens.*
Dwellingup 2 Phase	Southern portion of Marginata Crescent and all of Reserve 26242	Divides, lower to upper slopes and hillcrests. Duplex sandy gravels and loamy gravels with minor areas of shallow gravels, deep sandy gravels, yellow deep sands and yellow and pale deep sands, often gravelly.

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

2.1.4 Topography

The elevation of Reserve 26242 and the extension of Forrest Street ranges from 265 metres in relation to the Australian height datum (mAHD) on the western side to 275 mAHD on the eastern side. Marginata Crescent sits at 265 mAHD (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). Wetlands can be recognised by the presence of vegetation associated with waterlogging or the presence of hydric soils such as peat, peaty sand or carbonate mud (Hill *et al.* 1996).

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.

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

2.1.6 Regional vegetation

Native vegetation is described and mapped at different scales to illustrate patterns in its distribution. At a continental scale the *Interim Biogeographic Regionalisation for Australia* (IBRA) divides Australia into floristic subregions (Environment Australia 2000).

The site is contained within the Jarrah Forest region and within the 'JF1' or northern jarrah forest subregion. The northern jarrah forest subregion is characterised by *Eucalyptus marginata* (jarrah) – *Corymbia calophylla* (marri) forest on laterite gravels with *Eucalyptus wandoo* – marri woodlands in the eastern part (CALM 2003).

Variations in native vegetation can be further classified based on regional vegetation mapping. DBCA (2019) mapping shows the site as comprising 'Dwellingup, D1' complex which is described as a 'open forest of *Eucalyptus marginata* subsp. *marginata* -*Corymbia calophylla* on lateritic uplands in mainly humid and subhumid zones'.

2.1.1 Historic land use

Review of historical images available from 1995 onwards shows that the majority of the site appears undisturbed prior to 1995 and the adjacent residential land has been present since this period (WALIA 2024).

2.1.2 DBCA managed or legislated land

DBCA has tenure of or interests in numerous areas of land across the state for a range of purposes. Tenure categories include national parks, nature reserves, conservation parks, marine parks, marine nature reserves, marine management areas, section 5(1)(g) reserves, state forest and timber reserves. These areas are mapped within the *Legislated Lands and Waters* (DBCA 2021b) and *Lands of Interest* (DBCA 2021a) datasets. The *Legislated Lands and Waters* (DBCA 2021b) dataset includes lands subject to the following legislation; the *Conservation and Land Management Act 1984* (CALM Act 1984), *Swan and Canning Rivers Management Act 2006* (SCRM Act) and lands identified under the *Land Administration Act 1997* (LA Act). The *Lands of Interest* (DBCA 2021a) dataset includes all other lands of which DBCA is recognised as the manager but is not vested under any act. These lands comprise of crown land and freehold land which DBCA has been acknowledged by the Department of Lands as the responsible agency.

The site is located within close proximity (<1 km) to the 'A' class reserve known as Dwellingup State Forest as shown in **Figure 3.**

2.1.3 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 2024c). 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. 48-0824FA (DBCA 2024b)), *Atlas of Living Australia* (ALA 2024) and literature references.

A total of 479 fauna species were identified from database searches as occurring or potentially occurring within 10 km of the site[2] as listed in **Appendix B.**

2.1.4 Pest fauna

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

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

2.1.5 Previous surveys

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

2.2 Likelihood of occurrence

The distribution and habitat preferences of the threatened and priority fauna species listed in **Appendix B** was reviewed against site context information described in **Section 2.1**. Likelihood of occurrence of threatened, specially protected and priority fauna species within the site was classified as 'high', 'moderate', 'low', 'very low, 'negligible' or 'nil' as outlined in **Table 2**.

Table 2: Likelihood of occurrence assessment categories and definitions

<table>
<tr><th colspan="2" rowspan="2"></th><th colspan="2">Reliable record[1]</th><th rowspan="2">Unreliable record[2]</th></tr>
<tr><th>Access to site not impeded</th><th>Access to site impeded</th></tr>
<tr><td rowspan="4">Habitat</td><td>Suitable</td><td>High</td><td rowspan="3">Very low</td><td rowspan="3">Negligible</td></tr>
<tr><td>Potentially suitable</td><td>Moderate</td></tr>
<tr><td>Unsuitable</td><td>Low</td></tr>
<tr><td>Absent</td><td colspan="3">Nil</td></tr>
</table>

[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.

[2] Includes native and non-native species

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

The remainder of the conservation significant fauna species identified in the desktop assessment (20 species) were considered as having a 'low', 'negligible' or 'nil' likelihood of occurrence. Refer to **Table 3** and **Appendix C** for detail on individual species likelihood of occurrence.

Table 3: 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
Mammals					
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).	Moderate

Table 3: Summary of conservation significant fauna species with a high or moderate likelihood of occurrence in the site (continued)

Species name	Common name	Status		Habitat description	Likelihood
		WA	EPBC Act		
Falsistrellus mackenziei	Western false pipistrelle	P4	-	High rainfall forests dominated by jarrah, karri, marri, and tuart. Occupies hollow logs for breeding and resting (Van Dyck and Strahan 2008). Also known to utilise Banksia woodland on the Swan Coastal Plain (Hosken and O'Shea 1995).	Moderate
Isoodon fusciventer	Quenda	P4	-	Dense scrubby, often swampy, vegetation with dense cover up to one metre high (DEC 2012)	High
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).	Moderate
Phascogale tapoatafa wambenger	South-western brush-tailed phascogale	CD	-	Dry sclerophyll forests and open woodlands that contain hollow-bearing trees but a sparse ground cover (Triggs 2003).	High

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

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

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 4** 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**.

Table 4: Summary of black cockatoo background review

Category	Black cockatoo site context			Source
	Carnaby's	Baudin's	Forest red-tailed	
Site located within species distribution	Yes	Yes	Yes	(DAWE 2022)
Site in known breeding distribution	Yes	No	N/A*	(DAWE 2022)
Confirmed or possible breeding hollows within 12 kmˇ	1		0	(Glossop *et al.* 2011; DBCA 2024c)
Site located in important bird area	No	N/A	N/A	(DPaW 2013; BirdLife International 2024)
Known roosts within site^	0		0	(Birdlife Australia 2023)
Known roosts within 12 km of site^	6		8	
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 Jarrah Forest (Johnstone *et al.* 2013).
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

A zoologist from Emerge visited the site on the 19 September 2024 to conduct the basic fauna and targeted black cockatoo survey.

Transects were traversed across the site during the day to evaluate the fauna habitat and record the presence of fauna species. 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 5** were recorded for each tree.

Table 5: 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)

Each habitat tree was assigned to a category listed in **Table 6** based on current black cockatoo guidelines (DAWE 2022).

Table 6: 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 2025).

The identified fauna habitats were mapped on aerial photography with the boundaries interpreted from aerial photography, Emerge Associates (2025) 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 6** 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 7**.

Table 7: 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.
Experience level of personnel	No limitation	This fauna and black cockatoo assessment was undertaken by a qualified zoologist with over five years of zoological experience in Western Australia. Technical review was undertaken by a senior environmental consultant with over 15 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 black cockatoo peak breeding season to maximise the chance of detecting breeding behaviour.
Completeness	No limitation	The desktop assessment, field survey and targeted black cockatoo components of the survey were completed comprehensively.
Spatial coverage and access	No limitation	Site coverage was comprehensive (track logged).
	No limitation	All parts of the site could be accessed as required.
Survey intensity	No limitation	The intensity of the survey was adequate given the size of the site.
Influence of disturbance	No limitation	No recent disturbance was noted that may have affected outcomes of the survey.

Table 7: 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
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 17 native and two non-native fauna species were directly or indirectly (from foraging evidence) recorded during the field survey.

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

4.1.2 Threatened, specially protected and priority fauna

Two threatened and one priority species were recorded:

- *Calyptorhynchus banksii naso* (forest red-tailed black cockatoo (VU)).
- *Zanda latirostris* (Carnaby's black cockatoo (EN)).
- *Isoodon fusciventer* (quenda (P4)).

4.1.3 Declared pests

One species listed as a declared pest (C3) pursuant to the BAM Act, **Oryctolagus cuniculus* (rabbit) was directly recorded.

4.1.4 Fauna habitat

Three habitat assessments were undertaken within the site, as detailed in **Appendix G**.Four broad fauna habitats were identified within the site, as listed in **Table 8**. A description, the size of the area and a representative photograph of each habitat is provided in **Table 8**. The locations of fauna habitats and samples (habitat assessment) are shown on **Figure 5**.

Table 8: Description and extent of fauna habitats identified within the site

Fauna habitat	Description	Sample/s	Total area (ha)	Proportion of site (%)	Representative photograph
Eucalypt forest	Forest of *Corymbia calophylla* and *Eucalyptus marginata* over native shrubs and grasses. • High microhabitat complexity. • Microhabitats consist of woody debris, hollows, dense leaf litter. • Tree hollows provide refuge for avifauna and arboreal mammals. • Suitable habitat for all conservation significant species listed in **Section 2.2** • Native eucalypts provide breeding roosting and foraging habitat for all three species of black cockatoo.	H1, H2, H3	4.28	88.61	
Scattered trees	Scattered non-native garden vegetation in private lots. • Low microhabitat complexity. • Provides some canopy for avifauna and arboreal fauna.	-	0.01	0.21	N/A

Table 8: Description and extent of fauna habitats identified within the site (continued)

Fauna habitat	Description	Sample/s	Total area (ha)	Proportion of site (%)	Representative photograph
Shrubland	Native and non-native shrubs and grasses along the edge of the **eucalypt forest** habitat and vehicle tracks areas. • Low microhabitat complexity. • Unlikely to provide much shelter or other resources for native fauna. • May serve a connectivity function for species traversing between patches of eucalypt forest habitat.	-	0.24	4.97	
Bare ground	Areas of bare ground adjacent to residential lots and some walking and vehicle tracks. • Low to nil microhabitat complexity. • Only likely to be used by fauna for traversal between habitats.	-	0.3	6.21	

4.2 Black cockatoo habitat

4.2.1 Breeding

A total of 232 black cockatoo habitat trees were recorded within the site as shown in **Figure 6**.

The habitat trees comprised 82 marri, 143 jarrah and seven stag (dead) trees.

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	0
Potential nesting trees	232
Total nesting trees	232

4.2.2 Roosting

No roosts or evidence of roosting were observed within the site during the survey. The **eucalypt forest** habitat in the site represents potential roosting habitat.

