

# Fauna Habitat Assessment



## Wharf Street Level Crossing Removal Project Cannington

2 May 2019

FINAL

***On behalf of:***

Public Transport Authority  
C/- Aurora Environmental  
Dilhorn House, 2 Bulwer Street  
PERTH WA 6000

***Prepared by:***

Greg Harewood  
Zoologist  
PO Box 755  
BUNBURY WA 6231  
M: 0402 141 197  
E: gharewood@iinet.net.au

## TABLE OF CONTENTS

1.	INTRODUCTION .....	1
2.	SCOPE OF WORKS.....	1
3.	METHODS.....	2
3.1	LITERATURE REVIEW.....	2
3.2	FIELD SURVEYS.....	2
3.2.1	FAUNA HABITAT ASSESSMENT .....	2
3.2.2	FAUNA OBSERVATIONS.....	2
3.2.3	BLACK COCKATOO HABITAT ASSESSMENT .....	2
3.2.3.1	Breeding Habitat Assessment .....	3
3.2.3.2	Foraging Habitat Assessment .....	5
3.2.3.3	Night Roosting Habitat Assessment .....	5
4.	SURVEY LIMITATIONS .....	5
5.	RESULTS .....	6
5.1	LITERATURE REVIEW.....	6
5.2	FIELD SURVEYS.....	7
5.2.1	FAUNA HABITAT ASSESSMENT .....	7
5.2.2	FAUNA OBSERVATIONS.....	10
5.2.3	BLACK COCKATOO HABITAT ASSESSMENT .....	10
5.2.3.1	Breeding Habitat Assessment .....	10
5.2.3.2	Foraging Habitat Assessment .....	11
5.2.3.3	Night Roosting Habitat Assessment .....	12
6.	CONSERVATION SIGNIFICANT FAUNA SPECIES.....	13
7.	CONCLUSION .....	16
8.	REFERENCES .....	17

## **FIGURES**

- FIGURE 1: Aerial Photograph
- FIGURE 2: Habitat Trees (DBH  $\geq$ 50cm)
- FIGURE 3: Habitat Tree Species

## **TABLES**

- TABLE 1: Conservation significant fauna previously recorded or potentially occurring within the general vicinity of the subject site
- TABLE 2: Example images of the fauna habitats within the subject site
- TABLE 3: Summary of habitat trees (DBH  $\geq$ 50cm) within the subject site
- TABLE 4: Foraging evidence examples
- TABLE 5: Likelihood of occurrence – fauna species of conservation significance

## **APPENDICES**

- APPENDIX A: Conservation Categories
- APPENDIX B: DBCA & EPBC Database Search Results
- APPENDIX C: Observed Fauna Listing
- APPENDIX D: Habitat Tree Details

## SUMMARY

This report details the results of a fauna habitat assessment of a 10.1 hectare (ha) area of land associated with the Public Transport Authority's (PTA) proposed Wharf Street Level Crossing Removal Project (subject site). The assessment was primarily undertaken for the purposes of identifying the presence of conservation significant fauna species and/or their habitat and includes a literature review and field reconnaissance survey.

A list of potential conservation significant fauna species considered likely to occur in the general vicinity of the subject site has been compiled from information obtained during the literature review. Their likelihood of occurrence was assessed based on the results of the field reconnaissance survey and habitat assessment.

The subject site is situated in an established residential and commercial area near the eastern fringe of the central Swan Coastal Plain. Most of the area has been cleared of native vegetation and is now mainly comprised of roads, rail lines, carparks, retail, residential and other associated infrastructure.

Vegetation within the subject site is largely confined to road verges, residential gardens and some undeveloped freehold land. Vegetation along road verges is comprised of grassland or planted exotic, non-endemic and native endemic trees and shrubs of variable composition and density. A manmade drain runs along a short section of the north west boundary of the subject site.

Overall fauna values of the subject site are rated as very low given the highly degraded nature of most of the area. Fauna biodiversity within the subject site would be depauperate, however given the presence of some vegetation and in particular native woodland vegetation (e.g. Marri trees), the area still has value for some fauna species able to persist in degraded habitats of this type.

Most of the fauna species likely to be present would be common, widespread species (mainly birds), with a few exceptions (e.g. Black Cockatoos). Most conservation significant species identified as having been previously recorded in the wider area would not persist in the subject site primarily due to a complete lack of suitable habitat (i.e. quality and/or extent).

Three fauna species, all birds, were observed during the field survey. The limited number of fauna species observed can be attributed to the small size of the subject site, the limited extent of vegetation and its generally highly degraded state.

One species of conservation significance was positively identified as utilising the subject site during the field survey (Forest Red-tailed Black Cockatoo).

Based on habitats present three additional species of conservation significance may possibly occur at times (Carnaby's Black Cockatoo, Baudin's Black Cockatoo and Peregrine Falcon) but their current status on-site and/or in the general area is difficult to determine because they were not sighted during the survey period and no evidence of use of the survey area was found. Given the limited extent of suitable habitat present it can however be expected that these species only occur occasionally and then only for brief periods.

The Black Cockatoo habitat tree assessment identified 39 trees with a Diameter at Breast Height (DBH) of  $\geq 50$ cms within the subject site. Most of these trees (37) appeared to not contain hollows of any size.

Two trees contained apparent or obvious hollows, all of which were assessed as being unlikely to be suitable for Black Cockatoos to currently use for nesting purposes (due to the hollows' apparent small size, unsuitable orientation and/or height above ground level) and no evidence of any breeding activity was noted.

Evidence of Black Cockatoos foraging was observed during the field survey in the form of small number of chewed Marri fruits at a single location. This evidence was attributed to the Forest Red-tailed Black Cockatoo.

It is difficult to estimate of the extent of Black Cockatoo foraging habitat within the subject site given most trees and shrubs are represented by scattered/isolated specimens some of which are located amongst non-favoured species, but an examination of aerial photographs suggests its total extent would be less than 1 ha in size.

No evidence of Black Cockatoos roosting within trees located inside the subject site was observed during the survey period.

The impact on the significant species listed as potentially being present will vary depending on their current degree of utilisation/population densities and preferred habitat requirements (e.g. quantity and quality of potential foraging habitat that will be affected when clearing of the site is undertaken).

While fauna species of conservation significance are unlikely to be significantly affected by the proposed development the potential impacts on these species and/or their habitat should be taken into consideration during ongoing planning.

## 1. INTRODUCTION

This report details the results of a fauna habitat assessment of a 10.1 ha area of land associated with the Public Transport Authorities (PTA) proposed Wharf Street Level Crossing Removal Project (subject site).

It is understood that the information contained within the report will be incorporated into an overall environmental report being prepared by Aurora Environmental for use during ongoing planning and during the development approval process.

## 2. SCOPE OF WORKS

### Desktop Assessment:

The scope of works (with respect to fauna) defined by the PTA was to conduct a desktop review of publicly available information and reports to assess the potential presence of conservation significant fauna and their habitat within the subject site.

### Reconnaissance Fauna Survey:

The scope of works (with respect to fauna) defined by the PTA was to conduct a reconnaissance fauna survey, in accordance with *Technical Guidance - Terrestrial Fauna Surveys* (EPA 2016a) and *Technical Guidance – Sampling Methods for Terrestrial Vertebrate Fauna* (EPA 2016b) to identify:

- The presence or potential presence of conservation significant fauna species (e.g. Threatened or Priority Fauna) within the environmental survey boundary (including mapping).
- Assess habitats suitable for conservation significant fauna species.
- Fauna habitat types within the environmental survey boundary (including mapping).

The scope of works defined by the PTA was to conduct a targeted Black Cockatoo<sup>1</sup> habitat survey to:

- Identify Black Cockatoo habitat (foraging, breeding, roosting habitat) within the environmental survey boundary, including GPS locations of breeding habitat trees.

---

<sup>1</sup> Note: For the purposes of this report the term Black Cockatoo is in reference to all three species i.e. Baudin's Black Cockatoo (*Calyptrorhynchus baudinii*), Carnaby's Black Cockatoo (*Calyptrorhynchus latirostris*) and the Forest Red-tailed Black Cockatoo (*Calyptrorhynchus banksii naso*), unless stated otherwise.

### **3. METHOD**

#### **3.1 LITERATURE REVIEW**

A list of fauna recorded or likely to occur within the subject site has been compiled by a review of available databases and literature including, but not limited to the following data sources:

- Department of Biodiversity, Conservation and Attractions (DBCA) Threatened Fauna Database (NatureMap) (DBCA 2018). A 10-kilometre (km) buffer around a central point was applied to capture previous fauna records within the immediate vicinity;
- *Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)* Protected Matters database for fauna of national environmental significance (DotEE 2018). The minimum buffer (1 km) was applied to this search as the databases contains distribution data (areas) and not actual fauna records; and
- Literature search and review of other fauna surveys in the vicinity.

The conservation status of each species has been based on current lists produced under Federal and State Acts (*EPBC Act* and the *Wildlife Conservation Act 1950 (WC Act)*), those species recognised under international treaties (CAMBA, JAMBA and the Bonn Convention) and Priority Fauna (as listed by DBCA).

#### **3.2 FIELD SURVEYS**

The field component of the fauna assessment was carried out on the 25 September 2018 by Greg Harewood (Zoologist) and consisted of a reconnaissance survey, described in the sections below.

##### **3.2.1 FAUNA HABITAT ASSESSMENT**

The objective of the habitat assessment was to assess if it was likely that species of conservation significance would utilise the habitats identified within the subject site.

During the field survey, fauna habitats within the survey area were assessed and specific elements identified, which informed the likelihood of listed conservation significant species utilising the area and fauna habitat of significance.

Vegetation units, landforms and soils observed during the site reconnaissance survey have been used to define broad fauna habitat types across the subject site.

##### **3.2.2 FAUNA OBSERVATIONS**

The objective of the habitat assessment was to assess if it was likely that species of conservation significance would utilise the habitats identified within the subject site.

During the field survey, fauna habitats within the survey area were assessed and specific elements identified, which informed the likelihood of listed conservation significant species utilising the area and fauna habitat of significance.

Vegetation units, landforms and soils observed during the site reconnaissance survey have been used to define broad fauna habitat types across the subject site.

### **3.2.3 BLACK COCKATOO HABITAT ASSESSMENT**

The following methods were employed to comply with the defined scope of works and are based on DSEWPac (2012) guidelines which states that surveys for Carnaby's, Baudin's and Forest Red-tailed Black Cockatoo habitat should:

- be done by a suitably qualified person with experience in vegetation or cockatoo surveys, depending on the type of survey being undertaken;
- maximise the chance of detecting the species' habitat and/or signs of use;
- determine the context of the site within the broader landscape—for example, the amount and quality of habitat nearby and in the local region (for example, within 10 km);
- account for uncertainty and error (false presence and absences); and
- include collation of existing data on known locations of breeding and feeding birds and night roost locations.

DSEWPac (2012) places habitats used by Black Cockatoos into the following three categories:

- Breeding Habitat;
- Foraging Habitat; and
- Night Roosting Habitat.

#### **3.2.3.1 Breeding Habitat Assessment**

The Black Cockatoo breeding habitat assessment identified all suitable breeding tree species within the subject site that have a Diameter at Breast Height (DBH) equal to or greater than 50cm. The DBH of each tree was estimated using a pre-made 50 cm "caliper".

Target tree species included Marri, Jarrah, Tuart and Flooded Gum and any other *Corymbia/Eucalyptus* species of a suitable size that was present. Peppermints, *Banksia*, Sheoak and Melaleuca tree species (for example) were not assessed as they typically do not develop hollows used by Black Cockatoos.



The location of each tree identified over the threshold DBH was recorded with a GPS and details of tree species, number and size of hollows (if any) noted. Trees observed to contain hollows (of any size/type) were marked with “H” using spray paint.

Potential hollows were placed into one of four categories, based on the size of the apparent hollow entrance, these being:

- Small = ~<5cm diameter (i.e. entrance too small for a Black Cockatoo);
- Medium = ~5cm-10cm diameter (i.e. entrance too small for a Black Cockatoo);
- Large = ~>10cm diameter (entrance large enough for a Black Cockatoo but hollow appears unsuitable for nesting i.e. wrong orientation, appears too small, too low or too shallow); or
- Large (cockatoo) = ~>10cm diameter (entrance appears big enough for a Black Cockatoo to use for nesting).

Based on this assessment, trees present within the subject site were placed into one of four categories:

- Tree <50cm DBH or an unsuitable species (these were not assessed/recorded);
- Tree  $\geq$ 50cm DBH, no hollows seen;
- Tree  $\geq$ 50cm DBH, one or more hollows seen, none of which were considered suitable for Black Cockatoos to use for nesting; or
- Tree  $\geq$ 50cm DBH, one or more hollows seen, with at least one considered suitable for Black Cockatoos to use for nesting.

For the purposes of this assessment, a tree containing a potential Black Cockatoo nest hollow was defined as:

*Generally, any tree which is alive or dead that contains one or more possible hollows (cavities within the trunk or branches) suitable for occupation by Black Cockatoo for the purpose of nesting/breeding. Apparent hollows that had an entrance greater than about 10cm in diameter and would allow the entry of a Black Cockatoo into a suitably orientated and sized branch/trunk, was recorded as a “potential nest hollow”.*

Identified hollows were examined using binoculars for evidence of actual use by Black Cockatoos (e.g. chewing around hollow entrance, scarring and scratch marks on trunks and branches).

A review of available literature was also carried out to determine the location/extent of any known/likely Black Cockatoo breeding habitat in the vicinity.

### **3.2.3.2 Foraging Habitat Assessment**

The location and nature of Black Cockatoo foraging evidence (e.g. chewed fruits around base of trees) observed during the field survey was recorded. The nature and extent of potential foraging habitat present was also documented irrespective of the presence of any actual foraging evidence. Foraging habitat is represented by plant species that are known to provide a food source for Black Cockatoos. This can be in the form of seeds, flowers and also boring grubs that are extracted from some plant species.

A review of available literature was carried out to determine the location/extent of any known/likely Black Cockatoo foraging habitat areas in the vicinity.

### **3.2.3.3 Night Roosting Habitat Assessment**

Direct and indirect evidence of Black Cockatoos roosting within trees on site was noted where observed (e.g. branch clippings, droppings or moulted feathers).

A review of available literature was carried out to determine the location/extent of any known/likely Black Cockatoo roosting habitat areas in the vicinity.

## **4. SURVEY LIMITATIONS**

No seasonal sampling was carried out as part of this fauna assessment. The conclusions presented are based upon field data and the environmental monitoring and/or testing carried out over a limited period of time and are therefore merely indicative of the environmental condition of the site at the time of the field assessments. It should be recognised that site conditions can change with time.

Lack of observational data on some species should also not necessarily be taken as an indication that a species is absent from the site or does not utilise it for some purpose at times.

During the survey, habitat trees with hollows were searched for. It should be noted that identifying hollows suitable for fauna species from ground level has limitations. Generally, the full characteristics of any hollow seen are not fully evident (e.g. internal dimensions). It is also difficult to locate all hollows within all trees as some are not observable from ground level.

The location of observations was recorded using a handheld GPS. The accuracy of the GPS cannot be guaranteed above a level of about 5 to 10 metres, though it should be noted that in some circumstance the accuracy can increase or decrease beyond this range.

## 5. RESULTS

### 5.1 LITERATURE REVIEW

The literature review identified a number of fauna species of conservation significance as potentially occurring in the general area. Table 1 lists the species in question. The NatureMap (DBCA 2018) and Protected Matter Search Tool (DotEE 2018) results, used as a primary source for compiling this listing, are held within Appendix B.

