

# Targeted Fauna Survey



## Lot 1002 Preston Beach Road North and Preston Beach Road North

NOVEMBER 2021

*Version 2*

***On behalf of:***

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**Acronyms/Abbreviations:**

**ALA:** Atlas of Living Australia [www.ala.org.au](http://www.ala.org.au)

**BA:** Birdlife Australia (Formerly RAOU, Birds Australia).

**BC Act:** Biodiversity Conservation Act 2016. WA Government.

**°C:** Degrees Celsius.

**CALM:** Department of Conservation and Land Management (now DBCA), WA Government.

**CAMBA:** China Australia Migratory Bird Agreement 1998.

**CBD:** Central Business District.

**DAWE:** Department of Agriculture, Water and the Environment (formerly SEWPaC, DWEHA, DEH, DoE & DoEE), Australian Government.

**DBCA:** Department of Biodiversity, Conservation and Attractions (formerly DPaW, DEC, CALM, DoE), WA Government

**DBH:** Diameter at Breast Height – tree measurement.

**DEC:** Department of Environment and Conservation (now DBCA), WA Government.

**DEH:** Department of Environment and Heritage (now DAWE), Australian Government.

**DEP:** Department of Environment Protection (now DWER), WA Government.

**DER:** Department of Environment Regulation (now DWER), WA Government.

**DEWHA:** Department of the Environment, Water, Heritage and the Arts (now DAWE), Australian Government.

**DMIRS:** Department of Mines, Industry Regulation and Safety (formerly DMP, DOIR), WA Government.

**DMP:** Department of Mines and Petroleum (now DMIRS), WA Government.

**DoE:** Department of Environment (now DWER/DBCA), WA Government.

**DoP:** Department of Planning, WA Government.

**DoE:** Department of the Environment (now DAWE), Australian Government.

**DoEE:** Department of the Environment and Energy (now DAWE), Australian Government.

**DoIR:** Department of Industry and Resources (now DMIRS), WA Government.

**DoW:** Department of Water (now DWER), WA Government.

**DPaW:** Department of Parks and Wildlife (now DBCA), WA Government.

**DWER:** Department of Water and Environmental Regulation (formed by the amalgamation of OEPA, DoW and DER), WA Government.

**EP Act:** *Environmental Protection Act 1986*, WA Government.

**EPA:** Environmental Protection Authority, WA Government.

**EPBC Act:** *Environment Protection and Biodiversity Conservation Act 1999*, Australian Government.

**ha:** Hectare (10,000 square metres).

**IBRA:** Interim Biogeographic Regionalisation for Australia.

**IUCN:** International Union for the Conservation of Nature and Natural Resources – commonly known as the World Conservation Union.

**JAMBA:** Japan Australia Migratory Bird Agreement 1981.

**km:** Kilometre.

**m:** Metre.

**mm:** Millimetre.

**P:** Priority - DBCA fauna conservation ranking.

**POS:** Public Open Space.

**ROKAMBA:** Republic of Korea-Australia Migratory Bird Agreement 2007.

**S:** Schedule - Western Australian *Wildlife Conservation Act (1950)* Threatened Fauna Category.

**SEWPaC:** Department of Sustainability, Environment, Water, Population and Communities (now DAWE), Australian Government.

**SRE:** Short Range Endemic.

**SSC:** Species Survival Commission, International.

**WA:** Western Australia.

**WAM:** Western Australian Museum, WA Government.

**WAPC:** Western Australian Planning Commission, WA Government.

**WC Act:** *Wildlife Conservation Act 1950 (superseded by the BC Act)*, WA Government.

**WRP:** Western Ringtail Possum.



## SUMMARY

This report details the results of a targeted fauna survey within a section of Lot 1002 Preston Beach Road North and a portion of vegetation adjacent to Preston Beach Road North (the subject site). The area surveyed comprises a proposed extraction area (14 ha), an access road (0.7 ha) (both within Lot 1002) and edges of Preston Beach Road North (0.6 ha) (Figures 1, 2 & 3).

The survey results are required to inform the environmental approvals process associated with the use of Lot 1002 for limestone and sand extraction and the widening of Preston Beach Road North to improve access to and from the site.