4.2.3 Foraging

A total of 4.33 ha of foraging habitat for Carnaby's black cockatoo, Baudin's black cockatoo and forest red-tailed black cockatoo was recorded in the site as shown in **Figure 7**.

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 area of foraging habitat (ha)
Native primary	4.25
Native secondary	0
Non-native primary	0
Non-native secondary	0
Total	4.25

5 Discussion

5.1 Fauna

The species assemblage within the site is typical of the region. The avifauna recorded during the survey represent an array of habitat generalists which, in addition to the lack of reptiles, is a common result of basic fauna surveys. Additionally, the habitat within the site is contiguous with extensive areas of remnant native vegetation which connects to the broader Jarrah Forest region. It is likely that many more species would use the habitat in the site in conjunction with this wider area.

The declared pest found in the site, European rabbit, is a common pest species found throughout Australia.

5.1.1 Threatened, specially protected and priority fauna

Carnaby's black cockatoo (EN), forest red-tailed black cockatoo (VU) and quenda (P4) were recorded in the site. Both species of black cockatoo are known to occur in the area, with a number of records within 10 km, and a large part of their population persists in the Jarrah Forest region. Quenda are a ubiquitous habitat generalist which are able to persist across a variety of habitats, particularly dense or shrubby vegetation like that found within the site.

Seven conservation significant species were considered to possibly occur in the site, as discussed below:

- 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 would likely be in the air space and largely independent from terrestrial habitat.
- Baudin's black cockatoo (EN) occurs within the nearby area and shares much of its distribution in the Jarrah Forest with Carnaby's black cockatoos and forest red-tailed black cockatoos. The survey was undertaken during the breeding season for the species and the site does not lie within their breeding distribution. Therefore, not recording the species was unsurprising as it has likely returned to breeding areas outside of the region. Foraging and roosting habitat for the species occurs in the site and it would likely occur outside of breeding season.
- Chuditch (VU) are a medium sized carnivorous species which require an extensive network of forest and woodland habitat to den and forage. The **eucalypt forest** habitat would provide foraging for chuditch, but only in combination with the forest in the surrounding area as they utilise a wide home range around their dens. The habitat in the site does not contain a high proportion of fallen logs to be utilised for denning and so is more likely to provide traversal and foraging habitat.
- Western false pipistrelle is a bat species found in wet sclerophyll forest in the Southwest, namely those dominated by karri, and dry sclerophyll forest dominated by jarrah and tuart. The site lies outside their current distribution, but data records within 10 km exist from surveys undertaken in 2011 (Australasian Bat Society 2021). This indicates some form of population is still present in Dwellingup State Forest and they may therefore occur in or around the site.

- Western brush wallaby (P4) occupies a fragmented distribution from Cape Arid to Kalbarri, preferring woodland habitats with scrubby thickets and grasses. It has been recorded across Dwellingup State Forest as recent as 2020 and may utilise the **eucalypt forest** habitat as it is contiguous with the State Forest.
- South-western brush-tailed phascogale are a rare and difficult to detect arboreal mammal that are distributed throughout the forests of the Southwest. Records of the species exist within the surrounding 10 km, including one in Lane Pool Reserve from 2024. While undetected recently around Dwellingup, it is likely the species persists in the area and would use the **eucalypt forest** in the site.

5.2 Fauna habitat

The majority of the site comprises **eucalypt forest** within a low level of disturbance from human activity, predominantly walking trails and some edge effects creating weed disturbance. This habitat is contiguous with the rest of Dwellingup State Forest, providing extensive areas of habitat . The remaining habitats comprise small, disturbed fragments which provide little value to fauna aside from providing traversal between patches of **eucalypt forest** habitat.

5.3 Black cockatoo habitat values

The site is located within the modelled distribution of all three species of black cockatoo. The site is also within the breeding distribution of Carnaby's black cockatoo and forest red-tailed black cockatoos are known to breed throughout the Jarrah Forest region (Johnstone *et al.* 2013; DAWE 2022). Therefore, information on breeding is pertinent to Carnaby's black cockatoo and forest red-tailed black cockatoo but not Baudin's black cockatoo.

5.3.1 Breeding

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

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. There are also no known roosts in close proximity to the site (Birdlife Australia 2024). Nevertheless, the site contains many tall trees and groups of tall trees that have the potential to provide roosting habitat for black cockatoos.

5.3.3 Foraging

The majority of the site contains native primary foraging habitat for all species of black cockatoo. These resources are made up of a mixture of jarrah and marri supplemented by native foraging

shrubs in the understory. The foraging resources in the site are surrounded by a region of extensive forest of the same value to black cockatoos.

6 Conclusions

Outcomes of the basic fauna assessment include the following:

- The site consists of four broad habitat types:
  - **Eucalypt forest**: forest of *Corymbia calophylla* and *Eucalyptus marginata* over native shrubs and grasses (4.28 ha).
  - **Scattered trees**: scattered non-native garden vegetation in residential lots (0.01 ha).
  - **Shrubland:** native and non-native shrubs and grasses along the edge of the eucalypt forest habitat and vehicle tracks (0.24 ha).
  - **Bare ground and grassland**: areas of bare ground adjacent to residential lots and some walking and vehicle tracks (0.3 ha).
- A total of 17 native and two non-native fauna species were recorded within the site.
- Two threatened and one priority species were recorded during the survey:
  - Carnaby's black cockatoo (EN)
  - Forest red-tailed black cockatoo (VU)
  - Quenda (P4).
- 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)
  - Chuditch (VU)
  - Pacific swift (MI)
  - Western false pipistrelle (P4)
  - Western brush wallaby (P4)
  - Peregrine falcon (OS)
  - South-western brush-tailed phascogale (CD)

Outcomes of the targeted black cockatoo survey include the following:

- The site occurs within the modelled distribution of all three species of black cockatoo but only within the breeding distribution of Carnaby's black cockatoo.
- The site contains 232 habitat trees none of which contain hollows suitable for use by black cockatoos for breeding. Therefore, the site does not currently provide suitable nesting habitat for any species of black cockatoo.
- White-tailed black cockatoo and forest red-tailed black cockatoo roosts occur in close proximity to the site (Birdlife Australia 2024). No roosts or evidence of roosting by any species of black cockatoo was recorded within the site during the field survey. Tall native and non-native trees within the site represent suitable roosting habitat for black cockatoos.
- A total of 4.25 ha of native primary foraging habitat for all three species of black cockatoo was mapped within the site.
- Additional areas of foraging habitat of similar or higher value occur adjacent to the site and in the wider local area.

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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	19 September 2024	Atlas of Living Australia – Spatial Portal
BirdLife International (2024)	12 December 2024	Important Bird Areas
BoM (2024)	12 December 2024	Climate Data Online
DAWE (2024)	12 December 2024	Species Profile and Threats Database
DBCA (2024)	12 December 2024	Dandjoo
DCCEEW (2024)	12 December 2024	Australian Faunal Directory
DCCEEW (2024)	19 September 2024	Protected Matters Search Tool
WALIA (2024)	12 December 2024	Landgate Map Viewer

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Figures

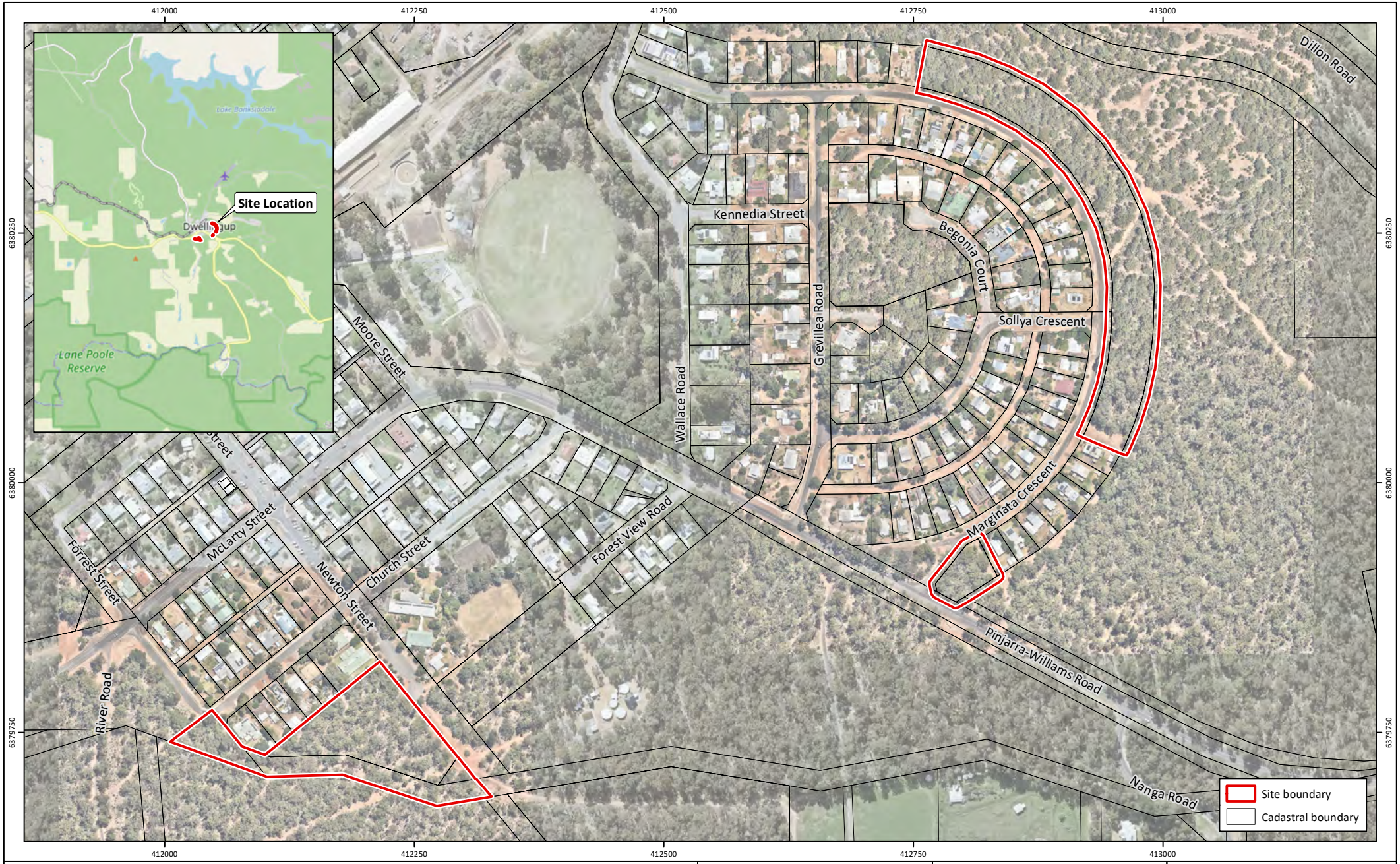

Figure 1: Site Location

Project:	Basic Fauna and Targeted Black Cockatoo Assessment Lot 332 and Reserve 26242 Marginata Crescent, Dwellingup
Client:	Shire of Murray