**Table 1: Conservation significant fauna previously recorded or potentially occurring within the general vicinity of the subject site.<sup>2</sup>**

Species	Conservation Status	
	WC Act/ DBCA Priority	EPBC Act
Carter's Freshwater Mussel <i>Westralunio carteri</i>	S3	VU
Guildford Springtail <i>Australotomurus morbidus</i>	P3	-
Unnamed bee <i>Glossurocolletes bilobatus</i>	P2	-
Unnamed bee <i>Leioproctus douglasiellus</i>	S2	CR
Short-tongued Bee <i>Neopasiphae simplicior</i>	S2	CR
Southern Death Adder <i>Acanthophis antarcticus</i>	P3	-
Dell's Skink <i>Ctenotus delli</i>	P4	-
Coastal Plains Skink <i>Ctenotus ora</i>	P3	-
Perth Slider <i>Lerista lineata</i>	P3	-
Black-striped Snake <i>Neelaps calonotos</i>	P3	-
Western Swamp Tortoise <i>Pseudemydura umbrina</i>	CR	CR
Malleefowl <i>Leipoa ocellata</i>	S3	VU
Australasian Bittern <i>Botaurus poiciloptilus</i>	S2	EN
Australian Little Bittern <i>Ixobrychus dubius</i>	P4	-
Migratory Shorebirds/Wetland Species	Various	Various
Hooded Plover <i>Thinornis rubricollis</i>	P4	-
Blue-billed Duck <i>Oxyura australis</i>	P4	-
Glossy Ibis <i>Plegadis falcinellus</i>	S5	Mig, Ma
Eastern Osprey <i>Pandion haliaetus</i>	S5	Mig, Ma

<sup>2</sup> See Appendix A for conservation status codes

Species	Conservation Status	
	WC Act/ DBCA Priority	EPBC Act
Peregrine Falcon <i>Falco peregrinus</i>	S7	-
Grey Falcon <i>Falco hypoleucos</i>	S3	-
Masked Owl <i>Tyto novaehollandiae novaehollandiae</i>	P3	-
Carnaby's Black Cockatoo <i>Calyptorhynchus latirostris</i>	S2	EN
Baudin's Black Cockatoo <i>Calyptorhynchus baudinii</i>	S2	EN
Forest Red-tailed Black Cockatoo <i>Calyptorhynchus banksii naso</i>	S3	VU
Muir's Corella <i>Cacatua pastinator pastinator</i>	S6	-
Western Bristlebird <i>Dasyornis longirostris</i>	S3	EN
Fork-tailed Swift <i>Apus pacificus</i>	S5	Mig
Grey Wagtail <i>Motacilla cinerea</i>	S5	Mig
Chuditch <i>Dasyurus geoffroii</i>	S3	VU
South-western Brush-tailed Phascogale <i>Phascogale tapoatafa wambenger</i>	S6	-
Numbat <i>Myrmecobius fasciatus</i>	S3	VU
Quenda <i>Isodon fusciventer</i>	P4	-
Western Ringtail Possum <i>Pseudocheirus occidentalis</i>	S1	CR
Woylie <i>Bettongia penicillata ogilbyi</i>	S1	EN
Western Brush Wallaby <i>Notamacropus irma</i>	P4	-

## 5.2 FIELD SURVEYS



### 5.2.1 FAUNA HABITAT ASSESSMENT

The subject site is situated in an established residential and commercial area near the eastern fringe of the central Swan Coastal Plain. Most of the area has been cleared of native vegetation and is now mainly comprised of roads, rail lines, carparks, retail, residential and other associated infrastructure.





Vegetation within the subject site is largely confined to road verges, residential gardens and some undeveloped freehold land. Vegetation along road verges is comprised of grassland or planted exotic, non-endemic and native endemic trees and shrubs of variable composition and density. A manmade drain runs along a short section of the north west boundary of the subject site.


The individual remnant native trees and groves of trees, while limited in extent support the primary fauna habitat value although these areas vary in quality, with most areas being totally degraded and lacking significant native groundcover/shrubs and microhabitats such as hollow logs. A manmade drain runs along a short section of the north west boundary of the subject site.

**Table 2: Example images of the fauna habitats within the Subject site**

Fauna Habitat Description	Example Image
<p>Totally cleared – roads, railway reserve, footpaths, vacant blocks, road verges with bare ground or grassland.</p>	
	



Fauna Habitat Description	Example Image
<p>Planted non-endemic/exotic trees and shrubs along road verges, in gardens and vacant lots of various composition and density.</p>	
	
<p>Remnant native vegetation along road verges (some possibly planted) – Marri, Flooded Gum, Jarrah, Peppermint and Paperbark over bare ground or open grassland of variable composition and density.</p>	
	

Fauna Habitat Description	Example Image
Manmade Drain	

Overall fauna values of the subject site are rated as very low given the highly degraded nature of most of the area. Fauna biodiversity within the subject site would be depauperate, however given the presence of some vegetation and in particular native woodland vegetation (e.g. Marri trees), the area still has value for some fauna species able to persist in degraded habitats of this type.

Most of the fauna species likely to be present would be common, widespread species (mainly birds), with a few exceptions (e.g. Black Cockatoos). The vast majority of conservation significant species previously recorded in the wider area would not persist in the subject site primarily due to a complete lack of suitable habitat (i.e. quality and/or extent).

## 5.2.2 FAUNA OBSERVATIONS

Three fauna species, all birds, were observed during the field survey (see Appendix C). The limited number of fauna species observed can be attributed to the small size of the subject site, the limited extent of vegetation and its generally highly degraded state.

With the exception of foraging debris attributed to the Forest Red-tailed Black Cockatoo, (see section 5.2.3.2) observed at a single location, no evidence of any of the conservation significant fauna species identified during the literature review was observed. However, this does not eliminate the potential for some species to still occur, if only infrequently.

## 5.2.3 BLACK COCKATOO HABITAT ASSESSMENT

### 5.2.3.1 Breeding Habitat Assessment

Trees considered potentially suitable for Black Cockatoos to use as nesting habitat (subject to a suitable hollow being present and other factors) found within the subject site comprised the following species:

- Marri – *Corymbia calophylla*;
- Jarrah – *Eucalyptus marginata*;

- Flooded Gum – *Eucalyptus rudis*;
- Planted non-endemic eucalypts (various unidentified species); and
- Dead unidentified species.

A summary of the habitat trees observed is provided in Table 3 below. The location of habitat trees is shown in Figure 2.

**Table 3: Summary of Habitat Trees (DBH  $\geq$ 50cm) within the subject site**

Total Number of Habitat Trees (DBH $\geq$ 50cm)	Number of Habitat Trees with <u>No Hollows Observed</u>	Number of Habitat Trees with <u>Possible Hollows</u> considered <u>Unsuitable</u> for Black Cockatoos	Number of Habitat Trees with <u>Possible Hollows</u> considered <u>Possibly Suitable</u> for Black Cockatoos	Tree Species				
				Marri	Jarrah	Flooded Gum	Non-Endemic Eucalyptus	Dead Unknown
39	37	2	0	7	1	11	18	2

The assessment identified 39 trees within the subject site with a DBH of  $\geq$ 50cm. The vast majority of trees (37) appeared not to contain hollows of any size.

Two trees contained apparent or obvious hollows, all of which were assessed as being unlikely to be suitable for Black Cockatoos to currently use for nesting purposes, due to the hollows apparent small size, unsuitable orientation and/or height above ground level.

No trees appeared to contain hollows suitable for Black Cockatoos to use for nesting purposes and no evidence of any breeding activity was noted.

The distribution of the various habitat tree species is shown in Figure 3. Additional details on each habitat tree observed can be found in Appendix D.

Based on available mapping there is about 3,280 ha of remnant native vegetation within 10 kilometres of the subject site. Much of this is likely to also contain “potential” breeding habitat as defined by DotEE (i.e. suitable tree species with a DBH  $\geq$ 50cm).

### 5.2.3.2 Foraging Habitat Assessment

The following flora species known to be or are potentially used as a direct food source (e.g. seeds, flowers, nectar, bark or grubs) by one or more species of Black Cockatoo were recorded within the subject site:

- Marri – *Corymbia calophylla*;
- Jarrah – *Eucalyptus marginata*;
- Flooded Gum - *Eucalyptus rudis*;




- Peppermint – *Agonis flexuosa*;
- Grass tree – *Xanthorrhoea preissii*; and
- Bottlebrush – *Callistemon* spp.

It should be noted that some of the above-mentioned species (e.g., Flooded Gum, Peppermint and Bottlebrush) while foraged upon on occasions are only likely to make up a small proportion of any one birds diet relative to more favoured plant species such as Marri. Some tree species are also only represented by a small number of specimens (e.g. Jarrah) and therefore do not contribute to the overall foraging resource to a significant degree.

Evidence of Black Cockatoos foraging was observed during the field survey in the form of small number of chewed Marri fruits at a single location. This evidence was attributed to the Forest Red-tailed Black Cockatoo. An example picture of the foraging evidence found is provided in Table 4.

**Table 4: Foraging evidence examples**

Foraging Evidence Description	Example Image
Marri Fruits – foraging activity attributed to the forest red-tailed black-cockatoo.	

It is difficult to estimate of the extent of Black Cockatoo foraging habitat within the subject site given most trees and shrubs are represented by scattered/isolated specimens some of which are located amongst non-favoured species, but an examination of aerial photographs suggests its total extent would be less than 1 ha in size.

Based on available mapping there is about 3,280 ha of remnant native vegetation within 10 kilometres of the subject site. Much of this is likely to also represent Black Cockatoo foraging habitat of some type.

### 5.2.3.3 Night Roosting Habitat Assessment

No evidence of Black Cockatoos roosting within trees located inside the subject site was observed during the survey period. It is difficult to determine if trees or groves of trees within the subject site represent potential roosting habitat as a range of factors, not all of

which can be observed, determine suitability. Some of the larger trees (included non-endemics/exotics) may be suitable but as indicated no actual evidence of use was seen.

A review of the 2018 Great Cocky Count database shows no documented roost sites within the subject site, the closest active roost (2017) being about 4 km east. This site was in use by 51 red-tailed Black Cockatoos during the 2017 Great Cocky Count (Peck *et al.* 2018). Another 53 documented roost sites (but not necessarily in current use) occur within 10 km of the subject site.

## 6. CONSERVATION SIGNIFICANT FAUNA SPECIES

Based on the information gathered during the site reconnaissance survey and the documented distribution and habitat preferences of the species of conservation significance identified as potentially being present in the general area, their likelihood of occurrence has been assessed. A summary of this assessment is presented in Table 5.

**Table 5: Likelihood of Occurrence – Fauna Species of Conservation Significance (continues on following pages).<sup>3</sup>**

Species	Conservation Status		Habitat Present	Likelihood of Occurrence
	WC Act/ DBCA Priori	EPBC Act		
Carter's Freshwater Mussel <i>Westralunio carteri</i>	S3	VU	Yes/Very Marginal	Unlikely to Occur
Guildford Springtail <i>Australotomurus morbidus</i>	P3	-	No	Would Not Occur
Unnamed Bee <i>Glossurocolletes bilobatus</i>	P2	-	No	Would Not Occur
Unnamed Bee <i>Leioproctus douglasiellus</i>	S2	CR	No	Would Not Occur
Short-tongued Bee <i>Neopasiphae simplicior</i>	S2	CR	No	Would Not Occur
Southern Death Adder <i>Acanthophs antarcticus</i>	P3	-	No	Would Not Occur
Dell's Skink <i>Ctenotus delli</i>	P4	-	No	Would Not Occur
Coastal Plains Skink <i>Ctenotus ora</i>	P3	-	No	Would Not Occur
Perth Slider <i>Lerista lineata</i>	P3	-	No/Very Marginal	Unlikely to Occur
Black-striped Snake <i>Neelaps calonotos</i>	P3	-	No	Would Not Occur
Western Swamp Tortoise <i>Pseudemydura umbrina</i>	CR	CR	No	Would Not Occur

<sup>3</sup> See Appendix A for conservation status codes

Species	Conservation Status		Habitat Present	Likelihood of Occurrence
	WC Act/ DBC A Priori	EPBC Act		
Malleefowl <i>Leipoa ocellata</i>	S3	VU	No	Would Not Occur/Regionally Extinct
Australasian Bittern <i>Botaurus poiciloptilus</i>	S2	EN	No	Would Not Occur
Australian Little Bittern <i>Ixobrychus dubius</i>	P4	-	No	Would Not Occur
Migratory Shorebirds/Wetland Species	Various	Various	No	Would Not Occur
Hooded Plover <i>Thinornis rubricollis</i>	P4	-	No	Would Not Occur
Blue-billed Duck <i>Oxyura australis</i>	P4	-	No/Very Marginal	Would Not Occur
Glossy Ibis <i>Plegadis falcinellus</i>	S5	Mig, Ma	No/Very Marginal	Would Not Occur
Eastern Osprey <i>Pandion haliaetus</i>	S5	Mig, Ma	No	Would Not Occur
Peregrine Falcon <i>Falco peregrinus</i>	S7	-	Yes	Possibly Occurs (on rare occasions)
Grey Falcon <i>Falco hypoleucos</i>	S3	-	No	Would Not Occur
Masked Owl <i>Tyto novaehollandiae novaehollandiae</i>	P3	-	No	Would Not Occur
Carnaby's Black Cockatoo <i>Calyptorhynchus latirostris</i>	S2	EN	Yes	Possibly Occurs
Baudin's Black Cockatoo <i>Calyptorhynchus baudinii</i>	S2	EN	Yes	Possibly Occurs
Forest Red-tailed Black Cockatoo <i>Calyptorhynchus banksii naso</i>	S3	VU	Yes	Known to Occur
Muir's Corella <i>Cacatua pastinator pastinator</i>	S6	-	No	Would Not Occur
Western Bristlebird <i>Dasyornis longirostris</i>	S2	EN	No	Would Not Occur/Regionally Extinct
Fork-tailed Swift <i>Apus pacificus</i>	S5	Mig	Yes	Unlikely to Occur except very rarely
Grey Wagtail <i>Motacilla cinerea</i>	S5	Mig	No	Would Not Occur
Chuditch <i>Dasyurus geoffroii</i>	S3	VU	No	Would Not Occur/Regionally Extinct
South-western Brush-tailed Phascogale <i>Phascogale tapoatafa wambenger</i>	S6	-	No	Would Not Occur
Numbat <i>Myrmecobius fasciatus</i>	S2	EN	No	Would Not Occur/Regionally Extinct

Species	Conservation Status		Habitat Present	Likelihood of Occurrence
	WC Act/ DBCA Priori	EPBC Act		
Quenda <i>Isoodon fusciventer</i>	P4	-	No	Would Not Occur
Western Ringtail Possum <i>Pseudocheirus occidentalis</i>	S1	CR	No	Would Not Occur/Regionally Extinct
Woylie <i>Bettongia penicillata ogilbyi</i>	S1	EN	No	Would Not Occur/Regionally Extinct
Western Brush Wallaby <i>Notamacropus irma</i>	P4	-	No	Would Not Occur/Regionally Extinct
Water Rat <i>Hydromys chrysogaster</i>	P4	-	Yes/Very Marginal	Unlikely to Occur

One fauna species of conservation significance (listed as State or Federal threatened/migratory species or as DBCA priority species) was positively identified as utilising the subject area for some purpose during the survey period, this being:

- *Calyptorhynchus banksii naso* Forest Red-tailed Black Cockatoo – S3 (WC Act), Vulnerable (EPBC Act)  
Foraging evidence attributed to this species observed though favoured habitat is limited in quality and extent. Larger trees ( $\geq 50$ cm DBH) can be considered potential breeding habitat, though no large hollows present, and no breeding activity was evident. No evidence of roosting observed.

Several additional species of conservation significance may possibly utilise the survey area for some purpose at times but their current status on-site and/or in the general area is, in some cases, difficult to determine because they were not sighted during the field survey, or evidence of use was not found.

- *Calyptorhynchus latirostris* Carnaby's Black Cockatoo – S2 (WC Act), Endangered (EPBC Act)  
May occur occasionally but favoured habitat is limited in quality and extent. Small areas of vegetation within the subject site represent foraging habitat for this species, though no evidence of use observed. Larger trees ( $\geq 50$ cm DBH) can be considered potential breeding habitat, though no large hollows present, and no breeding activity was evident. No evidence of roosting observed.
- *Calyptorhynchus baudinii* Baudin's Black Cockatoo – S2 (WC Act), Endangered (EPBC Act)  
May occur occasionally but favoured habitat is limited in quality and extent. Small areas of vegetation within the subject site represent foraging habitat for this species, though no evidence of use observed. Larger trees ( $\geq 50$ cm DBH) can be considered potential breeding habitat, though no large hollows present, and no breeding activity was evident. No evidence of roosting observed.
- *Falco peregrinus* Peregrine Falcon – S7 (WC Act)  
Uncommon so unlikely to be resident in the area but subject site may form part of larger home range. Only likely to occur very infrequently when foraging in air space over the subject site and then only for brief periods. Unlikely to breed in the area.