The scope of works was broadly defined by the EPA Service Unit/DWER as a “comprehensive Level 2 targeted survey”. Based on available information the following species were subject to investigation:

- Coastal Plains Skink *Ctenotus ora* (Priority 3)
- Lined Skink *Lerista lineata* (Priority 3)
- Sharp-tailed Sandpiper *Calidris acuminata* (Migratory)
- Baudin's Cockatoo *Calyptorhynchus baudinii* (Endangered)
- Carnaby's Cockatoo *Calyptorhynchus latirostris* (Endangered)
- Forest Red-tailed black cockatoo *Calyptorhynchus banksii naso* (Vulnerable)
- Masked Owl *Tyto n. novaehollandiae* (Priority 3)
- Rainbow Bee-eater *Merops ornatus* (not listed)
- Western Ringtail Possum *Pseudocheirus occidentalis* (Critically Endangered)
- Quenda *Isodon fusciventer* (Priority 4)
- South-western Brush-tailed Phascogale *Phascogale tapoatafa wambenger* (Conservation Dependent)
- Western Brush Wallaby (*Notamacropus irma*) (Priority 4)
- Western False Pipistrelle *Falsistrellus mackenziei* (Priority 4)

The following conservation significant fauna species were detected within the subject site during the targeted fauna survey:

- Carnaby's Cockatoo *Calyptorhynchus latirostris* (Endangered)  
A small group of individuals were observed flying over the proposed extraction area on one occasion.

- Quenda *Isoodon fusciventer* (Priority 4)  
Several individuals recorded within the proposed extraction area.
- South-western Brush-tailed Phascogale *Phascogale tapoatafa wambenger* (Conservation Dependent)  
Several individuals recorded within the proposed extraction area.
- Western Ringtail Possum *Pseudocheirus occidentalis* (Critically Endangered)  
Recorded along the southern section of Preston Beach Road North. Appears to be absent from the proposed extraction area.
- Western False Pipistrelle *Falsistrellus mackenziei* (Priority 4)  
Recorded several times within the proposed extraction area.

Several other of the listed conservation significant fauna species may occur but were not detected. Habitat for most of these species within the proposed extraction area appears to be limited in extent and/or the species are generally uncommon so the probability of detection would have been low. Some species would not occur in the subject site (e.g. sharp-tailed sandpiper) due to a complete lack of suitable habitat.

Ongoing planning will need to take into account the presence of the identified species of conservation significance and fauna in general so that any impacts can be minimised. It is recommended that when project planning and approvals has progressed that fauna management plans and protocols aimed at minimising direct and indirect impact on fauna should be formulated for implementation during site development and operation.

## 1. INTRODUCTION

This report details the results of a targeted fauna survey within a section of Lot 1002 Preston Beach Road North and a portion of vegetation adjacent to Preston Beach Road North (the subject site). The area surveyed comprises a proposed extraction area (14 ha), an access road (0.7 ha) (both within Lot 1002) and edges of Preston Beach Road North (0.6 ha) (Figures 1, 2 & 3).

The survey results are required to inform the environmental approvals process associated with the use of Lot 1002 for limestone and sand extraction and the widening of Preston Beach Road North to improve access to and from the site.

Information obtained as part of this fauna assessment report will be used in conjunction with other environmental investigations to guide project planning. It is also anticipated that the information presented here will ultimately be used by regulatory authorities to assess the potential impact of any future proposal on fauna and fauna habitats at the site during the project evaluation and approval process.

## 2. SCOPE OF WORKS

The scope of works has been broadly defined by the EPA Service Unit/DWER as a “comprehensive Level 2 targeted survey” for the following conservation significant fauna species that were identified in the Level 1 desktop assessment (Natural Area 2019):

- Coastal Plains Skink *Ctenotus ora* (Priority 3)
- Lined Skink *Lerista lineata* (Priority 3)
- Western Carpet Python *Morelia imbricata* (not listed)
- Sharp-tailed Sandpiper *Calidris acuminata* (Migratory)
- Baudin’s Cockatoo *Calyptorhynchus baudinii* (Endangered)
- Carnaby’s Cockatoo *Calyptorhynchus latirostris* (Endangered)
- Forest Red-tailed black cockatoo *Calyptorhynchus banksii naso* (Vulnerable)
- Rainbow Bee-eater *Merops ornatus* (not listed)
- Western Ringtail Possum *Pseudocheirus occidentalis* (Critically Endangered)
- South-western Brush-tailed Phascogale *Phascogale tapoatafa wambenger* (Conservation Dependent)