Plan Number:
EP24-104(02)--F01

Drawn:	GAR
Date:	11/11/2024
Checked:	AJU
Approved:	RAW
Date:	04/03/2025

N

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Metres

Scale: 1:5,000@A4

GDA2020 MGA Zone 50

emerge ASSOCIATES

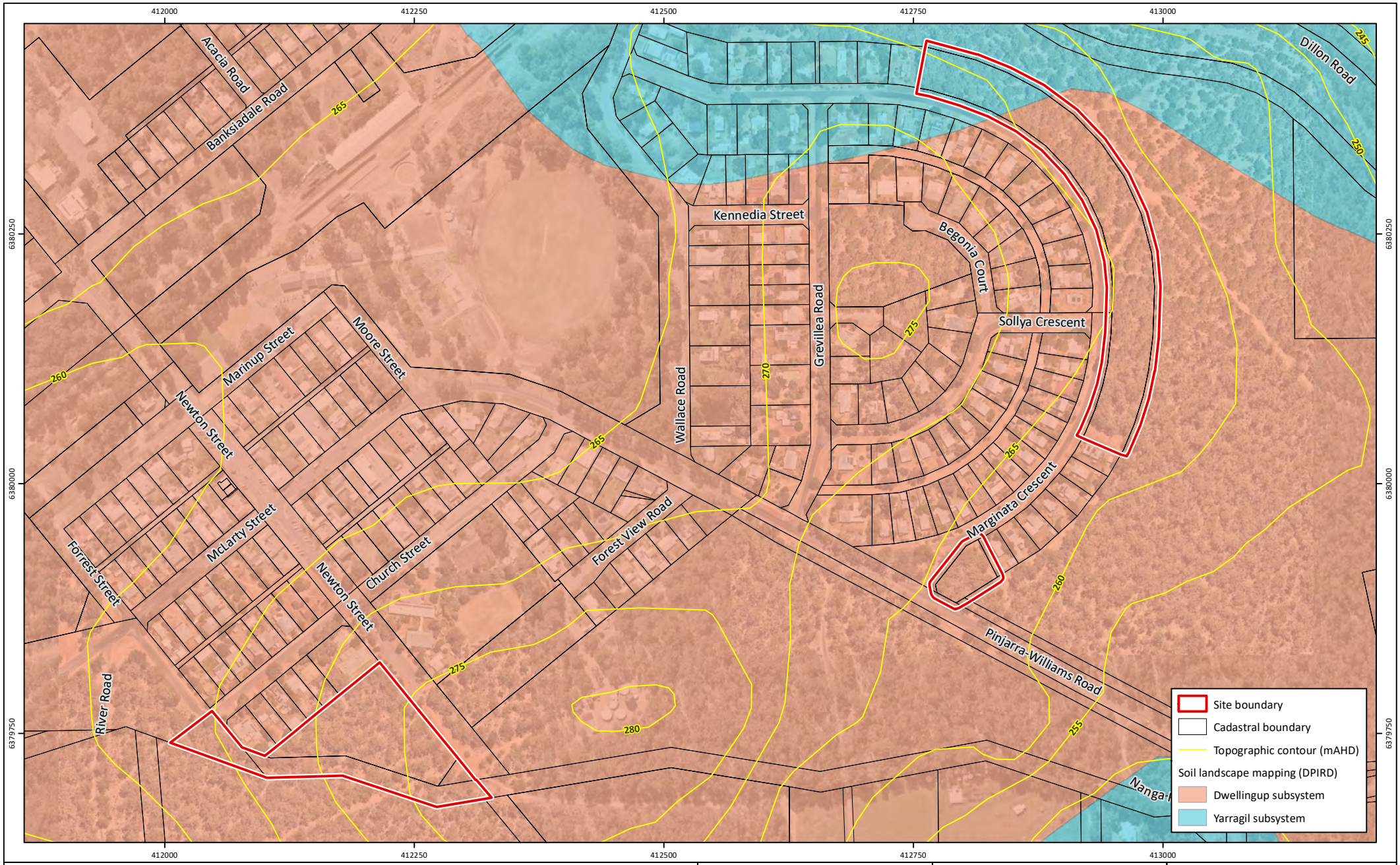

Figure 2: Soils and Topography

Project: Basic Fauna and Targeted Black Cockatoo Assessment
Lot 332 and Reserve 26242 Marginata Crescent, Dwellingup

Client: Shire of Murray

Plan Number:
EP24-104(02)--F02

Drawn:	GAR
Date:	11/11/2024
Checked:	AJU
Approved:	RAW
Date:	04/03/2025

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Metres

Scale: 1:5,000@A4

GDA2020 MGA Zone 50

emerge ASSOCIATES

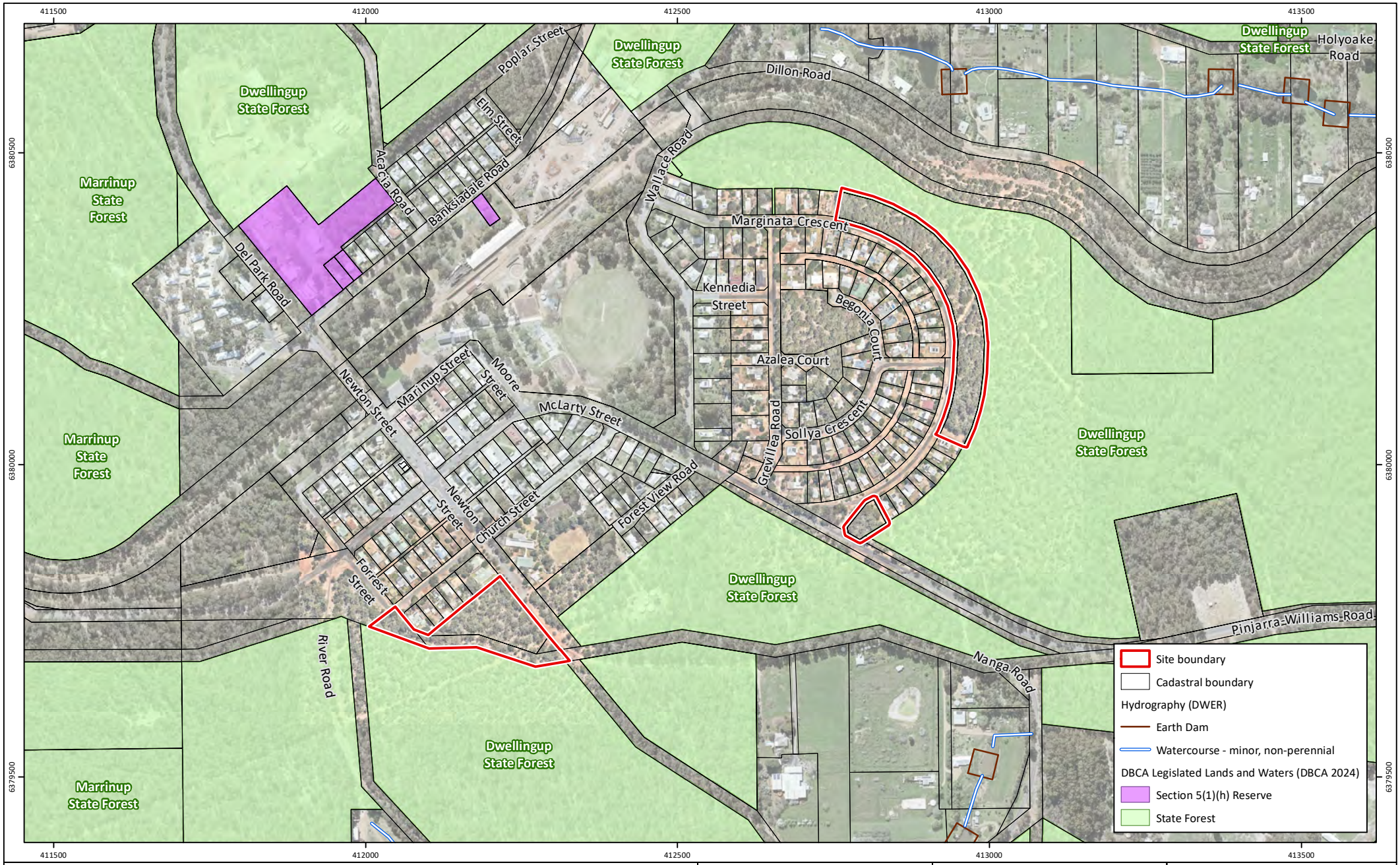

Figure 3: Environmental Features and Hydrography

Project:	Basic Fauna and Targeted Black Cockatoo Assessment Lot 332 and Reserve 26242 Marginata Crescent, Dwellingup
Client:	Shire of Murray