A number of other species of conservation significance (as listed in Table 5), while possibly present in the wider area (e.g. Darling Range forest areas) are not listed as potentially occurring within the subject site primarily due to a complete lack of suitable habitat (quality and extent) and/or known local/regional extinction.

## **7. CONCLUSION**

The fauna assessment of the proposed Wharf Street Level Crossing Removal Project area was primarily undertaken for the purposes of identifying the presence of conservation significant fauna species and/or their habitat.

One species of conservation significance was positively identified as utilising the subject site during the field survey (Forest Red-tailed Black Cockatoo). Based on habitats present three additional species of conservation significance may possibly occur at times (Carnaby's Black Cockatoo, Baudin's Black Cockatoo and Peregrine Falcon) but their current status on-site and/or in the general area is difficult to determine because they were not sighted during the survey period and no evidence of use of the survey area was found. Given the limited extent of suitable habitat present it can however be expected that these species only occur occasionally and then only for brief periods.

The potential impact to conservation significant species from the proposed development will vary depending on their current degree of utilisation/population densities and preferred habitat requirements (e.g. quantity and quality of potential foraging habitat that will be affected when clearing of the site is undertaken).

The potential impacts on these species and/or their habitat should be taken into consideration during ongoing planning.

## 8. REFERENCES

Department of Biodiversity, Conservation and Attractions (DBCA) (2018). NatureMap Database search. "By Circle" - 115° 56' 06" E, 32° 00' 15" S (plus 10km buffer). Accessed 29/09/2018.

Department of the Environment and Energy (DotEE) (2018). *EPBC Act Protected Matters Report: "By Point" - -32.00403 115.93494 (1km Buffer)*. Available from: <http://www.environment.gov.au>. Accessed 29/09/2018.

Department of Sustainability, Environment, Water, Population and Communities (DSEWPoC) (2012). *EPBC Act Referral guidelines for three threatened Black Cockatoo species: Carnaby's cockatoo (endangered) *Calyptorhynchus latirostris*, Baudin's cockatoo (vulnerable) *Calyptorhynchus baudinii*, Forest Red-tailed Black Cockatoo (vulnerable) *Calyptorhynchus banksii naso*.*

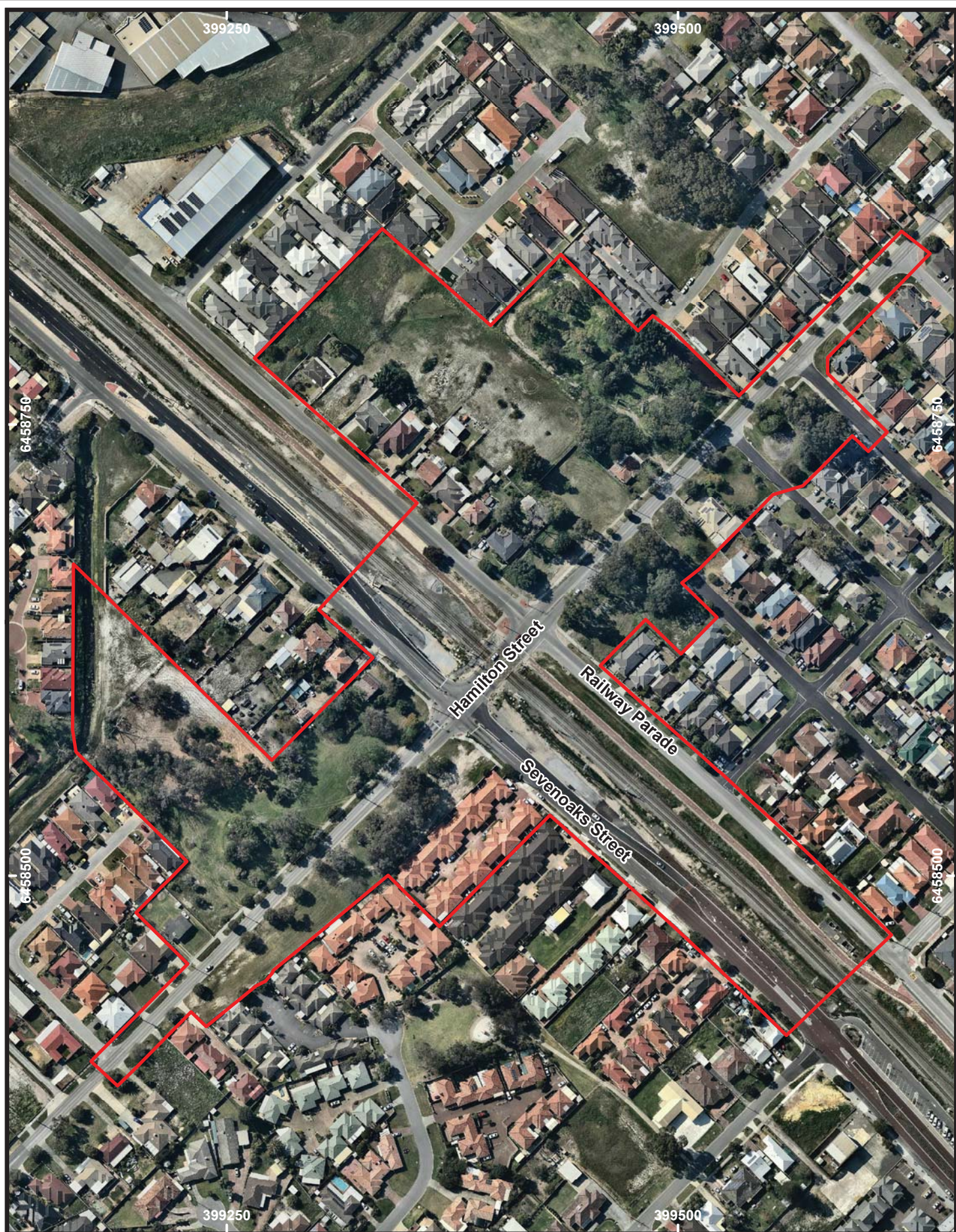
Environmental Protection Authority (EPA) (2016a). *Technical Guidance - Terrestrial Fauna Surveys*.

Environmental Protection Authority (EPA) (2016b). *Technical Guidance – Sampling Methods for Terrestrial Vertebrate Fauna*.

Peck, A., Barrett, G. & Williams, M. (2018). *The 2018 Great Cocky Count: a community-based survey for Carnaby's Black-Cockatoo (*Calyptorhynchus latirostris*), Baudin's Black-Cockatoo (*Calyptorhynchus baudinii*) and Forest Red-tailed Black-Cockatoo (*Calyptorhynchus banksii naso*)*. BirdLife Australia, Floreat, Western Australia.

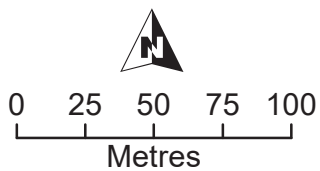
## **FIGURES**





## Legend

Subject Site



Drawn: G Harewood  
Date: Oct 2018  
Scale: 1: 50,000

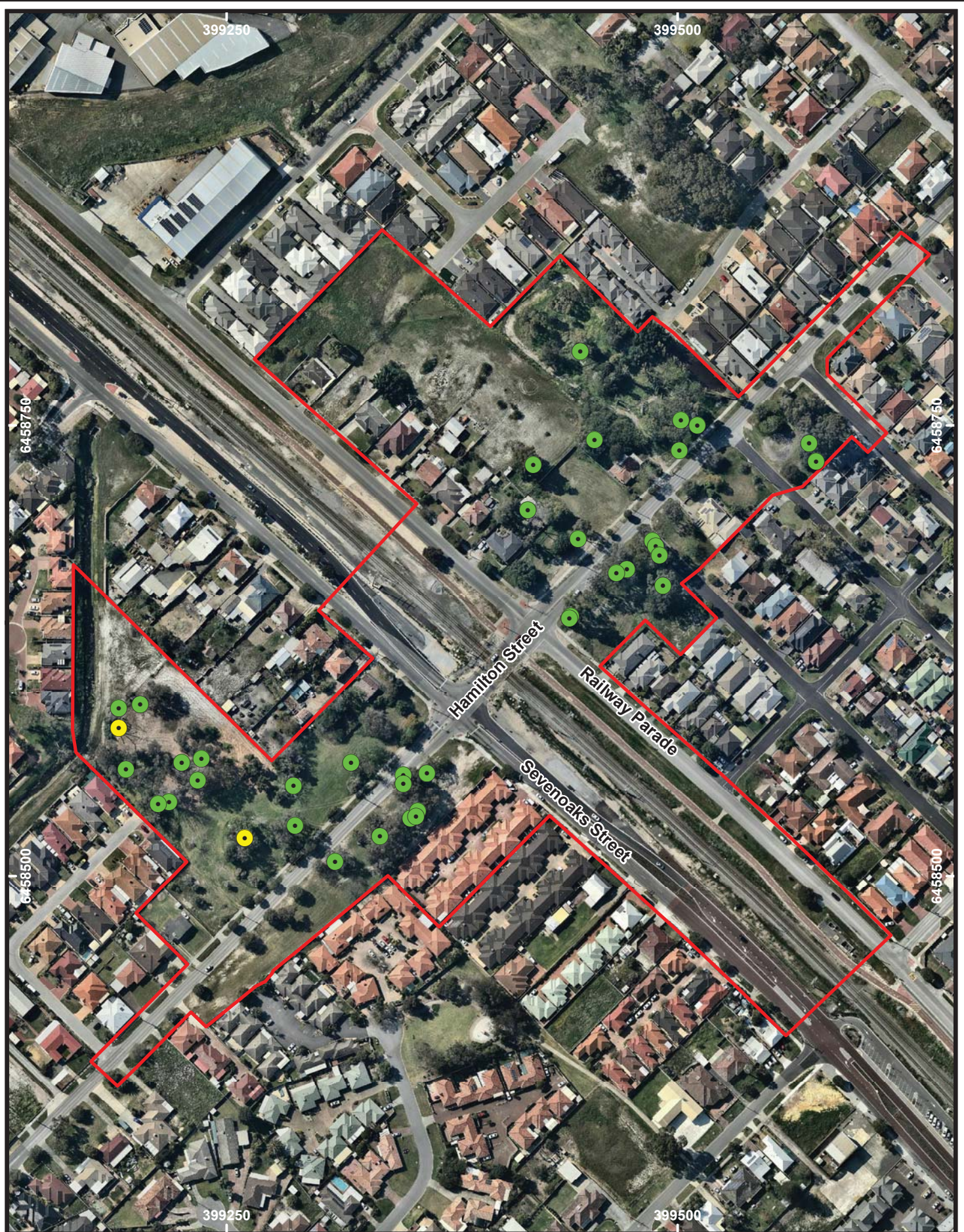
Projection/Coordinate System: UTM/MGA Zone 50

Wharf Street  
Level Crossing Removal Project  
Public Transport Authority

## Aerial Photograph

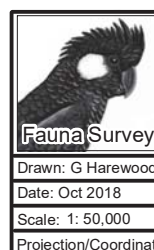
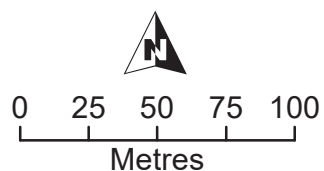
Figure: 1





## Legend

- Subject Site
- Habitat Tree - One or more possible small/medium hollows
- Habitat Tree - No hollows seen

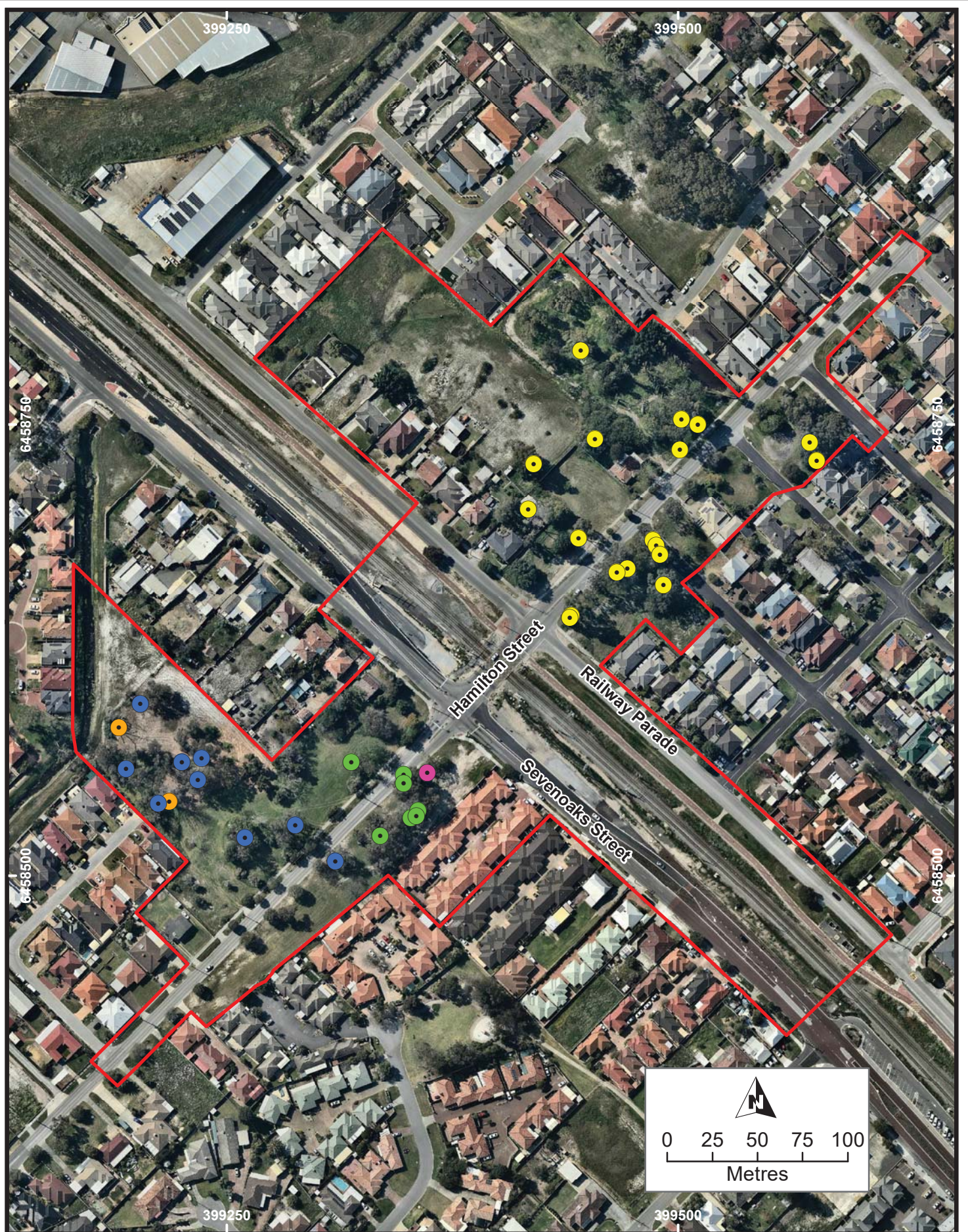


Wharf Street  
 Level Crossing Removal Project  
 Public Transport Authority

## Habitat Trees (DBH >50cm)

Figure: 2





## Legend

- |  |  |
|--|--|
| <span style="border: 2px solid red; display: inline-block; width: 20px; height: 10px; margin-right: 5px;"></span> Subject Site | <span style="color: blue;">●</span> Flooded Gum                    |
| <span style="color: green;">●</span> Marri   | <span style="color: magenta;">●</span> Jarrah                      |
| <span style="color: orange;">●</span> Dead Unknown   | <span style="color: yellow;">●</span> Unknown Non-Endemic Eucalypt |



Drawn: G Harewood  
Date: Oct 2018  
Scale: 1: 50,000

Projection/Coordinate System: UTM/MGA Zone 50

Wharf Street  
Level Crossing Removal Project  
Public Transport Authority

## Habitat Tree Species

Figure: 3



# **APPENDIX A**

## **CONSERVATION CATEGORIES**

### ***EPBC Act (1999) Threatened Fauna Categories***

Threatened fauna may be listed under Section 178 of the *Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)* in any one of the following categories:

<b>Category</b>	<b>Code</b>	<b>Description</b>
Extinct	E	There is no reasonable doubt that the last member of the species has died.
*Extinct in the wild	EW	A species (a) is known only to survive in cultivation, in captivity or as a naturalised population well outside its past range; or (b) has not been recorded in its known and/or expected habitat, at appropriate seasons, anywhere in its past range, despite exhaustive surveys over a time frame appropriate to its life cycle and form.
*Critically Endangered	CE	A species is facing an extremely high risk of extinction in the wild in the immediate future.
*Endangered	EN	A species: (a) is not critically endangered; and (b) is facing a very high risk of extinction in the wild in the near future.
*Vulnerable	VU	A species (a) is not critically endangered or endangered; and (b) is facing a high risk of extinction in the wild in the medium-term future.
Conservation Dependent	CD	A species is the focus of a specific conservation program the cessation of which would result in the species becoming vulnerable, endangered or critically endangered
*Migratory	Migratory	(a) 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 (c) 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.
Marine	Ma	Species in the list established under s248 of the <i>EPBC Act</i>

Note: Only species in those categories marked with an asterisk are matters of national environmental significance (NES) under the *EPBC Act*.