Note: This list of potential conservation significant species considered likely to be present was provided by the EPA Service Unit/DWER apparently based on a level 1 survey report carried out by Natural Area (2019). The list does not however match exactly what is in the report with two potential conservation significant species omitted (i.e. quenda *Isoodon fusciventer* (Priority 4) and western brush wallaby (*Notamacropus irma*) (Priority 4)). These species have therefore been added to the targeted fauna list. The western carpet python and rainbow bee-eater are also no longer listed as threatened/priority or migratory species under state or federal legislation and therefore do not rate as “conservation significant fauna species”.

The Natural Area (2019) report is also incomplete in that at least three other potential fauna species of conservation significance are not mentioned (e.g. masked owl *Tyto n. novaehollandiae* (Priority 3), peregrine falcon *Falco peregrinus* (other specially protected fauna) and the western false pipistrelle *Falsistrellus mackenziei* (Priority 4)). These species have therefore been added to the targeted fauna list.

Natural Area (2019) also state that the sharp-tailed sandpiper and hooded plover “have been recorded within the proposed clearing area”. Both these species only occur in/on beaches, estuaries, wetlands and/or salt lakes. These habitats are not present within the proposed clearing area/access road and so this comment is obviously erroneous/based on incorrect interpretation of data.

Based on the above review the following species have been removed from the targeted species list:

- *Morelia imbricata* Western Carpet Python

The sharp-tailed sandpiper and rainbow bee-eater have been retained in the targeted list despite comments above regarding there likelihood of occurrence/status.

### **3. METHODS**

#### **3.1 POTENTIAL FAUNA INVENTORY - LITERATURE REVIEW**

##### **3.1.1 Database Searches**

Searches of the following databases were undertaken to aid in the compilation of a list of conservation significant fauna potentially occurring within the subject site:

- DBCA’s NatureMap Database Search (combined data from DBCA, ALA, WAM, BA and consultant’s reports) (DBCA 2020); and
- Protected Matters Search Tool (DAWE 2020).

It should be noted that lists produced during the abovementioned database searches contain observations/inferred distributions from a broader area than the subject site and therefore may include species that would only ever occur as vagrants due to a lack of suitable habitat or the presence of only marginal habitat within the subject site itself. The databases also often included or are based on very old records and in some cases the species in question have become locally or regionally extinct.

Information from these sources should therefore be taken as indicative only and local knowledge and information also needs to be taken into consideration when determining what actual species may be present within the specific area being investigated.

### **3.1.2 Previous Fauna Surveys in the Area**

Fauna surveys, assessments and reviews have been undertaken in nearby areas in the past, though not all are publicly available and could not be referenced. The most significant of those available have been used as the primary reference material for compiling the potential fauna assemblage for the general area. Those reports referred to included, but were not limited to:

- 360 Environmental Pty Ltd (2008). Southern Seawater Desalination Project 2007, Terrestrial Flora and Fauna Survey Report. Unpublished report for the Water Corporation.
- Aecom Australia Pty Ltd (Aecom) (2016). Biological Assessments Lot 100, 2240, 2275, 2657 & 3045 Preston Beach Road Lake Clifton. Unpublished report for the Main Roads Western Australia.
- Alan Tingay and Associates (ATA) (1998). Vertebrate Fauna. Lake Clifton Land Exchange Proposal. Unpublished report for Bouvard Investment's Pty Ltd.
- Bancroft, W., and Bamford M. (2013). South West CO2 Geosequestration Pipeline Assessment of Fauna Values. Unpublished report for Strategen Environmental Consultants.
- Bamford Consulting Ecologists (2003). Fauna Values of Cape Bouvard Investment's Pty Ltd Land, Yalgorup. Unpublished report for RPS.
- Bamford Consulting Ecologists (2008). Fauna Assessment of the Proposed South Binningup Development. Unpublished report for RPS Consulting/Mirvac.
- Bamford Consulting Ecologists (2010). Level 2 Fauna Assessment of Remnant Vegetation at the Proposed Point Grey Marina. Unpublished report for ATA Environmental.