Plan Number:
EP24-104(02)--F03

Drawn:	GAR
Date:	11/11/2024
Checked:	AJU
Approved:	RAW
Date:	04/03/2025

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Metres

Scale: 1:8,000@A4

GDA2020 MGA Zone 50

emerge ASSOCIATES

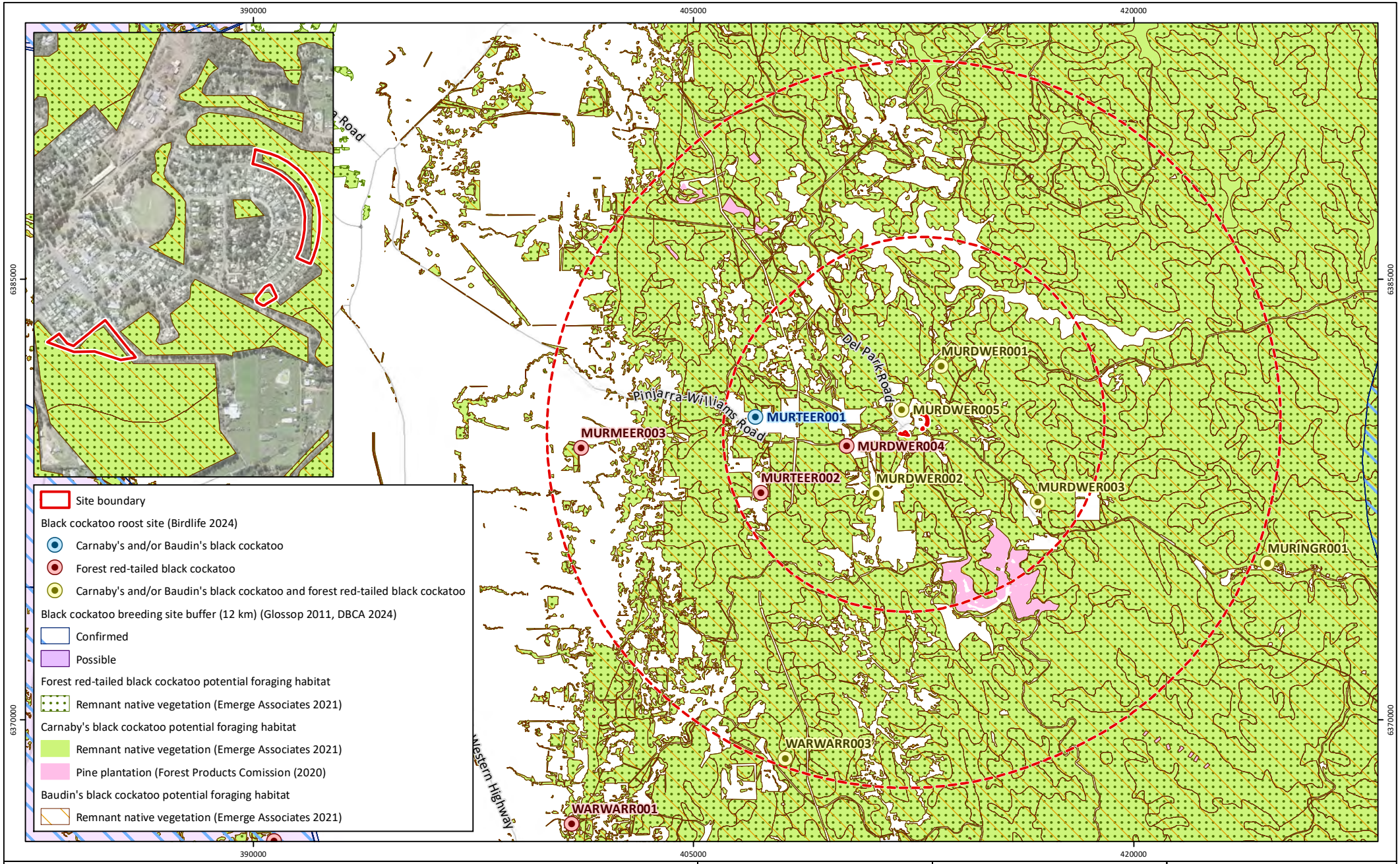

Figure 4: Black Cockatoo Habitat Context

Project: Basic Fauna and Targeted Black Cockatoo Assessment
Lot 332 and Reserve 26242 Marginata Crescent, Dwellingup
Client: Shire of Murray

Plan Number:
EP24-104(02)--F04
Drawn: GAR
Date: 11/11/2024
Checked: AJU
Approved: RAW
Date: 04/03/2025

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 Lot 332 and Reserve 26242 Marginata Crescent, Dwellingup
Client:	Shire of Murray

Plan Number:
EP24-104(02)--F05

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Date:	11/11/2024
Checked:	AJU
Approved:	RAW
Date:	04/03/2025

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Metres

Scale: 1:5,000@A4

GDA2020 MGA Zone 50

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Figure 6: Black Cockatoo Habitat Trees

Project:	Basic Fauna and Targeted Black Cockatoo Assessment Lot 332 and Reserve 26242 Marginata Crescent, Dwellingup
Client:	Shire of Murray

Plan Number:
EP24-104(02)--F06

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Approved:	RAW
Date:	04/03/2025

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Scale: 1:5,000@A4

GDA2020 MGA Zone 50

emerge ASSOCIATES

Figure 7: **Carnaby's, Baudin's and Forest Red-tailed Black Cockatoo Foraging Habitat**

Project: Basic Fauna and Targeted Black Cockatoo Assessment
Lot 332 and Reserve 26242 Marginata Crescent, Dwellingup

Client: Shire of Murray

Plan Number:
EP24-104(02)--F07

Drawn:	GAR
Date:	11/11/2024
Checked:	AJU
Approved:	RAW
Date:	04/03/2025

N

0 50 100 150
Metres

Scale: 1:5,000@A4

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Appendix A

Additional information

Conservation Significant Fauna

Threatened and priority fauna

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

Migratory species comprise birds recognised under international treaties including:

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

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

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

Conservation Code	Category
X	Threatened Fauna –Extinct There is no reasonable doubt that the last member of the species has died.
EW[#]	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)

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Appendix B

Database search results

Class	Family	Species name
Amphibia	**Limnodynastidae**	*Heleioporus inornatus*
		Heleioporus eyrei
		Limnodynastes dorsalis
	Myobatrachidae	*Crinia georgiana*
		Crinia glauerti
		Crinia pseudinsignifera
		Crinia georgiana
		Crinia glauerti
		Crinia pseudinsignifera
		Geocrinia leai
		Geocrinia leai
	Pelodryadidae	*Litoria adelaidensis*
		Litoria adelaidensis
		Litoria moorei
Arachnida	**Actinopodidae**	*Missulena granulosa*
	Anamidae	*Aname*
		Anamidae
		Proshermacha
		Teyl
		Teyl
		Teylinae
	Anapidae	*Raveniella cirrata*
		Raveniella peckorum
	Anyphaenidae	*Anyphaenidae*
	Araneidae	*Acroaspis*
		Arachnura higginsi
		Araneidae
		Araneus arenaceus
		Argiopinae
		Eriophora
		Eriophora

Arkyidae	*Arkys walckenaeri*
	Demadiana simplex
Atemnidae	*Atemninae*
	Oratemnus
Barychelidae	*Idiommata blackwalli*
	Synothele
	Synothele michaelseni
	Synothele rubripes
Bothriuridae	*Cercophonius*
	Cercophonius
	Cercophonius sulcatus
	Cercophonius squama
Buthidae	*Buthidae*
	Lychas
Caddidae	*Hesperopilio mainae*
Cheiracanthiidae	*Cheiracanthium*
Cheliferidae	*Protochelifer*
Chernetidae	*Chernetidae*
Chthoniidae	*Austrochthonius*
	Austrochthonius muchmorei
	Lagynochthonius australicus
Clubionidae	*Clubiona*
	Clubiona cycladata
	Clubionidae
Corinnidae	*Battalus rugosus*
	Nyssus albopunctatus
	Nyssus coloripes
Deinopidae	*Asianopis schomburgki*
Desidae	*Badumna microps*
	Baiami
	Baiami
	Baiami tegenarioides

	Baiami sp.
	Baiami volucripes
	Colcarteria
	Desidae
	Forsterina
Geogarypidae	*Geogarypus taylori*
Gnaphosidae	*Cryptoerithus melindae*
	Gnaphosidae
	Molycria quadricauda
	Myandra bicincta
Hahniidae	*Hahniidae*
Hersiliidae	*Tamopsis marri*
Idiopidae	*Aganippini*
	Eucyrtops
	Euoplos
	Euoplos
	Idiosoma
Lamponidae	*Lampona*
	Lampona brevipes
	Lampona cylindrata
	Lampona dwellingup
	Longepi woodman
	Prionosternum scutatum
	Pseudolampona jarrahdale
Linyphiidae	*Laperousea cupidinea*
	Linyphiidae
Lycosidae	*Artoria*
	Artoria cingulipes
	Artoria schizocoides
	Lycosidae
	Venonia micarioides
Malkaridae	*Ozarchaea*

	Ozarchaea
	Ozarchaea harveyi
	Westrarchaea pusilla
Miturgidae	*Elassoctenus*
	Hestimodema
	Mituliodon tarantulinus
	Miturgidae
	Mitzoruga insularis
Mysmenidae	*Mysmenidae*
Neopilionidae	*Ballarra*
	Ballarra longipalpus
	Megalopsalis
Nephilidae	*Trichonephila edulis*
Oecobiidae	*Oecobius navus*
Olpiidae	*Beierolpium*
Oonopidae	*Grymeus*
	Grymeus
	Opopaea
	Orchestina
	Orchestina
	Pelicinus
Orsolobidae	*Australobus*
	Australobus torbay
Phonognathidae	*Deliochus*
	Deliochus
	Phonognatha melania
Pisauridae	*Dolomedes*
Prodidomidae	*Prodidomidae*
Salticidae	*Abracadabrella elegans*
	Afraflacilla stridulator
	Clynotis
	Clynotis viduus

	Holoplatys
	Margaromma
	Margaromma
	Opisthoncus
	Opisthoncus
	Rhombonotus
	Rhombonotus
	Salticidae
	Sandalodes
	Sandalodes
	Simaetha
	Zebraplatys fractivittata
Segestriidae	*Segestriidae*
Selenopidae	*Karaops*
	Karaops ellenae
Sparassidae	*Isopedella*
	Neosparassus
	Neosparassus
Theridiidae	*Euryopis*
	Gmogala
	Hadrotarsinae
	Hadrotarsus
	Theridiidae
Thomisidae	*Sidymella*
	Sidymella
	Stephanopis
	Tharpyna
	Tharpyna
	Thomisidae
Triaenonychidae	*Calliuncus*
	Nunciella
	Triaenonychidae