## Wildlife Conservation (Specially Protected Fauna) Notice 2017 Categories

Published as Specially Protected under the *Wildlife Conservation Act 1950*, and listed under Schedules 1 to 7 of the Wildlife Conservation (Specially Protected Fauna) Notice.

The assessment of the conservation status of these species is based on their national extent and ranked according to their level of threat using IUCN Red List categories and criteria as detailed below.

Category	Code	Description
Schedule 1 (S1) Critically Endangered species	CR	Threatened species considered to be facing an extremely high risk of extinction in the wild.
Schedule 2 (S2) Endangered species	EN	Threatened species considered to be facing a very high risk of extinction in the wild.
Schedule 3 (S3) Vulnerable species	VU	Threatened species considered to be facing a high risk of extinction in the wild.
Schedule 4 (S4) Presumed extinct species	EX	Species which have been adequately searched for and there is no reasonable doubt that the last individual has died.
Schedule 5 (S5) Migratory birds protected under an international agreement	IA	Birds that are 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.
Schedule 6 (S6) Fauna that is of special conservation need as conservation dependent fauna	CD	Fauna of special conservation need being species dependent on ongoing conservation intervention to prevent it becoming eligible for listing as threatened.
Schedule 7 (S7) Other specially protected fauna.	OS	Fauna otherwise in need of special protection to ensure their conservation.

## Western Australian DBCA Priority Fauna Categories

Possibly threatened species that do not meet survey criteria, or are otherwise data deficient, are added to the Priority Fauna under Priorities 1, 2 or 3. These three categories are ranked in order of priority for survey and evaluation of conservation status so that consideration can be given to their declaration as threatened flora or fauna.

Species 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, are placed in Priority 4. These species require regular monitoring.

Assessment of Priority codes is based on the Western Australian distribution of the species, unless the distribution in WA is part of a contiguous population extending into adjacent States, as defined by the known spread of locations.

Category	Code	Description
Priority 1 (P1) Poorly Known Species.	P1	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.
Priority 2 (P2) Poorly Known Species.	P2	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.
Priority 3 (P3) Poorly Known Species.	P3	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.
Priority 4 (P4) Rare, Near Threatened and other species in need of monitoring.	P4	<p>(a) Rare: Species that are considered to have been adequately surveyed, or for which sufficient knowledge is available, and that are considered not currently threatened or in need of special protection, but could be if present circumstances change. These species are usually represented on conservation lands.</p> <p>(b) Near Threatened: Species that are considered to have been adequately surveyed and that are close to qualifying for Vulnerable, but are not listed as Conservation Dependent.</p> <p>(c) Species that have been removed from the list of threatened species during the past five years for reasons other than taxonomy.</p>

\*Species includes all taxa (plural of taxon - a classificatory group of any taxonomic rank, e.g. a family, genus, species or any infraspecific category i.e. subspecies or variety, or a distinct population).

## ***IUCN Red List Threatened Species Categories***

The *IUCN Red List of Threatened Species™* is a checklist of taxa that have undergone an extinction risk assessment using the *IUCN Red List Categories and Criteria*.

Categories are summarized below.

Category	Code	Description
Extinct	EX	Taxa for which there is no reasonable doubt that the last individual has died.
Extinct in the Wild	EW	Taxa which is known only to survive in cultivation, in captivity or and as a naturalised population well outside its past range and it has not been recorded in known or expected habitat despite exhaustive survey over a time frame appropriate to its life cycle and form.
Critically Endangered	CR	Taxa facing an extremely high risk of extinction in the wild.
Endangered	EN	Taxa facing a very high risk of extinction in the wild.
Vulnerable	VU	Taxa facing a high risk of extinction in the wild.
Near Threatened	NT	Taxa which has been evaluated but does not qualify for CR, EN or VU now but is close to qualifying or likely to qualify in the near future.
Least Concern	LC	Taxa which has been evaluated but does not qualify for CR, EN, VU, or NT but is likely to qualify for NT in the near future.
Data Deficient	DD	Taxa for which there is inadequate information to make a direct or indirect assessment of its risk of extinction based on its distribution and/or population status.
Not Evaluated	NE	Taxa which has not been evaluated.

A full list of categories and their meanings are available at:

<http://www.iucnredlist.org/technical-documents/categories-and-criteria/2001-categories-criteria>

# **APPENDIX B**

## **DBCA & EPBC DATABASE SEARCH RESULTS**



# NatureMap - Wharf Street

Created By Greg Harewood on 29/09/2018

**Kingdom** Animalia  
**Current Names Only** Yes  
**Core Datasets Only** Yes  
**Method** 'By Circle'  
**Centre** 115° 56' 06" E, 32° 00' 15" S  
**Buffer** 10km  
**Group By** Species Group

Species Group	Species	Records
Amphibian	12	754
Bird	280	90793
Fish	61	161
Invertebrate	184	1227
Mammal	33	521
Reptile	77	1614
<b>TOTAL</b>	<b>647</b>	<b>95070</b>

Name ID	Species Name	Naturalised	Conservation Code	<sup>1</sup> Endemic To Query Area
<b>Amphibian</b>				
1.	25398 <i>Crinia georgiana</i> (Quacking Frog)			
2.	25399 <i>Crinia glauerti</i> (Clicking Frog)			
3.	25400 <i>Crinia insignifera</i> (Squelching Froglet)			
4.	25401 <i>Crinia pseudinsignifera</i> (Bleating Froglet)			
5.	25409 <i>Heleioporus barycragus</i> (Hooting Frog)			
6.	25410 <i>Heleioporus eyrei</i> (Moaning Frog)			
7.	25412 <i>Heleioporus psammophilus</i> (Sand Frog)			
8.	25415 <i>Limnodynastes dorsalis</i> (Western Banjo Frog)			
9.	25378 <i>Litoria adelaidensis</i> (Slender Tree Frog)			
10.	25388 <i>Litoria moorei</i> (Motorbike Frog)			
11.	25420 <i>Myobatrachus gouldii</i> (Turtle Frog)			
12.	25433 <i>Pseudophryne guentheri</i> (Crawling Toadlet)			
<b>Bird</b>				
13.	24559 <i>Acanthagenys rufogularis</i> (Spiny-cheeked Honeyeater)			
14.	24260 <i>Acanthiza apicalis</i> (Broad-tailed Thornbill, Inland Thornbill)			
15.	24261 <i>Acanthiza chrysorrhoa</i> (Yellow-rumped Thornbill)			
16.	24262 <i>Acanthiza inornata</i> (Western Thornbill)			
17.	24560 <i>Acanthorhynchus superciliosus</i> (Western Spinebill)			
18.	25535 <i>Accipiter cirrocephalus</i> (Collared Sparrowhawk)			
19.	24281 <i>Accipiter cirrocephalus</i> subsp. <i>cirrocephalus</i> (Collared Sparrowhawk)			
20.	25536 <i>Accipiter fasciatus</i> (Brown Goshawk)			
21.	24283 <i>Accipiter fasciatus</i> subsp. <i>didimus</i> (Brown Goshawk)			
22.	24282 <i>Accipiter fasciatus</i> subsp. <i>fasciatus</i> (Brown Goshawk)			
23.	25755 <i>Acrocephalus australis</i> (Australian Reed Warbler)			
24.	41323 <i>Actitis hypoleucos</i> (Common Sandpiper)		IA	
25.	25544 <i>Aegotheles cristatus</i> (Australian Owlet-nightjar)			
26.	<i>Agapornis</i> sp.			Y
27.	24310 <i>Anas castanea</i> (Chestnut Teal)			
28.	24311 <i>Anas clypeata</i> (Northern Shoveler)			Y
29.	24312 <i>Anas gracilis</i> (Grey Teal)			
30.	24313 <i>Anas platyrhynchos</i> (Mallard)			
31.	<i>Anas platyrhynchos</i> subsp. <i>domesticus</i>			
32.	24315 <i>Anas rhynchotis</i> (Australasian Shoveler)			
33.	24316 <i>Anas superciliosa</i> (Pacific Black Duck)			
34.	<i>Anas superciliosa</i> subsp. <i>x platyrhynchos</i>			Y
35.	47414 <i>Anhinga novaehollandiae</i> (Australasian Darter)			
36.	24506 <i>Anous tenuirostris</i> subsp. <i>melanops</i> (Australian Lesser Noddy)		T	
37.	<i>Anser anser</i>			
38.	24561 <i>Anthochaera carunculata</i> (Red Wattlebird)			
39.	24562 <i>Anthochaera lunulata</i> (Western Little Wattlebird)			

	Name ID	Species Name	Naturalised	Conservation Code	<sup>1</sup> Endemic To Query Area
40.	25670	<i>Anthus australis</i> (Australian Pipit)			
41.	24599	<i>Anthus australis</i> subsp. <i>australis</i> (Australian Pipit)			
42.	25554	<i>Apus pacificus</i> (Fork-tailed Swift, Pacific Swift)		IA	
43.	24285	<i>Aquila audax</i> (Wedge-tailed Eagle)			
44.		<i>Ara ararauna</i>			Y
45.	25557	<i>Ardea garzetta</i> (Little Egret)			
46.	24337	<i>Ardea garzetta</i> subsp. <i>nigripes</i> (Little Egret)			
47.	25558	<i>Ardea ibis</i> (Cattle Egret)			
48.	25559	<i>Ardea intermedia</i> (Intermediate Egret)			
49.	41324	<i>Ardea modesta</i> (great egret, white egret)			
50.	24340	<i>Ardea novaehollandiae</i> (White-faced Heron)			
51.	24341	<i>Ardea pacifica</i> (White-necked Heron)			
52.	25560	<i>Ardea sacra</i> (Eastern Reef Egret, Eastern Reef Heron)			
53.	24610	<i>Ardeotis australis</i> (Australian Bustard)			
54.		<i>Argusianus argus</i>			Y
55.	25566	<i>Artamus cinereus</i> (Black-faced Woodswallow)			
56.	24352	<i>Artamus cinereus</i> subsp. <i>melanops</i> (Black-faced Woodswallow)			
57.	24353	<i>Artamus cyanopterus</i> (Dusky Woodswallow)			
58.	24356	<i>Artamus personatus</i> (Masked Woodswallow)			
59.	24318	<i>Aythya australis</i> (Hardhead)			
60.		<i>Barnardius zonarius</i>			
61.	24319	<i>Biziura lobata</i> (Musk Duck)			
62.	24345	<i>Botaurus poiciloptilus</i> (Australasian Bittern)		T	
63.	24359	<i>Burhinus grallarius</i> (Bush Stone-curlew)			
64.	25713	<i>Cacatua galerita</i> (Sulphur-crested Cockatoo)			
65.	25714	<i>Cacatua pastinator</i> (Western Long-billed Corella)			
66.	24724	<i>Cacatua pastinator</i> subsp. <i>pastinator</i> (Muir's Corella, Muir's Corella (Western Corella SW WA))		S	
67.	25715	<i>Cacatua roseicapilla</i> (Galah)			
68.	25716	<i>Cacatua sanguinea</i> (Little Corella)			
69.	24729	<i>Cacatua tenuirostris</i> (Eastern Long-billed Corella)	Y		
70.	25598	<i>Cacomantis flabelliformis</i> (Fan-tailed Cuckoo)			
71.	24427	<i>Cacomantis flabelliformis</i> subsp. <i>flabelliformis</i> (Fan-tailed Cuckoo)			
72.	42307	<i>Cacomantis pallidus</i> (Pallid Cuckoo)			
73.	24779	<i>Calidris acuminata</i> (Sharp-tailed Sandpiper)		IA	
74.	25738	<i>Calidris canutus</i> (Red Knot, knot)		IA	
75.	24784	<i>Calidris ferruginea</i> (Curlew Sandpiper)		T	
76.	24786	<i>Calidris melanotos</i> (Pectoral Sandpiper)		IA	
77.	24788	<i>Calidris ruficollis</i> (Red-necked Stint)		IA	
78.	24789	<i>Calidris subminuta</i> (Long-toed Stint)		IA	
79.	24790	<i>Calidris tenuirostris</i> (Great Knot)		T	
80.	25717	<i>Calyptorhynchus banksii</i> (Red-tailed Black-Cockatoo)			
81.	24731	<i>Calyptorhynchus banksii</i> subsp. <i>naso</i> (Forest Red-tailed Black Cockatoo)		T	
82.	24733	<i>Calyptorhynchus baudinii</i> (Baudin's Cockatoo, White-tailed Long-billed Black Cockatoo)		T	
83.	24734	<i>Calyptorhynchus latirostris</i> (Carnaby's Cockatoo, White-tailed Short-billed Black Cockatoo)		T	
84.	48400	<i>Calyptorhynchus</i> sp. (white-tailed black cockatoo)		T	
85.	25625	<i>Carduelis carduelis</i> (Goldfinch, European Goldfinch)	Y		
86.	24480	<i>Carduelis carduelis</i> subsp. <i>britannica</i> (Goldfinch)	Y		
87.	24377	<i>Charadrius ruficapillus</i> (Red-capped Plover)			
88.	24321	<i>Chenonetta jubata</i> (Australian Wood Duck, Wood Duck)			
89.	47909	<i>Cheramoeca leucosterna</i> (White-backed Swallow)			
90.		<i>Chroicocephalus novaehollandiae</i>			
91.	24431	<i>Chrysococcyx basalis</i> (Horsfield's Bronze Cuckoo)			
92.	25601	<i>Chrysococcyx lucidus</i> (Shining Bronze Cuckoo)			
93.	24432	<i>Chrysococcyx lucidus</i> subsp. <i>plagosus</i> (Shining Bronze Cuckoo)			
94.	24288	<i>Circus approximans</i> (Swamp Harrier)			
95.	24774	<i>Cladorhynchus leucocephalus</i> (Banded Stilt)			
96.	25675	<i>Colluricincla harmonica</i> (Grey Shrike-thrush)			
97.	24613	<i>Colluricincla harmonica</i> subsp. <i>rufiventris</i> (Grey Shrike-thrush)			
98.	24399	<i>Columba livia</i> (Domestic Pigeon)	Y		
99.	25568	<i>Coracina novaehollandiae</i> (Black-faced Cuckoo-shrike)			
100.	24362	<i>Coracina novaehollandiae</i> subsp. <i>novaehollandiae</i> (Black-faced Cuckoo-shrike)			
101.	24416	<i>Corvus bennetti</i> (Little Crow)			
102.	25592	<i>Corvus coronoides</i> (Australian Raven)			
103.	24417	<i>Corvus coronoides</i> subsp. <i>perplexus</i> (Australian Raven)			
104.	24671	<i>Coturnix pectoralis</i> (Stubble Quail)			
105.	24420	<i>Cracticus nigrogularis</i> (Pied Butcherbird)			
106.	25595	<i>Cracticus tibicen</i> (Australian Magpie)			