- Bullen, R.D. (2009). Binningup Bat Survey 2009. Echolocation Survey of Bat Activity in the Lake Clifton and Lake Preston Localities on the Swan Coastal Plain. Prepared for Department of Environment and Conservation by Bat Call WA. Hillarys, Western Australia.
- Dell, J. and Hyder, B. (2009a). An Assessment of the Avifauna of the area between Dawesville and Binningup, Southern Swan Coastal Plain. Report prepared for Environmental Protection Authority, Perth.
- Dell, J. and Hyder, B. (2009b). Summary of the Fauna Values of the area between Dawesville and Binningup, Southern Swan Coastal Plain. Report prepared for Environmental Protection Authority, Perth.
- ENV Australia (ENV) (2009). Clifton Beach Fauna Assessment. Unpublished report for Cape Bouvard Investments Pty Ltd.
- Harewood, G. (2010). Fauna Survey (Level 2). Kemerton Industrial Core. Unpublished report for Cardno (WA) Pty Ltd.
- Harewood, G. (2015). Fauna Survey (Level 2). Dampier to Bunbury Natural Gas Pipeline Corridor Bristol Road (Waroona) to Clifton Road (Brunswick) Unpublished report for Aurora Environmental.
- How, R. A., Maryan, B. and Stevenson, C. A. (2009). An Assessment of Herpetofauna on Near-Coastal Landforms between Dawesville and Binningup, Southern Swan Coastal Plain. Prepared for Department of Environment and Conservation. Welshpool, Western Australia.
- Hyder, B. and Dell, J. (2009). An Assessment of the Non-volant Mammal Fauna of the area between Dawesville and Binningup, Southern Swan Coastal Plain. Report prepared for Environmental Protection Authority, Perth.
- Western Wildlife (2007) Lot 801 and Lot 4 Preston Beach Fauna Survey 2007. Unpublished report for RPS Bowman Bishaw Gorham Perth.

As with the databases searches some reports refer to species that would not occur in the project area due to a lack of suitable habitat (extent and/or quality) and this fact was taken into consideration when compiling the potential fauna species list for the subject site. It should also be noted that the NatureMap database is likely to include some records from previous fauna surveys in the area including some of those listed above.

### 3.1.3 Existing Publications

The following represent the main publications used to identify and refine the potential fauna species list for the subject site:

- Anstis, M. (2013). Tadpoles and Frogs of Australia. New Holland Publishers, Sydney.
- Barrett, G., Silcocks, A., Barry, S., Cunningham, R. and Poulter, R. (2003). The New Atlas of Australian Birds. Royal Australasian Ornithologists Union, Victoria.
- Bush, B., Maryan, B., Browne-Cooper, R. & Robinson, D. (2007). Reptiles and Frogs in the Bush: Southwestern Australia. UWA Press, Nedlands.
- Churchill, S. (2008). Australian Bats. Second Edition, Allen & Unwin.
- Cogger, H.G. (2014). Reptiles and Amphibians of Australia. 7th Edition. CSIRO Publishing.
- Johnstone, R.E. and Storr, G.M. (1998). Handbook of Western Australian Birds: Volume 1 – Non-passerines (Emu to Dollarbird). Western Australian Museum, Perth Western Australia.
- Johnstone, R.E. and Storr, G.M. (2004). Handbook of Western Australian Birds: Volume 2 – Passerines (Blue-winged Pitta to Goldfinch). Western Australian Museum, Perth Western Australia.
- Menkhorst, P. and Knight, F. (2011). A Field Guide to the Mammals of Australia. Oxford University Press, Melbourne.
- Menkhorst, P., Rogers, D., Clarke, R., Davies, J., Marsack, P., and Franklin, K. (2017). The Australia Bird Guide. CSIRO Publishing.
- Morgan, D.L., Beatty, S.J., Klunzinger, M.W, Allen, M.G. and Burnham, Q.E (2011). Field Guide to the Freshwater Fishes, Crayfishes and Mussels of South Western Australia. Published by SERCUL.
- Storr, G.M., Smith, L.A. and Johnstone R.E. (1983). Lizards of Western Australia II: Dragons and Monitors. WA Museum, Perth.
- Storr, G.M., Smith, L.A. and Johnstone R.E. (1990). Lizards of Western Australia III: Geckos and Pygopods. WA Museum, Perth.
- Storr, G.M., Smith, L.A. and Johnstone R.E. (1999). Lizards of Western Australia I: Skinks. Revised Edition, WA Museum, Perth.