	Trochanteriidae	*Hemicloea*
		Hemicloea
	Urodacidae	*Urodacus novaehollandiae*
	Zodariidae	*Storosa*
		Storosa tetrica
		Zodariidae
	Taxa unassigned	*Amaurobioidea*
		Araneae
		Oribatida
		Pseudotyrannochthonius
Aves	**Acanthizidae**	*Gerygone fusca*
		Gerygone fusca
	Aegothelidae	*Aegotheles cristatus cristatus*
	Maluridae	*Malurus splendens*
	Meropidae	*Merops ornatus*
	Petroicidae Mathews, 1920	*Eopsaltria georgiana*
	Podargidae	*Podargus strigoides brachypterus*
	Psittaculidae	*Barnardius zonarius semitorquatus*
		Platycercus icterotis
		Platycercus icterotis icterotis
	Rallidae	*Zapornia tabuensis*
Chilopoda	**Henicopidae**	*Henicops dentatus*
	Mecistocephalidae	*Mecistocephalidae*
	Scolopendridae	*Cormocephalus aurantiipes*
		Cormocephalus hartmeryeri
		Cormocephalus hartmeyeri
		Cormocephalus rubriceps
		Ethmostigmus
	Taxa unassigned	*Chilopoda*
Diplopoda	**Iulomorphidae**	*Iulomorphidae*
		Podykipus
		Podykipus leptoiuloides

	Metopidiotrichidae	*Australeuma*
	Paradoxosomatidae	*Antichiropus*
		Antichiropus variabilis
	Taxa unassigned	*Diplopoda*
Insecta	**Asilidae Latreille, 1802**	*Blepharotes*
	Blaberidae	*Laxta*
	Blattidae	*Drymaplaneta semivitta*
		Euzosteria subverrucosa
		Melanozosteria morosa
		Melanozosteria occidentalis
		Melanozosteria subinclusa
		Platyzosteria
		Polyzosteria
		Polyzosteria cuprea
	Bostrichidae	*Xylopsocus rubidus*
	Buprestidae Leach, 1815	*Buprestidae*
		Castiarina indistincta
		Castiarina rufipennis
		Stigmodera gratiosa
	Caenidae	*Caenidae sp.*
	Cerambycidae	*Coptocercus rubripes*
	Chironomidae	*Chironominae sp.*
		Tanypodinae sp.
	Chrysomelidae	*Paropsis*
	Colletidae	*Callomelitta antipodes*
		Leioproctus (Leioproctus) Smith, 1853
	Curculionidae	*Acantholophus*
	Dermestidae	*Dermestes*
	Dytiscidae	*Allodessus bistrigatus*
		Antiporus femoralis
		Antiporus femoralis
		Limbodessus inornatus

	Necterosoma darwini
	Sternopriscus browni
	Sternopriscus multimaculatus
Elateridae	*Pseudaeolus*
Formicidae	*Myrmecia*
	Myrmecia picticeps
	Rhytidoponera
	Rhytidoponera sp.
Formicidae Latreille, 1809	*Dolichoderus ypsilon*
	Iridomyrmex innocens
	Iridomyrmex purpureus
	Iridomyrmex turbineus
Gomphidae	*Gomphidae sp.*
Gripopterygidae	*Gripopterygidae sp.*
	Newmanoperla exigua
Gryllotalpidae	*Gryllotalpa*
Gyrinidae	*Macrogyrus*
Hepialidae	*Abantiades*
Hydrophilidae Latreille, 1802	*Anacaena littoralis*
	Berosus (Enoplurus) majusculus Blackburn, 1888
	Berosus approximans
	Helochares tenuistriatus
Hydroptilidae	*Hydroptilidae sp.*
Ichneumonidae	*Ophion*
Leptoceridae	*Leptoceridae sp.*
Leptophlebiidae	*Leptophlebiidae sp.*
Lygaeidae	*Nysius*
Noctuidae	*Agrotis munda*
	Proteuxoa pissonephra
Pentatomidae	*Dictyotus conspicuus*
	Dictyotus inconspicuus
	Poecilometis

	Ptinidae	*Ptinus adeps*
	Rhinotermitidae	*Heterotermes platycephalus*
	Rhyparochromidae	*Dieuches*
	Scarabaeidae	*Colpochila antennalis*
		Cryptodus
		Maechidius
		Onthophagus
		Onthophagus evanidus
		Onthophagus ferox
		Onthophagus vermiculatus
		Semanopterus
	Silphidae	*Ptomaphila*
	Simuliidae	*Simuliidae*
	Tenebrionidae	*Helea gilesi*
		Omolipus
	Termitidae	*Amitermes obeuntis*
		Protocapritermes krisiformis
	Tettigoniidae	*Caedicia*
		Psacadonotus viridis
	Vespidae	*Polistes*
	Zygaenidae	*Pollanisus*
	Taxa unassigned	*Coleoptera*
		Hemiptera
		Hymenoptera
Malacostraca	**Palaemonidae**	*Palaemonidae sp.*
Mammalia	**Burramyidae**	*Cercartetus concinnus*
		Cercartetus concinnus
	Dasyuridae	*Antechinus flavipes leucogaster*
		Antechinus flavipes leucogaster
		Sminthopsis fuliginosus fuliginosus
		Sminthopsis gilberti
		Sminthopsis griseoventer

		Sminthopsis griseoventer griseoventer
	Delphinidae	*Tursiops truncatus truncatus*
	Molossidae	*Mormopterus planiceps*
		Tadarida australis
	Muridae	*Mus musculus*
		Rattus rattus
	Phalangeridae	*Trichosurus vulpecula hypoleucus*
		Trichosurus vulpecula
		Trichosurus vulpecula vulpecula
	Tachyglossidae	*Tachyglossus aculeatus*
	Vespertilionidae	*Chalinolobus gouldii*
		Chalinolobus morio
		Chalinolobus gouldii
		Chalinolobus morio
		Nyctophilus geoffroyi
		Nyctophilus major major
		Nyctophilus geoffroyi
		Nyctophilus gouldi
		Nyctophilus sp.
		Vespadelus regulus
		Vespadelus regulus
	Taxa unassigned	*Chiroptera sp.*
Oligochaeta	**Taxa unassigned**	*Oligochaeta sp.*
Reptilia	**Agamidae**	*Diporiphora pindan*
		Pogona minor
		Pogona minor minor
	Diplodactylidae	*Diplodactylus lateroides*
		Diplodactylus polyophthalmus
	Elapidae	*Notechis scutatus*
		Notechis scutatus
		Parasuta nigriceps
		Pseudonaja affinis affinis

	Suta gouldii
	Suta nigriceps
Gekkonidae	*Christinus marmoratus*
	Underwoodisaurus milii
Pygopodidae	*Aprasia pulchella*
Scincidae	*Acritoscincus trilineatus*
	Acritoscincus trilineatum
	Cryptoblepharus plagiocephalus
	Ctenotus fallens
	Ctenotus labillardieri
	Ctenotus labillardieri
	Egernia napoleonis
	Egernia kingii
	Egernia napoleonis
	Hemiergis gracilipes
	Hemiergis initialis initialis
	Hemiergis initialis
	Hemiergis initialis initialis
	Lerista distinguenda
	Lerista microtis microtis
	Lerista distinguenda
	Lerista microtis
	Liopholis pulchra pulchra
	Lissolepis luctuosa
	Menetia greyii
	Menetia greyii
	Morethia obscura
	Morethia obscura
	Tiliqua rugosa palarra
	Tiliqua rugosa
	Tiliqua rugosa rugosa
Varanidae	*Varanus gouldii*

		Varanus rosenbergi
Udeonychophora	**Peripatopsidae**	*Occiperipatoides gilesii*
Taxa unassigned	**Taxa unassigned**	*Amorbus bispinus*
		Apis mellifera
		Archaeosynthemis leachii
		Archaeosynthemis occidentalis
		Atelomastix nigrescens
		Bothriembryon indutus
		Calolampra
		Camponotus
		Camponotus sp.
		Chenistonia
		Chenistonia sp.
		Coptotermes acinaciformis
		Coptotermes acinaciformis raffrayi
		Gippsicola raleighi
		Harpobittacus phaeoscius
		Heterotermes platycephalus
		Homoeodytes scutellaris
		Hyocephalus aprugnus
		Hyocephalus aprugnus
		Labroma tuberculata
		Lancetes lanceolatus
		Lycidas
		Lycidas
		Miniargiolestes minimus
		Nunciella aspera
		Nyctophilus holtorum
		Nyctophilus timoriensis timoriensis
		Occasitermes occasus
		Paracapritermes kraepelinii
		Pollanisus cupreus

		Ptinus eminens
		Ptomaphila lacrymosa
		Sellnickiella biunguiculata
		Synemon directa
		Tholosanus proximus
		Tyto javanica delicatula
		Taxa unassigned
	Telephlebiidae	*Telephlebiidae sp.*
	Tettigoniidae	*Gum Leaf Katydid*
		Taxa unassigned
	Tineidae	*Fungus Moth*
		Taxa unassigned
	Tipulidae	*Tipulidae sp.*
	Tortricidae	*Taxa unassigned*
	Veliidae	*Veliidae sp.*
	Vespidae	*Common Paper Wasp*
		Taxa unassigned
	Taxa unassigned	*Coleoptera*
		Diptera
		Hemiptera
Malacostraca	**Grapsidae**	*Purple Rock Crab*
	Oniscidae	*Oniscidae sp.*
	Parastacidae	*Cherax cainii*
		Cherax spp.
		Parastacidae sp.
	Perthiidae	*Perthiidae sp.*
Mammalia	**Dasyuridae**	*Brush-tailed Phascogale*
		Sminthopsis fuliginosus fuliginosus
	Leporidae	*Rabbit*
	Macropodidae	*Macropus fuliginosus melanops*
		Petrogale
		Western Grey Kangaroo

	Muridae	*Black Rat*
		Bush Rat
		Rattus fuscipes
		Rattus rattus
	Peramelidae	*Northern Brown Bandicoot*
	Phalangeridae	*Common Brushtail Possum*
		Trichosurus vulpecula hypoleucus
	Pseudocheiridae	*Common Ringtail Possum*
		Western Ringtail Possum
	Suidae	*Pig*
	Vespertilionidae	*Chalinolobus gouldii*
		Chalinolobus morio
		Nyctophilus geoffroyi
		Vespadelus regulus
Maxillopoda	**Tetraclitidae**	*Purple Four-plated Barnacle*
Oligochaeta	**Taxa unassigned**	*Oligochaeta sp.*
		Oligochaeta spp.
Reptilia	**Agamidae**	*Dwarf Bearded Dragon*
	Chelidae	*Chelodina colliei*
	Elapidae	*Elapognathus coronatus*
		Notechis scutatus
		Rhinoplocephalus bicolor
		Tiger Snake
	Gekkonidae	*Christinus marmoratus*
		Marbled Gecko
	Pygopodidae	*Aprasia pulchella*
		Pygopus lepidopodus
	Scincidae	*Acritoscincus trilineatus*
		Buchananâ€™s Snake-eyed Skink
		Ctenotus catenifer
		Ctenotus impar
		Ctenotus labillardieri