Name ID	Species Name	Naturalised	Conservation Code	<sup>1</sup> Endemic To Query Area
107.	24422 <i>Cracticus tibicen</i> subsp. <i>dorsalis</i> (White-backed Magpie)			
108.	24423 <i>Cracticus tibicen</i> subsp. <i>tibicen</i> (Black-backed Magpie)			
109.	25596 <i>Cracticus torquatus</i> (Grey Butcherbird)			
110.	24424 <i>Cracticus torquatus</i> subsp. <i>torquatus</i> (Grey Butcherbird)			
111.	24322 <i>Cygnus atratus</i> (Black Swan)			
112.	24323 <i>Cygnus olor</i> (Mute Swan)	Y		
113.	30901 <i>Dacelo novaeguineae</i> (Laughing Kookaburra)	Y		
114.	30902 <i>Dacelo novaeguineae</i> subsp. <i>novaeguineae</i> (Laughing Kookaburra)	Y		
115.	25673 <i>Daphoenositta chrysoptera</i> (Varied Sittella)			
116.	24606 <i>Daphoenositta chrysoptera</i> subsp. <i>pileata</i> (Varied Sittella, Black-capped Sittella)			
117.	24440 <i>Dasyornis longirostris</i> (Western Bristlebird)		T	
118.	25607 <i>Dicaeum hirundinaceum</i> (Mistletoebird)			
119.	<i>Egretta garzetta</i>			
120.	<i>Egretta novaehollandiae</i>			
121.	<i>Elanus axillaris</i>			
122.	25540 <i>Elanus caeruleus</i> (Black-shouldered Kite)			
123.	24290 <i>Elanus caeruleus</i> subsp. <i>axillaris</i> (Australian Black-shouldered Kite)			
124.	47937 <i>Elseyornis melanops</i> (Black-fronted Dotterel)			
125.	<i>Eolophus roseicapillus</i>			
126.	24651 <i>Eopsaltria australis</i> subsp. <i>griseogularis</i> (Western Yellow Robin)			
127.	24652 <i>Eopsaltria georgiana</i> (White-breasted Robin)			
128.	24567 <i>Epthianura albiglans</i> (White-fronted Chat)			
129.	24379 <i>Erythronyx cinctus</i> (Red-kneed Dotterel)			
130.	24368 <i>Eurostopodus argus</i> (Spotted Nightjar)			
131.	25591 <i>Eurystomus orientalis</i> (Dollarbird)			
132.	25621 <i>Falco berigora</i> (Brown Falcon)			
133.	24471 <i>Falco berigora</i> subsp. <i>berigora</i> (Brown Falcon)			
134.	25622 <i>Falco cenchroides</i> (Australian Kestrel, Nankeen Kestrel)			
135.	24472 <i>Falco cenchroides</i> subsp. <i>cenchrus</i> (Australian Kestrel, Nankeen Kestrel)			
136.	24473 <i>Falco hypoleucos</i> (Grey Falcon)		T	
137.	25623 <i>Falco longipennis</i> (Australian Hobby)			
138.	24474 <i>Falco longipennis</i> subsp. <i>longipennis</i> (Australian Hobby)			
139.	25624 <i>Falco peregrinus</i> (Peregrine Falcon)		S	
140.	24475 <i>Falco peregrinus</i> subsp. <i>macropus</i> (Australian Peregrine Falcon)		S	
141.	25727 <i>Fulica atra</i> (Eurasian Coot)			
142.	24761 <i>Fulica atra</i> subsp. <i>australis</i> (Eurasian Coot)			
143.	<i>Gallicolumba jobiensis</i>			
144.	25729 <i>Gallinula tenebrosa</i> (Dusky Moorhen)			
145.	24763 <i>Gallinula tenebrosa</i> subsp. <i>tenebrosa</i> (Dusky Moorhen)			
146.	25730 <i>Gallirallus philippensis</i> (Buff-banded Rail)			
147.	24765 <i>Gallirallus philippensis</i> subsp. <i>mellori</i> (Buff-banded Rail)			
148.	<i>Gallus gallus</i>			
149.	42314 <i>Gavialis virescens</i> (Singing Honeyeater)			
150.	24401 <i>Geopelia cuneata</i> (Diamond Dove)			
151.	25530 <i>Gerygone fusca</i> (Western Gerygone)			
152.	30918 <i>Glossopsitta concinna</i> (Musk Lorikeet)	Y		
153.	47962 <i>Glyciphila melanops</i> (Tawny-crowned Honeyeater)			
154.	24443 <i>Grallina cyanoleuca</i> (Magpie-lark)			
155.	25627 <i>Haematopus fuliginosus</i> (Sooty Oystercatcher)			
156.	24487 <i>Haematopus longirostris</i> (Pied Oystercatcher)			
157.	24293 <i>Haliaeetus leucogaster</i> (White-bellied Sea-Eagle)			
158.	24295 <i>Haliastur sphenurus</i> (Whistling Kite)			
159.	24689 <i>Halobaena caerulea</i> (Blue Petrel)			
160.	24296 <i>Hamirostra isura</i> (Square-tailed Kite)			
161.	47965 <i>Hieraaetus morphnoides</i> (Little Eagle)			
162.	25734 <i>Himantopus himantopus</i> (Black-winged Stilt)			
163.	24491 <i>Hirundo neoxena</i> (Welcome Swallow)			
164.	48587 <i>Hydroprogne caspia</i> (Caspian Tern)		IA	
165.	47975 <i>Ixobrychus dubius</i> (Australian Little Bittern)		P4	
166.	24367 <i>Lalage tricolor</i> (White-winged Triller)			
167.	24510 <i>Larus dominicanus</i> (Kelp Gull)			
168.	25637 <i>Larus novaehollandiae</i> (Silver Gull)			
169.	24511 <i>Larus novaehollandiae</i> subsp. <i>novaehollandiae</i> (Silver Gull)			
170.	25659 <i>Lichenostomus leucotis</i> (White-eared Honeyeater)			
171.	25661 <i>Lichmera indistincta</i> (Brown Honeyeater)			
172.	24582 <i>Lichmera indistincta</i> subsp. <i>indistincta</i> (Brown Honeyeater)			
173.	30932 <i>Limosa lapponica</i> (Bar-tailed Godwit)		IA	
174.	<i>Lophoctinia isura</i>			
175.	24690 <i>Macronectes giganteus</i> (Southern Giant Petrel)		IA	
176.	24326 <i>Malacorhynchus membranaceus</i> (Pink-eared Duck)			

	Name ID	Species Name	Naturalised	Conservation Code	<sup>1</sup> Endemic To Query Area
177.	25650	<i>Malurus elegans</i> (Red-winged Fairy-wren)			
178.	25651	<i>Malurus lamberti</i> (Variegated Fairy-wren)			
179.	25652	<i>Malurus leucopterus</i> (White-winged Fairy-wren)			
180.	25654	<i>Malurus splendens</i> (Splendid Fairy-wren)			
181.	24583	<i>Manorina flavigula</i> (Yellow-throated Miner)			
182.	25758	<i>Megalurus gramineus</i> (Little Grassbird)			
183.	47997	<i>Melanodryas cucullata</i> (Hooded Robin)			
184.	25663	<i>Melithreptus brevirostris</i> (Brown-headed Honeyeater)			
185.	24586	<i>Melithreptus brevirostris</i> subsp. <i>leucogenys</i> (Brown-headed Honeyeater)			
186.	24587	<i>Melithreptus chloropsis</i> (Western White-naped Honeyeater)			
187.	24736	<i>Melopsittacus undulatus</i> (Budgerigar)			
188.	24598	<i>Merops ornatus</i> (Rainbow Bee-eater)			
189.		<i>Microcarbo melanoleucos</i>			
190.	25693	<i>Microeca fascians</i> (Jacky Winter)			
191.	48008	<i>Morus serrator</i> (Australasian Gannet)			
192.	25610	<i>Myiagra inquieta</i> (Restless Flycatcher)			
193.	25686	<i>Neochmia temporalis</i> (Red-browed Finch)	Y		
194.	24738	<i>Neophema elegans</i> (Elegant Parrot)			
195.	24739	<i>Neophema petrophila</i> (Rock Parrot)			
196.	25747	<i>Ninox connivens</i> (Barking Owl)			
197.	24798	<i>Numenius madagascariensis</i> (Eastern Curlew)		T	
198.	25564	<i>Nycticorax caledonicus</i> (Rufous Night Heron)			
199.	24742	<i>Nymphicus hollandicus</i> (Cockatiel)			
200.	24407	<i>Ocyphaps lophotes</i> (Crested Pigeon)			
201.	24328	<i>Oxyura australis</i> (Blue-billed Duck)		P4	
202.	25680	<i>Pachycephala rufiventris</i> (Rufous Whistler)			
203.	24624	<i>Pachycephala rufiventris</i> subsp. <i>rufiventris</i> (Rufous Whistler)			
204.	24693	<i>Pachyptila desolata</i> (Antarctic Prion)			
205.	48591	<i>Pandion cristatus</i> (Osprey, Eastern Osprey)		IA	
206.	25681	<i>Pardalotus punctatus</i> (Spotted Pardalote)			
207.	24625	<i>Pardalotus punctatus</i> subsp. <i>punctatus</i> (Spotted Pardalote)			
208.	25682	<i>Pardalotus striatus</i> (Striated Pardalote)			
209.	24630	<i>Pardalotus striatus</i> subsp. <i>westraliensis</i> (Striated Pardalote)			
210.	25687	<i>Passer domesticus</i> (House Sparrow)	Y		
211.	24648	<i>Pelecanus conspicillatus</i> (Australian Pelican)			
212.	48060	<i>Petrochelidon ariel</i> (Fairy Martin)			
213.	48061	<i>Petrochelidon nigricans</i> (Tree Martin)			
214.	48066	<i>Petroica boodang</i> (Scarlet Robin)			
215.	24659	<i>Petroica goodenovii</i> (Red-capped Robin)			
216.	25697	<i>Phalacrocorax carbo</i> (Great Cormorant)			
217.	25698	<i>Phalacrocorax melanoleucos</i> (Little Pied Cormorant)			
218.	24666	<i>Phalacrocorax melanoleucos</i> subsp. <i>melanoleucos</i> (Little Pied Cormorant)			
219.	24667	<i>Phalacrocorax sulcirostris</i> (Little Black Cormorant)			
220.	25699	<i>Phalacrocorax varius</i> (Pied Cormorant)			
221.	24409	<i>Phaps chalcoptera</i> (Common Bronzewing)			
222.	48071	<i>Phylidonyris niger</i> (White-cheeked Honeyeater)			
223.	24596	<i>Phylidonyris novaehollandiae</i> (New Holland Honeyeater)			
224.	24841	<i>Platalea flavipes</i> (Yellow-billed Spoonbill)			
225.	24842	<i>Platalea regia</i> (Royal Spoonbill)			
226.	25720	<i>Platycercus icterotis</i> (Western Rosella)			
227.	24745	<i>Platycercus icterotis</i> subsp. <i>icterotis</i> (Western Rosella)			
228.	24747	<i>Platycercus spurius</i> (Red-capped Parrot)			
229.	25721	<i>Platycercus zonarius</i> (Australian Ringneck, Ring-necked Parrot)			
230.	24750	<i>Platycercus zonarius</i> subsp. <i>semitorquatus</i> (Twenty-eight Parrot)			
231.	24751	<i>Platycercus zonarius</i> subsp. <i>zonarius</i> (Port Lincoln Parrot)			
232.	24843	<i>Plegadis falcinellus</i> (Glossy Ibis)		IA	
233.	24382	<i>Pluvialis fulva</i> (Pacific Golden Plover)		IA	
234.	24383	<i>Pluvialis squatarola</i> (Grey Plover)		IA	
235.	25703	<i>Podargus strigoides</i> (Tawny Frogmouth)			
236.	24679	<i>Podargus strigoides</i> subsp. <i>brachypterus</i> (Tawny Frogmouth)			
237.	25704	<i>Podiceps cristatus</i> (Great Crested Grebe)			
238.	24681	<i>Polioccephalus poliocephalus</i> (Hoary-headed Grebe)			
239.	30854	<i>Polytelis anthopeplus</i> subsp. <i>westralis</i> (Regent Parrot)			
240.	25731	<i>Porphyrio porphyrio</i> (Purple Swamphen)			
241.	24767	<i>Porphyrio porphyrio</i> subsp. <i>bellus</i> (Purple Swamphen)			
242.	24769	<i>Porzana fluminea</i> (Australian Spotted Crane)			
243.	25732	<i>Porzana pusilla</i> (Baillon's Crane)			
244.	24770	<i>Porzana pusilla</i> subsp. <i>palustris</i> (Baillon's Crane)			
245.	24771	<i>Porzana tabuensis</i> (Spotless Crane)			
246.		<i>Psephotus dissimilis</i>			Y

Name ID	Species Name	Naturalised	Conservation Code	<sup>1</sup> Endemic To Query Area
247.	48085 <i>Psittacula krameri</i> (Indian Ringnecked Parrot, Rose-ringed Parakeet)	Y		
248.	<i>Psittacus erithacus</i>			Y
249.	24702 <i>Pterodroma brevirostris</i> (Kerguelen Petrel)			
250.	24703 <i>Pterodroma lessonii</i> (White-headed Petrel)			
251.	25710 <i>Pterodroma macroptera</i> (Great-winged Petrel)			
252.	24711 <i>Puffinus assimilis</i> subsp. <i>assimilis</i> (Little Shearwater)			
253.	24716 <i>Puffinus pacificus</i> (Wedge-tailed Shearwater)		IA	
254.	<i>Purpureicephalus spurius</i>			
255.	24776 <i>Recurvirostra novaehollandiae</i> (Red-necked Avocet)			
256.	48096 <i>Rhipidura albiscapa</i> (Grey Fantail)			
257.	25614 <i>Rhipidura leucophrys</i> (Willie Wagtail)			
258.	24454 <i>Rhipidura leucophrys</i> subsp. <i>leucophrys</i> (Willie Wagtail)			
259.	25534 <i>Sericornis frontalis</i> (White-browed Scrubwren)			
260.	<i>Serinus canarius</i>			
261.	30948 <i>Smicromis brevirostris</i> (Weebill)			
262.	24645 <i>Stagonopleura oculata</i> (Red-eared Firetail)			
263.	24522 <i>Sterna bergii</i> (Crested Tern)			
264.	24525 <i>Sterna fuscata</i> subsp. <i>nubilosa</i> (Sooty Tern)			
265.	48594 <i>Sternula nereis</i> (Fairy Tern)			
266.	24329 <i>Stictonetta naevosa</i> (Freckled Duck)			
267.	25655 <i>Stipiturus malachurus</i> (Southern Emu-wren)			
268.	25597 <i>Strepera versicolor</i> (Grey Currawong)			
269.	25589 <i>Streptopelia chinensis</i> (Spotted Turtle-Dove)	Y		
270.	30951 <i>Streptopelia chinensis</i> subsp. <i>tigrina</i> (Spotted Turtle-Dove)	Y		
271.	25590 <i>Streptopelia senegalensis</i> (Laughing Turtle-Dove)	Y		
272.	30950 <i>Streptopelia senegalensis</i> subsp. <i>senegalensis</i> (Laughing Turtle-Dove)	Y		
273.	25705 <i>Tachybaptus novaehollandiae</i> (Australasian Grebe, Black-throated Grebe)			
274.	24682 <i>Tachybaptus novaehollandiae</i> subsp. <i>novaehollandiae</i> (Australasian Grebe, Black-throated Grebe)			
275.	24331 <i>Tadorna tadornoides</i> (Australian Shelduck, Mountain Duck)			
276.	48597 <i>Thalasseus bergii</i> (Crested Tern)		IA	
277.	48135 <i>Thinornis rubricollis</i> (Hooded Plover, Hooded Dotterel)		P4	
278.	24845 <i>Threskiornis spinicollis</i> (Straw-necked Ibis)			
279.	25549 <i>Todiramphus sanctus</i> (Sacred Kingfisher)			
280.	24309 <i>Todiramphus sanctus</i> subsp. <i>sanctus</i> (Sacred Kingfisher)			
281.	48141 <i>Tribonyx ventralis</i> (Black-tailed Native-hen)			
282.	25723 <i>Trichoglossus haematodus</i> (Rainbow Lorikeet)			
283.	24755 <i>Trichoglossus haematodus</i> subsp. <i>moluccanus</i> (Rainbow Lorikeet)	Y		
284.	24806 <i>Tringa glareola</i> (Wood Sandpiper)		IA	
285.	24808 <i>Tringa nebularia</i> (Common Greenshank, greenshank)		IA	
286.	48147 <i>Turnix varius</i> (Painted Button-quail)			
287.	25762 <i>Tyto alba</i> (Barn Owl)			
288.	24852 <i>Tyto alba</i> subsp. <i>delicatula</i> (Barn Owl)			
289.	24855 <i>Tyto novaehollandiae</i> subsp. <i>novaehollandiae</i> (Masked Owl (southwest))		P3	
290.	25577 <i>Vanellus miles</i> (Masked Lapwing)			
291.	24386 <i>Vanellus tricolor</i> (Banded Lapwing)			
292.	25765 <i>Zosterops lateralis</i> (Grey-breasted White-eye, Silvereye)			