- Storr, G.M., Smith, L.A. and Johnstone R.E. (2002). Snakes of Western Australia. Revised Edition, WA Museum, Perth.
- Tyler M.J. & Doughty P. (2009). Field Guide to Frogs of Western Australia, Fourth Edition, WA Museum, Perth.
- Van Dyck, S., Gynther, I. & Baker, A. Eds (2013). Field Companion to The Mammals of Australia. Queensland Museum.
- Wilson, S. and Swan, G. (2013). A Complete Guide to Reptiles of Australia. Reed, New Holland, Sydney.
- Woinarski, J., Burbidge, A. & Harrison, P. (2014). The Action Plan for Australian Mammals 2012. CSIRO Publishing.

### 3.1.4 Fauna of Conservation Significance

The conservation significance of fauna species has been assessed using data from the following sources:

- *Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)*. Administered by the Australian Government DAWE;
- *Biodiversity Conservation Act 2016 (BC Act)*. Administered by the Western Australian DBCA (Govt. of WA 2018). Note: The Wildlife Conservation (Specially Protected Fauna) Notice 2018 has been transitioned under regulations 170, 171 and 172 of the Biodiversity Conservation Regulations 2018 to be the lists of Threatened, Extinct and Specially Protected species under Part 2 of the *BC Act*;
- Red List produced by the SSC of the World Conservation Union (also known as the IUCN Red List - the acronym derived from its former name of the International Union for Conservation of Nature and Natural Resources). The Red List has no legislative power in Australia but is used as a framework for State and Commonwealth categories and criteria; and
- DBCA Priority Fauna list. A non-statutory list maintained by the DBCA for management purposes (DBCA 2019).

The *EPBC Act* also requires the compilation of a list of migratory species that are recognised under international treaties including the:

- Japan Australia Migratory Bird Agreement 1981 (JAMBA);
- China Australia Migratory Bird Agreement 1998 (CAMBA);
- Republic of Korea-Australia Migratory Bird Agreement 2007 (ROKAMBA); and



- Bonn Convention 1979 (The Convention on the Conservation of Migratory Species of Wild Animals).

(Note – Some but not all species listed under JAMBA are also protected under Schedule 5 of the *BC/WC Act*).

Most, but not all migratory bird species listed in the annexes to these bilateral agreements are also protected in Australia as matters of national environmental significance (NES) under the *EPBC Act*.

The conservation status of all vertebrate fauna species listed as occurring or possibly occurring in the vicinity of the survey area has been assessed using the most recent lists published in accordance with the above-mentioned instruments and is indicated as such in the fauna listings of this report. A full listing of conservation codes is provided in Appendix A.

### 3.1.5 Taxonomy and Nomenclature

Taxonomy and nomenclature for vertebrate fauna species used in this report is generally taken from the DBCA's WA Fauna Census Database which is assumed to follow Aplin and Smith (2001) for amphibians and reptiles and Johnstone (2001) for birds. Jackson and Groves (2015) has been used for mammals.

Common names are taken from the Western Australia Museum (WAM) recognised primary common name listings when specified, though where common names are not provided they have been acquired from other publications. Sources include Cogger (2014), Wilson and Swan (2017), Van Dyck & Strahan (2013), Christidis and Boles (2008), Bush *et al.* (2010), Bush *et al.* (2007), Tyler & Doughty (2009), and Glauret (1961). Not all common names are generally accepted.