		Egernia kingii
		Egernia napoleonis
		Hemiergis gracilipes
		Hemiergis peronii tridactyla
		King's Skink
		Lerista distinguenda
		Lerista elegans
		Lerista microtis microtis
		Lissolepis luctuosa
		Menetia greyii
		Morethia lineoocellata
		Morethia obscura
		Shingle-back
		South-western Crevice-skink
	Typhlopidae	*Anilios australis*
	Varanidae	*Heath Monitor*
Symphyla	**Taxa unassigned**	*Cephalostigmata*
		Taxa unassigned
Udeonychophora	**Peripatopsidae**	*Kumbadjena*
Taxa unassigned	**Taxa unassigned**	*Arthropoda*
		Baalzebub
		Cherax crassimanus
		Cherax preissi
		Cherax quinquecarinatus
		Maratus pavonis
		Nannoperca vittata
		Nunciella aspera
		Nyctophilus holtorum
		Nyctophilus major major
		Pseudotyrannochthonius (`Examined 2018`) giganteus
		Pseudotyrannochthonius (`Pse42-L1B1-H6`) giganteus
		Taxa unassigned

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
Aphelocephala leucopsis	Southern whiteface	-	VU	Relatively undisturbed open woodlands and shrublands with low tree densities, with an understory of grasses or herbaceous litter cover. They require hollows and crevices in living or dead trees for roosting and nesting (DCCEEW 2023).	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

Species name	Common name	Level of significance		Habitat	Likelihood of occurrence
		WA	EPBC Act		
Atrichornis clamosus	Noisy scrub-bird	EN	EN	Dense vegetation, including low forest, scrub thicket and (rarely) heath. Generally in gullies and drainage lines or overgrown swamps, lake margins and streams. Species occurs on the south-coast of Western Australia, from Two Peoples Bay Nature Reserve to Cheynes Beach and on Bald Island (DPAW 2014). Translocated populations were released at multiple sites on the south-cast and in the Darling Range. Most of these translocated populations have failed. In the Darling Range singing males persisted at several locations, with evidence of breeding having been recorded at one site. It is unknown where these populations are located (Comer et. al 2010).	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).	Negligible
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).	Negligible

Species name	Common name	Level of significance		Habitat	Likelihood of occurrence
		WA	EPBC Act		
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).	Negligible
Calyptorhynchus banksii naso	Forest red-tailed black cockat	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
Falco hypoleucos	Grey falcon	VU	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

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).	Low
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).	Negligible
Pandion haliaetus	Osprey	MI	MI	Coasts, estuaries, bays, inlets, islands, and surrounding waters; coral atolls, reefs, lagoons, rock cliffs, stacks (Pizzey & Knight 2012).	Negligible
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
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

Species name	Common name	Level of significance		Habitat	Likelihood of occurrence
		WA	EPBC Act		
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					
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).	Low
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).	Moderate

Species name	Common name	Level of significance		Habitat	Likelihood of occurrence
		WA	EPBC Act		
Falsistrellus mackenziei	Western false pipistrelle	P4	-	High rainfall forests dominated by jarrah, karri, marri, and tuart. Occupies hollow logs for breeding and resting (Van Dyck and Strahan 2008). Also known to utilise Banksia woodland on the Swan Coastal Plain (Hosken and O'Shea 1995).	Moderate
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).	Negligible
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).	Moderate

Species name	Common name	Level of significance		Habitat	Likelihood of occurrence
		WA	EPBC Act		
Phascogale calura	Red-tailed phascogale	CD	VU	Historically occurred in a variety of woodland habitats but not restricted to remnants of mature Eucalyptus wandoo or Allocasuarina huegeliana woodlands in the south-western Wheatbelt where annual rainfall is 300-600 mm (Menkhorst & Knight 2011).	Negligible
Phascogale tapoatafa wambenger	South-western brush-tailed phascogale	CD	-	Dry sclerophyll forests and open woodlands that contain hollow-bearing trees but a sparse ground cover (Triggs 2003).	High
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).	Negligible
Reptiles					
Ctenotus delli	Dell's skink	P4	-	Jarrah and marri woodland with a shrub dominated understorey, sheltering in dense vegetation, inside grass trees and beneath rocks, sometimes in burrows (Nevill 2005).	Negligible

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.

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Appendix D

Black cockatoo foraging plants species list

Species name	Common name	Foraging category as assigned by Emerge			Literature references
		CBC	BBC	FRTBC	
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

Species name	Common name	Foraging category as assigned by Emerge			Literature references
		CBC	BBC	FRTBC	
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

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Appendix E

Black cockatoo roost counts

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

Roost ID	Year and number of individuals									
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
MURDWER001	0	NS	8	NS	0	NS	0	0	7	0
MURDWER002	NS	NS	45	6	5	NS	4	0	0	0
MURDWER003	NS	NS	NS	15	0	NS	0	0	26	0
MURDWER005	NS	NS	NS	NS	0	NS	0	0	0	46
MURTEER001	0	NS	NS	NS	0	NS	NS	NS	NS	NS
WARWARR003	NS	NS	NS	4	34	NS	14	72	0	NS

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

Roost ID	Year and number of individuals									
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
MURDWER001	0	NS	0	NS	97	NS	0	0	20	6
MURDWER002	NS	NS	0	60	120	NS	30	16	7	70
MURDWER003	NS	NS	NS	0	167	NS	0	5	0	0
MURDWER004	NS	NS	NS	NS	0	NS	NS	NS	NS	5
MURDWER005	NS	NS	NS	NS	32	NS	43	13	25	134
MURMEER003	NS	NS	NS	NS	NS	NS	NS	NS	11	NS
MURTEER002	NS	NS	NS	NS	NS	NS	NS	130	111	90
WARWARR003	NS	NS	NS	35	8	NS	9	53	14	NS

NS = not surveyed

Appendix F

Species list

Species list
Lot 332 Marginata Crescent and Reserve 26242, Dwellingup

Category	Status	Species name	Common name	Record type
Birds				
		Anthochaera carunculata	Red wattlebird	Sight
		Barnardius zonarius	Australian ringneck	Sight
	VU	*Calyptorhynchus banksii naso*	Forest red-tailed black cockatoo	Sight
		Corvus coronoides	Australian raven	Sight
		Cracticus tibicen dorsalis	Australian magpie	Sight
	*	*Dacelo novaeguineae*	Laughing kookaburra	Call
		Gavicalis virescens	Singing honeyeater	Call
		Malurus spendens	Splendid fairywren	Sight
		Pardalotus striatus	Striated pardalote	Call
		Petroica boodang	Scarlet robin	Sight
		Phaps chaloptera	Common bronzewing	Call
		Phylidonyris novaehollandiae	New holland honeyeater	Call
		Purpureicephalus spurius	Red-capped parrot	Sight
		Rhipidura albiscapa	Grey fantail	Call
		Smicrornis brevirostris	Weebil	Call
		Strepera versicolor	Grey currawong	Call
	EN	*Zanda latirostris*	Carnaby's black cockatoo	Sight
Mammals				
	P4	*Isoodon fusciventer*	Quenda	Sight
	DP(C3)	*Oryctolagus cuniculus*	Rabbit	Diggings

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

Appendix G

Habitat Assessment Sample Data

Habitat Assessment

Lot 332 Marginata Crescent and Reserve 26242, Dwellingup

Sample Name: H1

Project no.:	EP24-104(02)	**Easting**	412894.01
Date:	19/09/2024	**Northing**	6380372.62
Author:	NAW,	**Datum/zone:**	GDA2020/Zone 50

Sample details

Dominant Vegetation	Marri, jarrah		
Habitat Type	Forest		
Soil Type	Sand,Loam	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		
Water features	None		
Disturbances	Vehicle tracks		
Notes	Forest red-tailed black cockatoos in the area		

Habitat Assessment

Lot 332 Marginata Crescent and Reserve 26242, Dwellingup

Sample Name: H2

Project no.:	EP24-104(02)	**Easting**	412965.38
Date:	19/09/2024	**Northing**	6380134.42
Author:	NAW,	**Datum/zone:**	GDA2020/Zone 50

Sample details

Dominant Vegetation	Marri, jarrah		
Habitat Type	Forest		
Soil Type	Sand,Loam	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, fallen logs, dense leaf litter		
Water features	None		
Disturbances	Walking tracks		
Notes	N/A		

Habitat Assessment

Lot 332 Marginata Crescent and Reserve 26242, Dwellingup

Sample Name: H3

Project no.:	EP24-104(02)	**Easting**	412191.25
Date:	19/09/2024	**Northing**	6379747.49
Author:	NAW,	**Datum/zone:**	GDA2020/Zone 50

Sample details

Dominant Vegetation	Marri jarrah		
Habitat Type	Forest		
Soil Type	Sand,Loam	Rock Features	Generally rocky
Tree Layer	Present	Shrub Layer	Present
Ground layer	Present	Bare ground Cover	Absent
Litter Cover	Present	Fire age	>5 yr
Microhabitats	woody debris, hollows, fallen logs, dense leaf litter		
Water features	None		
Disturbances	Vehicle tracks, walking tracks		
Notes	N/A		