## Fish

293.	? ?
294.	<i>Afurcagobius suppositus</i>
295.	<i>Aldrichetta forsteri</i>
296.	<i>Anguilla australis</i>
297.	<i>Anoplocapros lenticularis</i>
298.	<i>Apogon rueppellii</i>
299.	<i>Apogon victoriae</i>
300.	<i>Aracana aurita</i>
301.	<i>Arenigobius bifrenatus</i>
302.	<i>Argyrosomus japonicus</i>
303.	<i>Atherinosoma wallacei</i>
304.	<i>Bostockia porosa</i>
305.	<i>Carassius auratus</i>
306.	<i>Cheilodactylus gibbosus</i>
307.	<i>Chelmonops curiosus</i>
308.	<i>Cleidopus gloriamaris</i>
309.	<i>Cnidogobius macrocephalus</i>
310.	<i>Coris auricularis</i>
311.	<i>Craterocephalus mugiloides</i>
312.	<i>Dactylopus dactylopus</i>
313.	<i>Diodon nichthemerus</i>
314.	<i>Edelia vittata</i>

Name ID	Species Name	Naturalised	Conservation Code	<sup>1</sup> Endemic To Query Area
315.	<i>Engraulis australis</i>			
316.	<i>Enoplosus armatus</i>			
317.	<i>Epinephelides armatus</i>			
318.	<i>Galaxias maculatus</i>			
319.	34028 <i>Galaxias occidentalis</i> (Western Minnow)			
320.	<i>Gambusia affinis</i>			
321.	<i>Gerres subfasciatus</i>			
322.	<i>Gobiomorphus coxii</i>			
323.	<i>Gymnapistes marmoratus</i>			
324.	<i>Histrio histrio</i>			
325.	<i>Hyporhamphus regularis</i>			
326.	<i>Microcanthus strigatus</i>			
327.	<i>Mugil cephalus</i>			
328.	<i>Nannoperca vittata</i>			
329.	<i>Notolabrus parilus</i>			
330.	<i>Ophisurus serpens</i>			
331.	<i>Orectolobus ornatus</i>			
332.	<i>Papillogobius punctatus</i>			Y
333.	<i>Parma microlepis</i>			
334.	<i>Pegasus volitans</i>			
335.	<i>Pempheris klunzingeri</i>			
336.	<i>Phalloceros caudimaculatus</i>			
337.	<i>Phalloceros harpagos</i>			Y
338.	<i>Phyllopteryx taeniolatus</i>			
339.	<i>Platax teira</i>			
340.	<i>Plotosus unicolor</i>			Y
341.	<i>Pseudocaranx dentex</i>			
342.	<i>Pseudogobius olorum</i>			
343.	<i>Scomberoides lysan</i>			
344.	<i>Scorpius aequipinnis</i>			
345.	<i>Scorpius georgianus</i>			
346.	<i>Sillago burrus</i>			
347.	<i>Stigmatopora argus</i>			
348.	<i>Sutorectus tentaculatus</i>			
349.	<i>Threpterus maculosus</i>			
350.	<i>Tilodon sexfasciatus</i>			
351.	<i>Torquigener pleurogramma</i>			
352.	<i>Trygonoptera ovalis</i>			
353.	<i>Urocampus carinirostris</i>			

#### Invertebrate

354.	<i>Acercella falcipes</i>			
355.	<i>Aganippe raphiduca</i>			
356.	<i>Akamptogonus novarae</i>			
357.	<i>Allothreua maculata</i>			
358.	<i>Amblyomma albolimbatus</i>			
359.	<i>Amblyomma triguttatum</i>			
360.	<i>Aname mainae</i>			
361.	<i>Aname tepperi</i>			
362.	<i>Ancylidae</i> sp.			
363.	<i>Anisops hyperion</i>			
364.	<i>Arachnura higginsi</i>			
365.	<i>Araneus cyphoxis</i>			
366.	<i>Araneus eburniventris</i>			
367.	<i>Araneus senicaudatus</i>			
368.	<i>Araneus talipedatus</i>			
369.	<i>Argiope protensa</i>			
370.	<i>Argiope trifasciata</i>			
371.	<i>Artema atlanta</i>			
372.	<i>Artoria linnaei</i>			
373.	<i>Artoria taeniifera</i>			
374.	<i>Artoriopsis eccentrica</i>			
375.	<i>Artoriopsis expolita</i>			
376.	<i>Artoriopsis joergi</i>			
377.	<i>Aureocrypta lugubris</i>			
378.	<i>Austracantha minax</i>			
379.	48574 <i>Australotomurus morbidus</i> (cemetery springtail, Guildford springtail)		P3	
380.	<i>Austrammo harveyi</i>			
381.	<i>Backobourkia heroine</i>			
382.	<i>Badumna insignis</i>			
383.	<i>Ballarra longipalpus</i>			

Name ID	Species Name	Naturalised	Conservation Code	<sup>1</sup> Endemic To Query Area
384.	<i>Caenidae</i> sp.			
385.	<i>Ceinidae</i> sp.			
386.	<i>Celaenia excavata</i>			
387.	<i>Ceratopogonidae</i> sp.			
388.	<i>Cercophonius granulatus</i>			
389.	<i>Cercophonius sulcatus</i>			
390.	<i>Ceryda cursitans</i>			
391.	33939 <i>Cherax cainii</i> (Marron)			
392.	<i>Cherax destructor</i>			
393.	<i>Cherax preissii</i>			
394.	<i>Cherax quinquecarinatus</i>			
395.	<i>Cherax</i> sp.			
396.	<i>Chironominae</i> sp.			
397.	<i>Coenagrionidae</i> sp.			
398.	<i>Corixidae</i> sp.			
399.	<i>Cormocephalus aurantiipes</i>			
400.	<i>Cormocephalus novaehollandiae</i>			
401.	<i>Cormocephalus rubiceps</i>			
402.	<i>Cormocephalus strigosus</i>			
403.	<i>Cormocephalus turneri</i>			
404.	<i>Crustulina bicrucata</i>			
405.	<i>Cryptoerithus quobba</i>			
406.	<i>Cyclosa trilobata</i>			
407.	<i>Deinopsis unicolor</i>			Y
408.	<i>Delena cancerides</i>			
409.	<i>Dingosa murata</i>			
410.	<i>Dingosa serrata</i>			
411.	<i>Dinocambala ingens</i>			
412.	<i>Dytiscidae</i> sp.			
413.	<i>Eodelena lapidicola</i>			
414.	<i>Eriophora biapicata</i>			
415.	<i>Ethmostigmus rubripes</i>			
416.	<i>Eucyrtops latior</i>			
417.	<i>Eulimnadia</i> sp.			
418.	<i>Eupograptus kottae</i>			
419.	<i>Eurytion incisunguis</i>			Y
420.	<i>Gea theridioides</i>			
421.	<i>Geogarypus taylori</i>			
422.	48581 <i>Glossurocolletes bilobatus</i> (a short-tongued bee (southwest), short-tongued bee)		P2	
423.	<i>Gripopterygidae</i> sp.			
424.	<i>Gyrinidae</i> sp.			
425.	<i>Hebridae</i> sp.			
426.	<i>Hemicorduliidae</i> sp.			
427.	<i>Henicops dentatus</i>			
428.	<i>Hogna crispipes</i>			
429.	<i>Hogna immansueta</i>			
430.	<i>Holasteron perth</i>			
431.	<i>Holasteron wamuseum</i>			Y
432.	<i>Holconia insignis</i>			Y
433.	<i>Holconia westralia</i>			
434.	<i>Holocnemus plucheii</i>			
435.	<i>Hydrophilidae</i> sp.			
436.	<i>Hydropsychidae</i> sp.			
437.	<i>Hydroptilidae</i> sp.			
438.	<i>Hypoblemum</i> sp.			Y
439.	<i>Idiommatia blackwalli</i>			
440.	<i>Idiosoma hirsutum</i>			Y
441.	<i>Isometroides vesus</i>			
442.	<i>Isopoda leishmanni</i>			
443.	<i>Isopedella cana</i>			
444.	<i>Isopedella tindalei</i>			
445.	<i>Ixodes australiensis</i>			
446.	<i>Ixodes tasmani</i>			Y
447.	<i>Kangarosa ludwigi</i>			
448.	<i>Kangarosa properipes</i>			
449.	<i>Karaops ellenae</i>			
450.	<i>Karaops jarrit</i>			
451.	<i>Lampona brevipes</i>			
452.	<i>Lampona cylindrata</i>			
453.	<i>Latrodectus hasselti</i>			



Name ID	Species Name	Naturalised	Conservation Code	<sup>1</sup> Endemic To Query Area
454.	<i>Latrodectus hasseltii</i>			
455.	33983 <i>Leioproctus douglasiellus</i> (a short-tongued bee)		T	
456.	<i>Leptoceridae</i> sp.			
457.	<i>Leucauge dromedaria</i>			Y
458.	<i>Libellulidae</i> sp.			
459.	<i>Longepi woodman</i>			
460.	<i>Lycosa ariadnae</i>			
461.	<i>Lycosa gilberta</i>			
462.	<i>Lycosa godeffroyi</i>			
463.	<i>Lynceus</i> sp.			
464.	<i>Maratus pavonis</i>			
465.	<i>Masasteron maini</i>			
466.	<i>Missulena granulosa</i>			
467.	<i>Missulena occatoria</i>			
468.	<i>Mituliodon tarantulinus</i>			
469.	<i>Mitzoruga insularis</i>			
470.	<i>Myandra bicincta</i>			
471.	<i>Myandra cambridgei</i>			
472.	33984 <i>Neopasiphae simplicior</i> (a short-tongued bee)		T	
473.	<i>Nephila edulis</i>			
474.	<i>Nicodamus mainae</i>			
475.	<i>Notiasemus glauerti</i>			
476.	<i>Notonectidae</i> sp.			
477.	<i>Ocrisiana leucocomis</i>			
478.	<i>Oecobius navus</i>			
479.	<i>Oligochaeta</i> sp.			
480.	<i>Ommatoiulus moreleti</i>			
481.	<i>Ommatoiulus moreletii</i>			
482.	<i>Opopaea</i> sp.			Y
483.	<i>Oratemnus curtus</i>			
484.	<i>Orthocladinae</i> sp.			
485.	<i>Ostearius melanopygius</i>			
486.	<i>Oxidus gracilis</i>			
487.	<i>Oxyopes gracilipes</i>			
488.	<i>Palaemonidae</i> sp.			
489.	<i>Parastacidae</i> sp.			
490.	<i>Pediana occidentalis</i>			
491.	<i>Phenasteron longiconductor</i>			
492.	<i>Pholcus phalangioides</i>			
493.	<i>Phreatoicidae</i> sp.			
494.	<i>Phryganoporus candidus</i>			
495.	<i>Phryganoporus gausapatus</i> subsp. <i>occidentalis</i>			Y
496.	<i>Physidae</i> sp.			
497.	<i>Physocyclus globosus</i>			
498.	<i>Pinkfloydia harveii</i>			
499.	<i>Planorbidae</i> sp.			
500.	<i>Poltys laciniosus</i>			
501.	<i>Polygonarea repanda</i>			Y
502.	<i>Raveniella cirrata</i>			
503.	<i>Raveniella peckorum</i>			
504.	<i>Scolopendra morsitans</i>			
505.	<i>Scytodes thoracica</i>			
506.	<i>Servaea melaina</i>			
507.	<i>Simuliidae</i> sp.			
508.	<i>Smeringopus natalensis</i>			
509.	<i>Smeringopus natalensis?</i>			Y
510.	<i>Solaenodolichopus pruvoti</i>			
511.	<i>Steatoda capensis</i>			
512.	<i>Steatoda grossa</i>			
513.	<i>Storena formosa</i>			
514.	<i>Storena sinuosa</i>			
515.	<i>Supunna funerea</i>			
516.	<i>Supunna picta</i>			
517.	<i>Synothele rastelloides</i>			
518.	<i>Tabanidae</i> sp.			
519.	<i>Tamopsis facialis</i>			
520.	<i>Tamopsis perthensis</i>			
521.	<i>Tanypodinae</i> sp.			
522.	<i>Tasmanicosa leuckartii</i>			
523.	<i>Tegenaria atrica</i>			Y



Name ID	Species Name	Naturalised	Conservation Code	<sup>1</sup> Endemic To Query Area
524.	<i>Tetragnatha demissa</i>			
525.	<i>Tipulidae</i> sp.			
526.	<i>Trichocyclops balladong</i>			
527.	<i>Urodacus novaehollandiae</i>			
528.	<i>Urodacus planimanus</i>			
529.	<i>Venator immansueta</i>			
530.	<i>Venatrix arenaris</i>			
531.	<i>Venatrix pullastra</i>			
532.	34113 <i>Westralunio carteri</i> (Carter's Freshwater Mussel)		T	
533.	<i>Westrarchaea spinosa</i>			
534.	<i>Xysticus periscelis</i>			Y
535.	<i>Zachria flavicoma</i>			
536.	<i>Zebraplatys fractivittata</i>			
537.	unknown unknown			Y

## Mammal

538.	24162 <i>Bettongia penicillata</i> subsp. <i>ogilbyi</i> (Woylie, Brush-tailed Bettong)		T	
539.	24251 <i>Bos taurus</i> (European Cattle)	Y		
540.	25454 <i>Canis lupus</i> (Dog, Dingo)	Y		
541.	30883 <i>Canis lupus</i> subsp. <i>familiaris</i> (Dog)	Y		
542.	24186 <i>Chalinolobus gouldii</i> (Gould's Wattled Bat)			
543.	24187 <i>Chalinolobus morio</i> (Chocolate Wattled Bat)			
544.	24092 <i>Dasyurus geoffroyi</i> (Chuditch, Western Quoll)		T	
545.	24041 <i>Felis catus</i> (Cat)	Y		
546.	30916 <i>Funambulus pennanti</i> (Indian Palm Squirrel)	Y		
547.	24215 <i>Hydromys chrysogaster</i> (Water-rat, Rakali)		P4	
548.	48588 <i>Isoodon fusciventer</i> (Quenda, southwestern brown bandicoot)		P4	
549.	24132 <i>Macropus fuliginosus</i> (Western Grey Kangaroo)			
550.	24223 <i>Mus musculus</i> (House Mouse)	Y		
551.	24042 <i>Mustela putorius</i> (European Polecat, Ferret)	Y		
552.	24146 <i>Myrmecobius fasciatus</i> (Numbat, Walpuri)		T	
553.	48022 <i>Notamacropus irma</i> (Western Brush Wallaby)		P4	
554.	24194 <i>Nyctophilus geoffroyi</i> (Lesser Long-eared Bat)			
555.	24085 <i>Oryctolagus cuniculus</i> (Rabbit)	Y		
556.	48070 <i>Phascogale tapoatafa</i> subsp. <i>wambenger</i> (South-western Brush-tailed Phascogale, Wambenger)		S	
557.	24234 <i>Pseudomys delicatulus</i> (Delicate Mouse)			
558.	24173 <i>Pteropus scapulatus</i> (Little Red Flying-fox)			
559.	24243 <i>Rattus fuscipes</i> (Western Bush Rat)			
560.	24244 <i>Rattus norvegicus</i> (Brown Rat)	Y		
561.	24245 <i>Rattus rattus</i> (Black Rat)	Y		
562.	<i>Sminthopsis murina</i>			
563.	24259 <i>Sus scrofa</i> (Pig)	Y		
564.	24207 <i>Tachyglossus aculeatus</i> (Short-beaked Echidna)			
565.	24167 <i>Tarsipes rostratus</i> (Honey Possum, Noolbenger)			
566.	25521 <i>Trichosurus vulpecula</i> (Common Brushtail Possum)			
567.	24158 <i>Trichosurus vulpecula</i> subsp. <i>vulpecula</i> (Common Brushtail Possum)			
568.	24069 <i>Tursiops truncatus</i> (Bottlenose Dolphin)			
569.	24206 <i>Vespadelus regulus</i> (Southern Forest Bat)			
570.	24040 <i>Vulpes vulpes</i> (Red Fox)	Y		

## Reptile

571.	25242 <i>Acanthophis antarcticus</i> (Southern Death Adder)		P3	
572.	42368 <i>Acritoscincus trilineatus</i> (Western Three-lined Skink)			
573.	25241 <i>Antaresia stimsoni</i> subsp. <i>stimsoni</i> (Stimson's Python)			
574.	24990 <i>Aprasia pulchella</i> (Granite Worm-lizard)			
575.	24991 <i>Aprasia repens</i> (Sand-plain Worm-lizard)			
576.	42380 <i>Brachyuropis fasciolatus</i> subsp. <i>fasciolatus</i> (Narrow-banded Shovel-nosed Snake)			
577.	42381 <i>Brachyuropis semifasciatus</i> (Southern Shovel-nosed Snake)			
578.	43380 <i>Chelodina colliei</i> (South-western Snake-necked Turtle)			
579.	25336 <i>Chelonia mydas</i> (Green Turtle)		T	
580.	24980 <i>Christinus marmoratus</i> (Marbled Gecko)			
581.	30893 <i>Cryptoblepharus buechananii</i>			
582.	25020 <i>Cryptoblepharus plagiocephalus</i>			
583.	30899 <i>Ctenophorus adelaidensis</i> (Southern Heath Dragon, Western Heath Dragon)			
584.	24883 <i>Ctenophorus ornatus</i> (Ornate Crevice-Dragon)			
585.	25027 <i>Ctenotus australis</i>			
586.	25035 <i>Ctenotus delli</i> (Dell's skink, Darling Range southwest Ctenotus)		P4	
587.	25039 <i>Ctenotus fallens</i>			
588.	25040 <i>Ctenotus gemmula</i> (Jewelled South-west Ctenotus (Swan Coastal Plain subpop P3), skink)			

Name ID	Species Name	Naturalised	Conservation Code	<sup>1</sup> Endemic To Query Area
589.	25047 <i>Ctenotus impar</i>			
590.	25049 <i>Ctenotus labillardieri</i>			
591.	41641 <i>Ctenotus ora</i> (Coastal Plains Skink)		P3	
592.	25087 <i>Cyclodomorphus celatus</i> (Western Slender Blue-tongue)			
593.	25766 <i>Delma fraseri</i> (Fraser's Legless Lizard)			
594.	24999 <i>Delma grayii</i>			
595.	25468 <i>Demansia psammophis</i> (Yellow-faced Whipsnake)			
596.	25296 <i>Demansia psammophis</i> subsp. <i>reticulata</i> (Yellow-faced Whipsnake)			
597.	25325 <i>Dendrelaphis punctulata</i> (Green Tree Snake)			
598.	24939 <i>Diplodactylus polyophthalmus</i>			
599.	25251 <i>Echiopsis curta</i> (Bardick)			
600.	25096 <i>Egernia kingii</i> (King's Skink)			
601.	25100 <i>Egernia napoleonis</i>			
602.	25250 <i>Elapognathus coronatus</i> (Crowned Snake)			
603.	24959 <i>Gehyra variegata</i>			
604.	25232 <i>Hemidactylus frenatus</i> (Asian House Gecko)	Y		
605.	25115 <i>Hemiergis initialis</i> subsp. <i>initialis</i>			
606.	25475 <i>Hemiergis peronii</i>			
607.	25119 <i>Hemiergis quadrilineata</i>			
608.	24961 <i>Heteronotia binoei</i> (Bynoe's Gecko)			
609.	25131 <i>Lerista distinguenda</i>			
610.	25133 <i>Lerista elegans</i>			
611.	25147 <i>Lerista lineata</i> (Perth Slider, Lined Skink)		P3	
612.	25148 <i>Lerista lineopunctulata</i>			
613.	25165 <i>Lerista praepedita</i>			
614.	25005 <i>Lialis burtonis</i>			
615.	42413 <i>Lissolepis luctuosa</i> (Western Swamp Skink)			
616.	42414 <i>Lucasium alboguttatum</i>			
617.	25184 <i>Menetia greyii</i>			
618.	25240 <i>Morelia spilota</i> subsp. <i>imbricata</i> (Carpet Python)			
619.	25191 <i>Morethia lineoocellata</i>			
620.	25192 <i>Morethia obscura</i>			
621.	25248 <i>Neelaps bimaculatus</i> (Black-naped Snake)			
622.	25249 <i>Neelaps calonotos</i> (Black-striped Snake, black-striped burrowing snake)		P3	
623.	25252 <i>Notechis scutatus</i> (Tiger Snake)			
624.	25253 <i>Parasuta gouldii</i>			
625.	25255 <i>Parasuta nigriceps</i>			
626.	25007 <i>Pletholax gracilis</i> subsp. <i>gracilis</i> (Keeled Legless Lizard)			
627.	25510 <i>Pogona minor</i> (Dwarf Bearded Dragon)			
628.	24907 <i>Pogona minor</i> subsp. <i>minor</i> (Dwarf Bearded Dragon)			
629.	25261 <i>Pseudechis australis</i> (Mulga Snake)			
630.	25345 <i>Pseudemydura umbrina</i> (Western Swamp Tortoise, Western Swamp Turtle)		T	
631.	25511 <i>Pseudonaja affinis</i> (Dugite)			
632.	25259 <i>Pseudonaja affinis</i> subsp. <i>affinis</i> (Dugite)			
633.	42416 <i>Pseudonaja mengdeni</i> (Western Brown Snake)			
634.	25263 <i>Pseudonaja modesta</i> (Ringed Brown Snake)			
635.	25264 <i>Pseudonaja nuchalis</i> (Gwardar, Northern Brown Snake)			
636.	25008 <i>Pygopus lepidopodus</i> (Common Scaly Foot)			
637.	25266 <i>Simoselaps bertholdi</i> (Jan's Banded Snake)			
638.	24943 <i>Strophurus spinigerus</i> subsp. <i>inornatus</i>			
639.	24942 <i>Strophurus spinigerus</i> subsp. <i>spinigerus</i>			
640.	25203 <i>Tiliqua occipitalis</i> (Western Bluetongue)			
641.	25519 <i>Tiliqua rugosa</i>			
642.	25204 <i>Tiliqua rugosa</i> subsp. <i>aspera</i>			
643.	25207 <i>Tiliqua rugosa</i> subsp. <i>rugosa</i>			
644.	24983 <i>Underwoodisaurus milii</i> (Barking Gecko)			
645.	25218 <i>Varanus gouldii</i> (Bungarra or Sand Monitor)			
646.	25225 <i>Varanus rosenbergi</i> (Heath Monitor)			
647.	25526 <i>Varanus tristis</i> (Racehorse Monitor)			

#### Conservation Codes

T - Rare or likely to become extinct  
X - Presumed extinct  
IA - Protected under international agreement  
S - Other specially protected fauna  
1 - Priority 1  
2 - Priority 2  
3 - Priority 3  
4 - Priority 4  
5 - Priority 5

<sup>1</sup> For NatureMap's purposes, species flagged as endemic are those whose records are wholly contained within the search area. Note that only those records complying with the search criterion are included in the calculation. For example, if you limit records to those from a specific datasource, only records from that datasource are used to determine if a species is restricted to the query area.



# EPBC Act Protected Matters Report

This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected.

Information on the coverage of this report and qualifications on data supporting this report are contained in the caveat at the end of the report.

Information is available about [Environment Assessments](#) and the EPBC Act including significance guidelines, forms and application process details.

Report created: 29/09/18 16:22:43

[Summary](#)

[Details](#)

[Matters of NES](#)

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

[Extra Information](#)

[Caveat](#)

[Acknowledgements](#)

No Image  
Available

This map may contain data which are  
©Commonwealth of Australia  
(Geoscience Australia), ©PSMA 2010

[Coordinates](#)

[Buffer: 1.0Km](#)

No Image  
Available

# Summary

## Matters of National Environmental Significance

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

<a href="#">World Heritage Properties:</a>	None
<a href="#">National Heritage Places:</a>	None
<a href="#">Wetlands of International Importance:</a>	None
<a href="#">Great Barrier Reef Marine Park:</a>	None
<a href="#">Commonwealth Marine Area:</a>	None
<a href="#">Listed Threatened Ecological Communities:</a>	1
<a href="#">Listed Threatened Species:</a>	23
<a href="#">Listed Migratory Species:</a>	9

## Other Matters Protected by the EPBC Act

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

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

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

<a href="#">Commonwealth Land:</a>	None
<a href="#">Commonwealth Heritage Places:</a>	None
<a href="#">Listed Marine Species:</a>	14
<a href="#">Whales and Other Cetaceans:</a>	None
<a href="#">Critical Habitats:</a>	None
<a href="#">Commonwealth Reserves Terrestrial:</a>	None
<a href="#">Australian Marine Parks:</a>	None

## Extra Information

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

<a href="#">State and Territory Reserves:</a>	None
<a href="#">Regional Forest Agreements:</a>	None
<a href="#">Invasive Species:</a>	40
<a href="#">Nationally Important Wetlands:</a>	None
<a href="#">Key Ecological Features (Marine)</a>	None

# Details

## Matters of National Environmental Significance

### Listed Threatened Ecological Communities [\[ Resource Information \]](#)

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

Name	Status	Type of Presence
<a href="#">Banksia Woodlands of the Swan Coastal Plain ecological community</a>	Endangered	Community likely to occur within area

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

Name	Status	Type of Presence
<b>Birds</b>		

<a href="#">Botaurus poiciloptilus</a> Australasian Bittern [1001]	Endangered	Species or species habitat known to occur within area
---	------------	---

<a href="#">Calidris ferruginea</a> Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
---	-----------------------	--

<a href="#">Calyptorhynchus banksii naso</a> Forest Red-tailed Black-Cockatoo, Karak [67034]	Vulnerable	Species or species habitat likely to occur within area
---	------------	--

<a href="#">Calyptorhynchus baudinii</a> Baudin's Cockatoo, Long-billed Black-Cockatoo [769]	Endangered	Species or species habitat likely to occur within area
---	------------	--

<a href="#">Calyptorhynchus latirostris</a> Carnaby's Cockatoo, Short-billed Black-Cockatoo [59523]	Endangered	Species or species habitat known to occur within area
--	------------	---

<a href="#">Leipoa ocellata</a> Malleefowl [934]	Vulnerable	Species or species habitat may occur within area
---	------------	--

<a href="#">Numenius madagascariensis</a> Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area
---	-----------------------	--

<a href="#">Rostratula australis</a> Australian Painted-snipe, Australian Painted Snipe [77037]	Endangered	Species or species habitat may occur within area
--	------------	--

### Mammals

<a href="#">Dasyurus geoffroii</a> Chuditch, Western Quoll [330]	Vulnerable	Species or species habitat likely to occur within area
---	------------	--

<a href="#">Pseudocheirus occidentalis</a> Western Ringtail Possum, Ngwayir, Womp, Woder, Ngoor, Ngoolangit [25911]	Critically Endangered	Species or species habitat may occur within area
--	-----------------------	--

### Plants



Name	Status	Type of Presence
<a href="#">Andersonia gracilis</a> Slender Andersonia [14470]	Endangered	Species or species habitat may occur within area
<a href="#">Calytrix breviseta subsp. breviseta</a> Swamp Starflower [23879]	Endangered	Species or species habitat may occur within area
<a href="#">Conospermum undulatum</a> Wavy-leaved Smokebush [24435]	Vulnerable	Species or species habitat likely to occur within area
<a href="#">Diuris micrantha</a> Dwarf Bee-orchid [55082]	Vulnerable	Species or species habitat may occur within area
<a href="#">Diuris purdiei</a> Purdie's Donkey-orchid [12950]	Endangered	Species or species habitat likely to occur within area
<a href="#">Drakaea elastica</a> Glossy-leaved Hammer Orchid, Glossy-leaved Hammer Orchid, Warty Hammer Orchid [16753]	Endangered	Species or species habitat likely to occur within area
<a href="#">Drakaea micrantha</a> Dwarf Hammer-orchid [56755]	Vulnerable	Species or species habitat may occur within area
<a href="#">Eremophila glabra subsp. chlorella</a> [84927]	Endangered	Species or species habitat known to occur within area
<a href="#">Grevillea curviloba subsp. incurva</a> Narrow curved-leaf Grevillea [64909]	Endangered	Species or species habitat may occur within area
<a href="#">Lepidosperma rostratum</a> Beaked Lepidosperma [14152]	Endangered	Species or species habitat likely to occur within area
<a href="#">Macarthuria keigheryi</a> Keighery's Macarthuria [64930]	Endangered	Species or species habitat likely to occur within area
<a href="#">Synaphea sp. Fairbridge Farm (D. Papenfus 696)</a> Selena's Synaphea [82881]	Critically Endangered	Species or species habitat likely to occur within area
<a href="#">Thelymitra dedmaniarum</a> Cinnamon Sun Orchid [65105]	Endangered	Species or species habitat may occur within area

#### Listed Migratory Species [ Resource Information ]

\* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.

Name	Threatened	Type of Presence
<b>Migratory Marine Birds</b>		
<a href="#">Apus pacificus</a> Fork-tailed Swift [678]		Species or species habitat likely to occur within area
<b>Migratory Terrestrial Species</b>		
<a href="#">Motacilla cinerea</a> Grey Wagtail [642]		Species or species habitat may occur within area
<b>Migratory Wetlands Species</b>		
<a href="#">Actitis hypoleucos</a> Common Sandpiper [59309]		Species or species habitat may occur within area

Name	Threatened	Type of Presence
<a href="#">Calidris acuminata</a> Sharp-tailed Sandpiper [874]		Species or species habitat may occur within area
<a href="#">Calidris ferruginea</a> Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
<a href="#">Calidris melanotos</a> Pectoral Sandpiper [858]		Species or species habitat may occur within area
<a href="#">Numenius madagascariensis</a> Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area
<a href="#">Pandion haliaetus</a> Osprey [952]		Breeding known to occur within area
<a href="#">Tringa nebularia</a> Common Greenshank, Greenshank [832]		Species or species habitat likely to occur within area

## Other Matters Protected by the EPBC Act

Listed Marine Species	[ Resource Information ]	
* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.		
Name	Threatened	Type of Presence
Birds		
<a href="#">Actitis hypoleucos</a> Common Sandpiper [59309]		Species or species habitat may occur within area
<a href="#">Apus pacificus</a> Fork-tailed Swift [678]		Species or species habitat likely to occur within area
<a href="#">Ardea alba</a> Great Egret, White Egret [59541]		Breeding known to occur within area
<a href="#">Ardea ibis</a> Cattle Egret [59542]		Species or species habitat may occur within area
<a href="#">Calidris acuminata</a> Sharp-tailed Sandpiper [874]		Species or species habitat may occur within area
<a href="#">Calidris ferruginea</a> Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
<a href="#">Calidris melanotos</a> Pectoral Sandpiper [858]		Species or species habitat may occur within area
<a href="#">Haliaeetus leucogaster</a> White-bellied Sea-Eagle [943]		Species or species habitat likely to occur within area
<a href="#">Merops ornatus</a> Rainbow Bee-eater [670]		Species or species habitat may occur within area
<a href="#">Motacilla cinerea</a> Grey Wagtail [642]		Species or species habitat may occur within

Name	Threatened	Type of Presence
<a href="#">Numenius madagascariensis</a> Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area
<a href="#">Pandion haliaetus</a> Osprey [952]		Breeding known to occur within area
<a href="#">Rostratula benghalensis (sensu lato)</a> Painted Snipe [889]	Endangered*	Species or species habitat may occur within area
<a href="#">Tringa nebularia</a> Common Greenshank, Greenshank [832]		Species or species habitat likely to occur within area

## Extra Information

Invasive Species	[ Resource Information ]
Weeds reported here are the 20 species of national significance (WoNS), along with other introduced plants that are considered by the States and Territories to pose a particularly significant threat to biodiversity. The following feral animals are reported: Goat, Red Fox, Cat, Rabbit, Pig, Water Buffalo and Cane Toad. Maps from Landscape Health Project, National Land and Water Resources Audit, 2001.	