Appendix H

Black cockatoo habitat tree data

Tag No.	Easting	Northing	DBH (cm)	Species	Category	Notes
-	412765.54	6380395.66	58	*Corymbia calophylla*	Potential nesting tree	
-	412765.43	6380408.30	103	*Corymbia calophylla*	Potential nesting tree	
-	412774.41	6380410.71	79	*Corymbia calophylla*	Potential nesting tree	
-	412770.60	6380428.52	118	*Corymbia calophylla*	Potential nesting tree	
-	412780.78	6380431.94	4391	*Corymbia calophylla*	Potential nesting tree	
-	412790.84	6380428.37	66	*Eucalyptus marginata*	Potential nesting tree	
-	412790.43	6380421.49	73	*Eucalyptus marginata*	Potential nesting tree	
-	412791.26	6380413.07	103	*Eucalyptus marginata*	Potential nesting tree	
-	412783.76	6380412.79	74	*Corymbia calophylla*	Potential nesting tree	
-	412774.35	6380396.29	60	*Corymbia calophylla*	Potential nesting tree	
-	412790.89	6380401.43	76	*Corymbia calophylla*	Potential nesting tree	
-	412801.20	6380401.63	58	*Corymbia calophylla*	Potential nesting tree	
-	412805.15	6380411.31	50	*Eucalyptus marginata*	Potential nesting tree	
88	412802.36	6380419.16	89	*Corymbia calophylla*	Potential nesting tree	
-	412804.90	6380428.16	88	*Eucalyptus marginata*	Potential nesting tree	
-	412807.98	6380420.09	57	*Eucalyptus marginata*	Potential nesting tree	
-	412812.70	6380415.92	50	*Eucalyptus marginata*	Potential nesting tree	
-	412807.03	6380399.46	54	*Eucalyptus marginata*	Potential nesting tree	
-	412809.67	6380397.93	57	*Corymbia calophylla*	Potential nesting tree	
-	412816.82	6380394.89	64	*Corymbia calophylla*	Potential nesting tree	
-	412823.59	6380391.85	50	*Eucalyptus marginata*	Potential nesting tree	
-	412826.75	6380406.29	84	*Eucalyptus marginata*	Potential nesting tree	
-	412836.51	6380415.24	79	*Eucalyptus marginata*	Potential nesting tree	
-	412849.98	6380408.05	57	*Eucalyptus marginata*	Potential nesting tree	
-	412855.59	6380410.09	55	*Eucalyptus marginata*	Potential nesting tree	
-	412857.08	6380410.88	54	*Eucalyptus marginata*	Potential nesting tree	
-	412838.85	6380394.31	86	*Eucalyptus marginata*	Potential nesting tree	
-	412838.53	6380387.99	52	*Eucalyptus marginata*	Potential nesting tree	
-	412831.83	6380382.72	56	*Eucalyptus marginata*	Potential nesting tree	
-	412843.84	6380371.07	70	*Eucalyptus marginata*	Potential nesting tree	
-	412842.69	6380373.61	63	*Eucalyptus marginata*	Potential nesting tree	

Tag No.	Easting	Northing	DBH (cm)	Species	Category	Notes
-	412848.04	6380372.33	69	*Eucalyptus marginata*	Potential nesting tree	
-	412850.03	6380380.33	54	*Eucalyptus marginata*	Potential nesting tree	
-	412849.66	6380391.41	52	*Eucalyptus marginata*	Potential nesting tree	
-	412846.64	6380393.71	60	*Eucalyptus marginata*	Potential nesting tree	
-	412856.35	6380397.90	57	*Eucalyptus marginata*	Potential nesting tree	
-	412857.57	6380397.58	60	*Eucalyptus marginata*	Potential nesting tree	
-	412873.85	6380400.60	71	*Eucalyptus marginata*	Potential nesting tree	
-	412868.21	6380392.35	72	*Eucalyptus marginata*	Potential nesting tree	
-	412867.30	6380389.13	57	*Eucalyptus marginata*	Potential nesting tree	
896	412872.15	6380380.74	110	*Eucalyptus marginata*	Potential nesting tree	
-	412866.18	6380377.14	55	*Eucalyptus marginata*	Potential nesting tree	
-	412859.85	6380372.88	56	*Eucalyptus marginata*	Potential nesting tree	
-	412853.52	6380367.61	84	*Eucalyptus marginata*	Potential nesting tree	
-	412856.18	6380363.09	57	*Eucalyptus marginata*	Potential nesting tree	
-	412861.62	6380362.80	75	*Eucalyptus marginata*	Potential nesting tree	
-	412872.33	6380370.88	73	*Eucalyptus marginata*	Potential nesting tree	
-	412885.42	6380385.29	50	*Eucalyptus marginata*	Potential nesting tree	
-	412888.97	6380386.88	56	*Corymbia calophylla*	Potential nesting tree	
-	412895.00	6380372.85	54	*Eucalyptus marginata*	Potential nesting tree	
-	412886.74	6380363.24	56	*Eucalyptus marginata*	Potential nesting tree	
-	412882.46	6380369.97	50	*Eucalyptus marginata*	Potential nesting tree	
-	412897.24	6380341.05	56	*Corymbia calophylla*	Potential nesting tree	
-	412897.32	6380332.07	69	*Eucalyptus marginata*	Potential nesting tree	
-	412906.79	6380332.38	56	*Eucalyptus marginata*	Potential nesting tree	
-	412909.30	6380334.73	62	*Corymbia calophylla*	Potential nesting tree	
-	412902.20	6380342.98	52	*Eucalyptus marginata*	Potential nesting tree	
-	412916.20	6380349.09	80	*Eucalyptus marginata*	Potential nesting tree	
-	412927.85	6380357.17	55	*Eucalyptus marginata*	Potential nesting tree	
-	412927.39	6380323.35	58	*Eucalyptus marginata*	Potential nesting tree	
-	412917.90	6380315.95	79	*Corymbia calophylla*	Potential nesting tree	
-	412926.85	6380310.16	58	*Eucalyptus marginata*	Potential nesting tree	

Tag No.	Easting	Northing	DBH (cm)	Species	Category	Notes
-	412930.87	6380311.30	60	*Eucalyptus marginata*	Potential nesting tree	
-	412936.92	6380306.25	88	*Eucalyptus marginata*	Potential nesting tree	
-	412949.65	6380318.23	95	*Corymbia calophylla*	Potential nesting tree	
-	412948.40	6380322.54	59	*Eucalyptus marginata*	Potential nesting tree	
-	412947.47	6380299.58	78	*Eucalyptus marginata*	Potential nesting tree	
-	412940.51	6380292.43	65	*Corymbia calophylla*	Potential nesting tree	
-	412940.53	6380278.57	53	*Corymbia calophylla*	Potential nesting tree	
-	412943.68	6380283.47	58	*Corymbia calophylla*	Potential nesting tree	
-	412953.79	6380263.72	73	*Eucalyptus marginata*	Potential nesting tree	
-	412960.73	6380262.67	63	*Eucalyptus marginata*	Potential nesting tree	
-	412967.53	6380267.61	67	*Eucalyptus marginata*	Potential nesting tree	
-	412961.30	6380272.32	64	*Corymbia calophylla*	Potential nesting tree	
-	412970.45	6380277.28	75	*Eucalyptus marginata*	Potential nesting tree	
-	412963.59	6380289.30	91	*Corymbia calophylla*	Potential nesting tree	
-	412972.77	6380290.38	65	*Corymbia calophylla*	Potential nesting tree	
-	412959.44	6380249.57	50	*Eucalyptus marginata*	Potential nesting tree	
-	412977.97	6380252.51	70	*Eucalyptus marginata*	Potential nesting tree	
-	412975.70	6380234.31	57	*Eucalyptus marginata*	Potential nesting tree	
-	412966.16	6380231.45	72	*Eucalyptus marginata*	Potential nesting tree	
-	412969.47	6380217.18	70	*Eucalyptus marginata*	Potential nesting tree	
-	412970.74	6380200.67	80	*Corymbia calophylla*	Potential nesting tree	
-	412969.41	6380192.56	56	*Eucalyptus marginata*	Potential nesting tree	
-	412988.39	6380197.94	73	*Eucalyptus marginata*	Potential nesting tree	
-	412993.71	6380189.01	85	*Stag*	Potential nesting tree	
-	412984.43	6380179.17	66	*Eucalyptus marginata*	Potential nesting tree	
-	412977.96	6380179.00	55	*Eucalyptus marginata*	Potential nesting tree	
-	412974.95	6380180.75	68	*Eucalyptus marginata*	Potential nesting tree	
-	412972.56	6380174.85	51	*Eucalyptus marginata*	Potential nesting tree	
-	412962.95	6380170.44	53	*Corymbia calophylla*	Potential nesting tree	
-	412961.01	6380155.90	50	*Corymbia calophylla*	Potential nesting tree	
-	412955.77	6380143.99	54	*Corymbia calophylla*	Potential nesting tree	

Tag No.	Easting	Northing	DBH (cm)	Species	Category	Notes
-	412977.12	6380147.06	56	*Eucalyptus marginata*	Potential nesting tree	
-	412981.65	6380153.76	60	*Eucalyptus marginata*	Potential nesting tree	
-	412984.73	6380155.78	56	*Eucalyptus marginata*	Potential nesting tree	
-	412983.53	6380163.75	100	*Eucalyptus marginata*	Potential nesting tree	
-	412993.50	6380160.07	66	*Eucalyptus marginata*	Potential nesting tree	
-	412987.84	6380142.61	65	*Eucalyptus marginata*	Potential nesting tree	
-	412986.07	6380130.84	50	*Eucalyptus marginata*	Potential nesting tree	
-	412983.02	6380114.63	60	*Eucalyptus marginata*	Potential nesting tree	
-	412977.84	6380128.11	60	*Eucalyptus marginata*	Potential nesting tree	
-	412970.04	6380130.48	67	*Eucalyptus marginata*	Potential nesting tree	
-	412960.13	6380127.51	65	*Eucalyptus marginata*	Potential nesting tree	
-	412946.05	6380129.94	69	*Corymbia calophylla*	Potential nesting tree	
-	412943.14	6380119.94	51	*Corymbia calophylla*	Potential nesting tree	
-	412939.66	6380111.04	83	*Corymbia calophylla*	Potential nesting tree	
-	412961.56	6380114.22	54	*Eucalyptus marginata*	Potential nesting tree	
-	412973.77	6380111.22	62	*Corymbia calophylla*	Potential nesting tree	
-	412975.81	6380113.90	60	*Eucalyptus marginata*	Potential nesting tree	
-	412986.56	6380106.46	56	*Eucalyptus marginata*	Potential nesting tree	
-	412983.75	6380106.99	57	*Eucalyptus marginata*	Potential nesting tree	
-	412975.94	6380098.83	61	*Eucalyptus marginata*	Potential nesting tree	
-	412978.57	6380088.32	50	*Corymbia calophylla*	Potential nesting tree	
-	412974.27	6380087.06	57	*Eucalyptus marginata*	Potential nesting tree	
-	412966.75	6380088.88	72	*Eucalyptus marginata*	Potential nesting tree	
-	412971.49	6380082.82	65	*Eucalyptus marginata*	Potential nesting tree	
-	412976.44	6380084.86	60	*Eucalyptus marginata*	Potential nesting tree	
-	412977.04	6380080.65	71	*Eucalyptus marginata*	Potential nesting tree	
-	412975.76	6380066.12	70	*Eucalyptus marginata*	Potential nesting tree	
-	412976.26	6380062.35	70	*Eucalyptus marginata*	Potential nesting tree	
-	412959.95	6380073.30	109	*Eucalyptus marginata*	Potential nesting tree	
-	412956.70	6380080.70	51	*Eucalyptus marginata*	Potential nesting tree	
-	412957.73	6380091.57	56	*Corymbia calophylla*	Potential nesting tree	