Name	Status	Type of Presence
<b>Birds</b>		
Acridotheres tristis Common Myna, Indian Myna [387]		Species or species habitat likely to occur within area
Anas platyrhynchos Mallard [974]		Species or species habitat likely to occur within area
Carduelis carduelis European Goldfinch [403]		Species or species habitat likely to occur within area
Columba livia Rock Pigeon, Rock Dove, Domestic Pigeon [803]		Species or species habitat likely to occur within area
Passer domesticus House Sparrow [405]		Species or species habitat likely to occur within area
Passer montanus Eurasian Tree Sparrow [406]		Species or species habitat likely to occur within area
Streptopelia chinensis Spotted Turtle-Dove [780]		Species or species habitat likely to occur within area
Streptopelia senegalensis Laughing Turtle-dove, Laughing Dove [781]		Species or species habitat likely to occur within area

Name	Status	Type of Presence
Sturnus vulgaris Common Starling [389]		Species or species habitat likely to occur within area
Turdus merula Common Blackbird, Eurasian Blackbird [596]		Species or species habitat likely to occur within area
<b>Mammals</b>		
Bos taurus Domestic Cattle [16]		Species or species habitat likely to occur within area
Canis lupus familiaris Domestic Dog [82654]		Species or species habitat likely to occur within area
Felis catus Cat, House Cat, Domestic Cat [19]		Species or species habitat likely to occur within area
Funambulus pennantii Northern Palm Squirrel, Five-striped Palm Squirrel [129]		Species or species habitat likely to occur within area
Mus musculus House Mouse [120]		Species or species habitat likely to occur within area
Oryctolagus cuniculus Rabbit, European Rabbit [128]		Species or species habitat likely to occur within area
Rattus norvegicus Brown Rat, Norway Rat [83]		Species or species habitat likely to occur within area
Rattus rattus Black Rat, Ship Rat [84]		Species or species habitat likely to occur within area
Vulpes vulpes Red Fox, Fox [18]		Species or species habitat likely to occur within area
<b>Plants</b>		
Anredera cordifolia Madeira Vine, Jalap, Lamb's-tail, Mignonette Vine, Anredera, Gulf Madeiravine, Heartleaf Madeiravine, Potato Vine [2643]		Species or species habitat likely to occur within area
Asparagus aethiopicus Asparagus Fern, Ground Asparagus, Basket Fern, Sprengi's Fern, Bushy Asparagus, Emerald Asparagus [62425]		Species or species habitat likely to occur within area
Asparagus asparagoides Bridal Creeper, Bridal Veil Creeper, Smilax, Florist's Smilax, Smilax Asparagus [22473]		Species or species habitat likely to occur within area
Asparagus plumosus Climbing Asparagus-fern [48993]		Species or species habitat likely to occur within area
Brachiaria mutica Para Grass [5879]		Species or species habitat may occur within area
Cenchrus ciliaris Buffel-grass, Black Buffel-grass [20213]		Species or species habitat may occur within area
Chrysanthemoides monilifera Bitou Bush, Boneseed [18983]		Species or species habitat may occur within



Name	Status	Type of Presence
Chrysanthemoides monilifera subsp. monilifera Boneseed [16905]		area  Species or species habitat likely to occur within area
Genista linifolia Flax-leaved Broom, Mediterranean Broom, Flax Broom [2800]		Species or species habitat likely to occur within area
Genista monspessulana Montpellier Broom, Cape Broom, Canary Broom, Common Broom, French Broom, Soft Broom [20126]		Species or species habitat likely to occur within area
Genista sp. X Genista monspessulana Broom [67538]		Species or species habitat may occur within area
Lantana camara Lantana, Common Lantana, Kamara Lantana, Large-leaf Lantana, Pink Flowered Lantana, Red Flowered Lantana, Red-Flowered Sage, White Sage, Wild Sage [10892] Lycium ferocissimum African Boxthorn, Boxthorn [19235]		Species or species habitat likely to occur within area  Species or species habitat likely to occur within area
Olea europaea Olive, Common Olive [9160]		Species or species habitat may occur within area
Pinus radiata Radiata Pine Monterey Pine, Insignis Pine, Wilding Pine [20780]		Species or species habitat may occur within area
Rubus fruticosus aggregate Blackberry, European Blackberry [68406]		Species or species habitat likely to occur within area
Sagittaria platyphylla Delta Arrowhead, Arrowhead, Slender Arrowhead [68483]		Species or species habitat likely to occur within area
Salix spp. except S.babylonica, S.x calodendron & S.x reichardtii Willows except Weeping Willow, Pussy Willow and Sterile Pussy Willow [68497]		Species or species habitat likely to occur within area
Salvinia molesta Salvinia, Giant Salvinia, Aquarium Watermoss, Kariba Weed [13665]		Species or species habitat likely to occur within area
Tamarix aphylla Athel Pine, Athel Tree, Tamarisk, Athel Tamarisk, Athel Tamarix, Desert Tamarisk, Flowering Cypress, Salt Cedar [16018]		Species or species habitat likely to occur within area
<b>Reptiles</b>		
Hemidactylus frenatus Asian House Gecko [1708]		Species or species habitat likely to occur within area

# Caveat

The information presented in this report has been provided by a range of data sources as acknowledged at the end of the report.

This report is designed to assist in identifying the locations of places which may be relevant in determining obligations under the Environment Protection and Biodiversity Conservation Act 1999. It holds mapped locations of World and National Heritage properties, Wetlands of International and National Importance, Commonwealth and State/Territory reserves, listed threatened, migratory and marine species and listed threatened ecological communities. Mapping of Commonwealth land is not complete at this stage. Maps have been collated from a range of sources at various resolutions.

Not all species listed under the EPBC Act have been mapped (see below) and therefore a report is a general guide only. Where available data supports mapping, the type of presence that can be determined from the data is indicated in general terms. People using this information in making a referral may need to consider the qualifications below and may need to seek and consider other information sources.

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

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

Where very little information is available for species or large number of maps are required in a short time-frame, maps are derived either from 0.04 or 0.02 decimal degree cells; by an automated process using polygon capture techniques (static two kilometre grid cells, alpha-hull and convex hull); or captured manually or by using topographic features (national park boundaries, islands, etc). In the early stages of the distribution mapping process (1999-early 2000s) distributions were defined by degree blocks, 100K or 250K map sheets to rapidly create distribution maps. More reliable distribution mapping methods are used to update these distributions as time permits.

Only selected species covered by the following provisions of the EPBC Act have been mapped:

- migratory and
- marine

The following species and ecological communities have not been mapped and do not appear in reports produced from this database:

- threatened species listed as extinct or considered as vagrants
- some species and ecological communities that have only recently been listed
- some terrestrial species that overfly the Commonwealth marine area
- migratory species that are very widespread, vagrant, or only occur in small numbers

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

- non-threatened seabirds which have only been mapped for recorded breeding sites
- seals which have only been mapped for breeding sites near the Australian continent

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

## Coordinates

-32.00403 115.93494

# Acknowledgements

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

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

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

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

# **APPENDIX C**

## **OBSERVED FAUNA LISTING**



---

# Fauna Observed During Survey Period

Wharf Street

Compiled by Greg Harewood - Oct 2018

---

Class Family Species	Common Name	Conservation Status
----------------------------	----------------	------------------------

---

## Aves

### Psittacidae

Parrots

<i>Calyptorhynchus banksii naso</i>	Forest Red-tailed Black-Cockatoo	S3 VU Bp LC
-------------------------------------	----------------------------------	-------------

<i>Trichoglossus haematodus moluccanus</i>	Rainbow Lorikeet	Introduced
--	------------------	------------

### Meliphagidae

Honeyeaters, Chats

<i>Lichmera indistincta</i>	Brown Honeyeater	LC
-----------------------------	------------------	----

WC Act Status - S1 to S7, EPBC Act Status - CR = Critically Endangered, EN = Endangered, VU = Vulnerable, EX = Extinct, DBCA Priority Status - P1 to P4, Bush Forever Decreaser Species - Bh = habitat specialists, Bp = wide ranging species, Be = extinct in Perth Coastal Plain Region, Int. Agmts - CA = CAMBA, JA = JAMBA, RK = ROKAMBA, IUCN Red List Category Definitions LC = Least Concern - see <http://www.iucnredlist.org/technical-documents/categories-and-criteria/2001-categories-criteria> for others.

# **APPENDIX D**

## **HABITAT TREE DETAILS**

Habitat Trees

DBH >50cm

Datum - GDA94

Entrance Size Ranges - Small = >5cm, Medium = 5 to 10cm, Large = >10cm

Waypoint Number	Zone	mE	mN	Tree Species	Tree Height (m)	DBH (cm)	Number of Hollows	Estimated Hollow Entrance Size	Occupancy	Potential Cockatoo Nest Hollow	Comments
wpt007	50H	399361	6458557	Jarrah	15-20	>50	0		No Signs	No	
wpt008	50H	399348	6458556	Marri	20+	>50	0		No Signs	No	
wpt009	50H	399348	6458551	Marri	20+	>50	0		No Signs	No	
wpt010	50H	399352	6458532	Marri	15-20	>50	0		No Signs	No	
wpt011	50H	399356	6458536	Marri	15-20	>50	0		No Signs	No	
wpt012	50H	399355	6458533	Marri	15-20	>50	0		No Signs	No	
wpt013	50H	399335	6458522	Marri	15-20	>50	0		No Signs	No	
wpt014	50H	399310	6458508	Flooded Gum	15-20	>50	0		No Signs	No	
wpt015	50H	399260	6458521	Flooded Gum	15-20	>50	2+	Small	No Signs	No	
wpt016	50H	399218	6458541	Dead Unknown	20+	>50	0		No Signs	No	
wpt017	50H	399212	6458540	Flooded Gum	15-20	>50	0		No Signs	No	
wpt018	50H	399194	6458559	Flooded Gum	15-20	>50	0		No Signs	No	
wpt019	50H	399190	6458582	Dead Unknown	15-20	>50	2+	Small	No Signs	No	
wpt020	50H	399190	6458593	Dead Flooded Gum	15-20	>50	0		No Signs	No	
wpt021	50H	399202	6458595	Flooded Gum	15-20	>50	0		No Signs	No	
wpt022	50H	399225	6458563	Flooded Gum	15-20	>50	0		No Signs	No	
wpt023	50H	399234	6458553	Flooded Gum	15-20	>50	0		No Signs	No	
wpt024	50H	399236	6458565	Flooded Gum	15-20	>50	0		No Signs	No	
wpt025	50H	399288	6458528	Flooded Gum	15-20	>50	0		No Signs	No	
wpt026	50H	399287	6458550	Dead Flooded Gum	15-20	>50	0		No Signs	No	
wpt027	50H	399319	6458563	Marri	15-20	>50	0		No Signs	No	
wpt028	50H	399417	6458703	Unknown Euc	20+	>50	0		No Signs	No	
wpt029	50H	399445	6458687	Unknown Euc	20+	>50	0		No Signs	No	
wpt030	50H	399420	6458728	Unknown Euc	15-20	>50	0		No Signs	No	
wpt031	50H	399454	6458742	Unknown Euc	15-20	>50	0		No Signs	No	

Waypoint Number	Zone	mE	mN	Tree Species	Tree Height (m)	DBH (cm)	Number of Hollows	Estimated Hollow Entrance Size	Occupancy	Potential Cockatoo Nest Hollow	Comments
wpt032	50H	399501	6458736	Unknown Euc	15-20	>50	0		No Signs	No	
wpt033	50H	399511	6458750	Unknown Euc	15-20	>50	0		No Signs	No	
wpt034	50H	399502	6458753	Unknown Euc	20+	>50	0		No Signs	No	
wpt035	50H	399446	6458791	Unknown Euc	15-20	>50	0		No Signs	No	
wpt036	50H	399573	6458740	Unknown Euc	20+	>50	0		No Signs	No	
wpt037	50H	399577	6458730	Unknown Euc	20+	>50	0		No Signs	No	
wpt038	50H	399486	6458686	Unknown Euc	15-20	>50	0		No Signs	No	
wpt039	50H	399488	6458683	Unknown Euc	15-20	>50	0		No Signs	No	
wpt040	50H	399490	6458678	Unknown Euc	15-20	>50	0		No Signs	No	
wpt041	50H	399492	6458661	Unknown Euc	15-20	>50	0		No Signs	No	
wpt042	50H	399472	6458670	Unknown Euc	15-20	>50	0		No Signs	No	
wpt043	50H	399466	6458668	Unknown Euc	15-20	>50	0		No Signs	No	
wpt044	50H	399441	6458644	Unknown Euc	15-20	>50	0		No Signs	No	
wpt045	50H	399440	6458643	Unknown Euc	15-20	>50	0		No Signs	No	



## **DISCLAIMER**

This fauna assessment report (“the report”) has been prepared in accordance with the scope of services set out in the contract, or as otherwise agreed, between the Client and Greg Harewood (“the Author”). In some circumstances the scope of services may have been limited by a range of factors such as time, budget, access and/or site disturbance constraints. In accordance with the scope of services, the Author has relied upon the data and has conducted environmental field monitoring and/or testing in the preparation of the report. The nature and extent of monitoring and/or testing conducted is described in the report.

The conclusions are based upon field data and the environmental monitoring and/or testing carried out over a limited period of time and are therefore merely indicative of the environmental condition of the site at the time of preparing the report. Also it should be recognised that site conditions, can change with time.

Within the limitations imposed by the scope of services, the field assessment and preparation of this report have been undertaken and performed in a professional manner, in accordance with generally accepted practices and using a degree of skill and care ordinarily exercised by reputable environmental consultants under similar circumstances. No other warranty, expressed or implied, is made.

In preparing the report, the Author has relied upon data, surveys, analyses, designs, plans and other information provided by the Client and other individuals and organisations, most of which are referred to in the report (“the data”). Except as otherwise stated in the report, the Author has not verified the accuracy of completeness of the data. To the extent that the statements, opinions, facts, information, conclusions and/or recommendations in the report (“conclusions”) are based in whole or part on the data, those conclusions are contingent upon the accuracy and completeness of the data. The Author will not be liable in relation to incorrect conclusions should any data, information or condition be incorrect or have been concealed, withheld, misrepresented or otherwise not fully disclosed to the Author.

The report has been prepared for the benefit of the Client and no other party. The Author assumes no responsibility and will not be liable to any other person or organisation for or in relation to any matter dealt with or conclusions expressed in the report, or for any loss or damage suffered by any other person or organisation arising from matters dealt with or conclusions expressed in the report (including without limitation matters arising from any negligent act or omission of the Author or for any loss or damage suffered by any other party relying upon the matters dealt with or conclusions expressed in the report). Other parties should not rely upon the report or the accuracy or completeness of any conclusions and should make their own enquiries and obtain independent advice in relation to such matters.

The Author will not be liable to update or revise the report to take into account any events or emergent circumstances or facts occurring or becoming apparent after the date of the report.