Tag No.	Easting	Northing	DBH (cm)	Species	Category	Notes
-	412965.10	6380096.07	60	*Eucalyptus marginata*	Potential nesting tree	
-	412941.69	6380092.76	75	*Corymbia calophylla*	Potential nesting tree	
-	412939.57	6380078.55	73	*Corymbia calophylla*	Potential nesting tree	
-	412938.11	6380062.68	60	*Corymbia calophylla*	Potential nesting tree	
-	412938.99	6380059.25	50	*Corymbia calophylla*	Potential nesting tree	
-	412799.16	6379929.42	95	*Eucalyptus marginata*	Potential nesting tree	
-	412795.95	6379921.52	83	*Stag*	Potential nesting tree	
-	412803.53	6379923.25	50	*Eucalyptus marginata*	Potential nesting tree	
-	412804.51	6379918.27	58	*Eucalyptus marginata*	Potential nesting tree	
-	412817.54	6379917.72	72	*Eucalyptus marginata*	Potential nesting tree	
-	412807.88	6379907.43	72	*Corymbia calophylla*	Potential nesting tree	
-	412812.08	6379899.49	55	*Eucalyptus marginata*	Potential nesting tree	
-	412828.31	6379897.19	52	*Corymbia calophylla*	Potential nesting tree	
-	412802.36	6379884.66	82	*Corymbia calophylla*	Potential nesting tree	
-	412796.70	6379889.15	73	*Eucalyptus marginata*	Potential nesting tree	
-	412796.85	6379883.05	62	*Eucalyptus marginata*	Potential nesting tree	
-	412786.53	6379884.18	93	*Eucalyptus marginata*	Potential nesting tree	
-	412782.47	6379898.01	72	*Corymbia calophylla*	Potential nesting tree	
-	412771.62	6379895.69	84	*Eucalyptus marginata*	Potential nesting tree	
-	412771.23	6379897.35	50	*Eucalyptus marginata*	Potential nesting tree	
-	412782.30	6379907.21	52	*Eucalyptus marginata*	Potential nesting tree	
-	412792.04	6379918.27	98	*Eucalyptus marginata*	Potential nesting tree	
-	412228.08	6379790.90	60	*Corymbia calophylla*	Potential nesting tree	
-	412221.96	6379794.84	73	*Corymbia calophylla*	Potential nesting tree	
-	412222.64	6379802.27	58	*Corymbia calophylla*	Potential nesting tree	
-	412217.60	6379810.54	55	*Corymbia calophylla*	Potential nesting tree	
-	412199.46	6379794.75	54	*Stag*	Potential nesting tree	
-	412193.15	6379798.13	60	*Corymbia calophylla*	Potential nesting tree	
-	412188.66	6379786.45	50	*Corymbia calophylla*	Potential nesting tree	
-	412202.36	6379785.02	52	*Eucalyptus marginata*	Potential nesting tree	
-	412208.70	6379778.09	60	*Corymbia calophylla*	Potential nesting tree	

Tag No.	Easting	Northing	DBH (cm)	Species	Category	Notes
-	412219.64	6379781.07	71	*Eucalyptus marginata*	Potential nesting tree	
-	412222.03	6379775.77	104	*Stag*	Potential nesting tree	
-	412243.84	6379778.73	67	*Corymbia calophylla*	Potential nesting tree	
-	412246.98	6379773.33	58	*Eucalyptus marginata*	Potential nesting tree	
-	412223.51	6379756.27	82	*Stag*	Potential nesting tree	
-	412239.92	6379744.77	66	*Eucalyptus marginata*	Potential nesting tree	
-	412247.39	6379738.19	94	*Eucalyptus marginata*	Potential nesting tree	
-	412255.00	6379746.02	96	*Eucalyptus marginata*	Potential nesting tree	
-	412257.47	6379752.91	105	*Eucalyptus marginata*	Potential nesting tree	
-	412262.25	6379742.98	66	*Eucalyptus marginata*	Potential nesting tree	
-	412265.74	6379739.90	107	*Eucalyptus marginata*	Potential nesting tree	
-	412252.47	6379736.01	84	*Eucalyptus marginata*	Potential nesting tree	
-	412267.00	6379735.81	60	*Eucalyptus marginata*	Potential nesting tree	
-	412275.05	6379737.21	58	*Eucalyptus marginata*	Potential nesting tree	
-	412277.13	6379723.82	80	*Eucalyptus marginata*	Potential nesting tree	
-	412264.07	6379716.83	90	*Eucalyptus marginata*	Potential nesting tree	
-	412262.30	6379716.37	55	*Corymbia calophylla*	Potential nesting tree	
-	412267.86	6379702.22	63	*Eucalyptus marginata*	Potential nesting tree	
-	412271.14	6379701.59	54	*Eucalyptus marginata*	Potential nesting tree	
-	412282.47	6379703.57	53	*Eucalyptus marginata*	Potential nesting tree	
-	412290.71	6379703.65	60	*Eucalyptus marginata*	Potential nesting tree	
-	412291.61	6379708.53	66	*Eucalyptus marginata*	Potential nesting tree	
-	412303.80	6379707.97	78	*Corymbia calophylla*	Potential nesting tree	
-	412293.28	6379699.57	50	*Eucalyptus marginata*	Potential nesting tree	
-	412296.05	6379693.94	62	*Corymbia calophylla*	Potential nesting tree	
-	412298.99	6379689.64	70	*Eucalyptus marginata*	Potential nesting tree	
-	412301.55	6379696.54	80	*Corymbia calophylla*	Potential nesting tree	
-	412313.54	6379687.22	50	*Corymbia calophylla*	Potential nesting tree	
-	412291.32	6379698.22	60	*Corymbia calophylla*	Potential nesting tree	
-	412286.77	6379693.85	60	*Stag*	Potential nesting tree	
-	412270.02	6379690.93	87	*Corymbia calophylla*	Potential nesting tree	

Tag No.	Easting	Northing	DBH (cm)	Species	Category	Notes
-	412258.79	6379698.82	50	*Corymbia calophylla*	Potential nesting tree	
-	412263.26	6379703.07	65	*Eucalyptus marginata*	Potential nesting tree	
-	412241.67	6379716.96	60	*Corymbia calophylla*	Potential nesting tree	
-	412248.73	6379734.43	85	*Eucalyptus marginata*	Potential nesting tree	
-	412237.23	6379710.16	54	*Corymbia calophylla*	Potential nesting tree	
-	412218.14	6379717.53	85	*Eucalyptus marginata*	Potential nesting tree	
-	412226.41	6379736.45	93	*Eucalyptus marginata*	Potential nesting tree	
-	412213.24	6379741.43	92	*Corymbia calophylla*	Potential nesting tree	
-	412190.46	6379752.54	93	*Eucalyptus marginata*	Potential nesting tree	
-	412205.49	6379770.41	55	*Eucalyptus marginata*	Potential nesting tree	
-	412179.98	6379771.85	54	*Corymbia calophylla*	Potential nesting tree	
-	412175.54	6379776.58	74	*Corymbia calophylla*	Potential nesting tree	
-	412169.15	6379767.54	77	*Corymbia calophylla*	Potential nesting tree	
-	412158.02	6379764.56	83	*Corymbia calophylla*	Potential nesting tree	
-	412157.73	6379755.24	83	*Eucalyptus marginata*	Potential nesting tree	
-	412151.46	6379753.53	75	*Corymbia calophylla*	Potential nesting tree	
-	412153.16	6379763.41	75	*Eucalyptus marginata*	Potential nesting tree	
-	412145.59	6379739.73	110	*Corymbia calophylla*	Potential nesting tree	
-	412155.76	6379733.72	69	*Corymbia calophylla*	Potential nesting tree	
-	412177.61	6379732.47	95	*Corymbia calophylla*	Potential nesting tree	
-	412174.25	6379720.80	75	*Eucalyptus marginata*	Potential nesting tree	
-	412195.44	6379719.77	74	*Eucalyptus marginata*	Potential nesting tree	
-	412213.28	6379705.62	74	*Eucalyptus marginata*	Potential nesting tree	
-	412212.46	6379702.95	50	*Corymbia calophylla*	Potential nesting tree	
895	412190.49	6379706.75	115	*Corymbia calophylla*	Potential nesting tree	
-	412162.87	6379714.16	63	*Stag*	Potential nesting tree	
-	412150.18	6379718.15	103	*Eucalyptus marginata*	Potential nesting tree	
-	412142.15	6379714.97	86	*Corymbia calophylla*	Potential nesting tree	
-	412137.36	6379716.70	62	*Eucalyptus marginata*	Potential nesting tree	
-	412130.63	6379746.25	57	*Corymbia calophylla*	Potential nesting tree	
-	412120.70	6379735.07	64	*Corymbia calophylla*	Potential nesting tree	

Tag No.	Easting	Northing	DBH (cm)	Species	Category	Notes
-	412124.25	6379714.59	65	*Eucalyptus marginata*	Potential nesting tree	
-	412110.15	6379720.01	85	*Corymbia calophylla*	Potential nesting tree	
-	412100.71	6379706.40	80	*Eucalyptus marginata*	Potential nesting tree	
-	412052.06	6379759.85	104	*Corymbia calophylla*	Potential nesting tree	
-	412046.47	6379756.03	62	*Corymbia calophylla*	Potential nesting tree	
-	412043.01	6379754.45	52	*Corymbia calophylla*	Potential nesting tree	
-	412043.03	6379752.68	69	*Eucalyptus marginata*	Potential nesting tree	
-	412035.78	6379735.43	116	*Eucalyptus marginata*	Potential nesting tree	
-	412039.48	6379730.80	92	*Corymbia calophylla*	Potential nesting tree	
-	412046.79	6379730.32	59	*Eucalyptus marginata*	Potential nesting tree	
-	412050.14	6379732.90	50	*Corymbia calophylla*	Potential nesting tree	
-	412052.01	6379733.02	67	*Corymbia calophylla*	Potential nesting tree	
-	412057.38	6379730.85	98	*Corymbia calophylla*	Potential nesting tree	
-	412074.95	6379725.35	59	*Eucalyptus marginata*	Potential nesting tree	
-	412091.56	6379713.19	59	*Corymbia calophylla*	Potential nesting tree	