### 3.1.6 Likelihood of Occurrence – Fauna of Conservation Significance

Fauna of conservation significance identified during the literature review as previously being recorded in the general area were assessed and ranked for their likelihood of occurrence within the survey area itself. The rankings and criteria used were:

- Would Not Occur: There is no suitable habitat for the species in the survey area and/or there is no documented record of the species in the general area since records have been kept and/or the species is generally accepted as being locally/regionally extinct (supported by a lack of recent records).
  - Locally Extinct: Populations no longer occur within a small part of the species natural range, in this case within 10 or 20 km of the survey area. Populations do however persist outside of this area.
  - Regionally Extinct: Populations no longer occur in a large part of the species natural range, in this case within the central/southern Swan Coast Plain region. Populations do however persist outside of this area.

- Unlikely to Occur: The survey area is outside of the currently documented distribution for the species in question, or no suitable habitat (type, quality and extent) was identified as being present during the field assessment. Individuals of some species may occur occasionally as vagrants/transients especially if suitable habitat is located nearby but the survey area itself would not support individuals or a population the species.
- Possibly Occurs: The survey area is within the known distribution of the species in question and habitat of at least marginal quality was identified as being present during the field assessment, supported in some cases by recent records being documented in literature from within or near the survey area. In some cases, while a species may be classified as possibly being present at times, habitat may be marginal (e.g. poor quality, fragmented, limited in extent) and therefore the frequency of occurrence and/or population levels may be low.
- Known to Occur: The species in question was positively identified as being present (for sedentary species) or as using the survey area as habitat for some other purpose (for non-sedentary/mobile species) during the field survey. This information may have been obtained by direct observation of individuals or by way of secondary evidence (e.g. foraging debris, tracks and scats). In some cases, while a species may be classified as known to occur, habitat may be marginal (e.g. poor quality, fragmented, limited in extent) and therefore the frequency of occurrence and/or population levels may be low.

## 3.2 SITE SURVEYS

Field survey work at the site was carried out on various days and nights during in April and May 2020. All field survey work was carried out by Greg Harewood (Zoologist).

Field survey work (including but not limited to trap installation, trap checking, bird surveys, bat call recording, daytime possum surveys) primarily took place between the 6 and 17 April 2020. Nocturnal surveys were undertaken on the 9 and 11 of May 2020. Camera traps were retrieved on the 23 May 2020 during which time any additional fauna observations were recorded opportunistically. A supplementary day survey was also undertaken on the 30 May 2020. In total the subject site was surveyed on 14 days and two nights, for a total of about 33 daytime hours and four hours nocturnal. The location of all transects within the proposed 14 ha extraction area are shown in Figure 4.

Table 1 below shows the daily weather records experienced during the main period of fauna trapping and survey (6 to 17 April 2020).

**Table 1: Daily Temperatures and Rainfall at the Bunbury Weather Station during Trapping Phase (BOM 2020)**

Date	Min (°C)	Max (°C)	Rainfall (mm)
06/04/2020	14.7	29.9	0.4
07/04/2020	18.1	32.3	0
08/04/2020	14.7	28.8	0
09/04/2020	15.2	27.4	0
10/04/2020	19.3	32.1	0
11/04/2020	19.7	34.6	0
12/04/2020	19.8	25.1	0
13/04/2020	15.7	23.8	0
14/04/2020	11.8	22.9	0
15/04/2020	17.7	22.8	0
16/04/2020	7.9	22.6	0
17/04/2020	10.5	24.8	0

The field survey was conducted under “Fauna Taking (Biological Assessment) Licence (Regulation 27) No. BA27000228 and “Authorisation to Take or Disturb Threatened Species” (Section 40) No. TFA 2020-0031, issued to Greg Harewood.

Analysis of bat recordings was completed by Mr Bob Bullen (Bat Call WA Pty Ltd).

### 3.2.1 Fauna Habitat Assessment

The vegetation communities mapped by Natural Area (2019) during the flora and vegetation survey have been used in part to classify the area into broad habitat types. This information has been supplemented/modified based on observations made during the field aspect of the fauna assessment.

As part of the literature review, available information on the habitat requirements of the species of conservation significance listed as possibly occurring in the area was researched. During the daytime reconnaissance survey the habitats within the subject site were assessed and specific elements identified, if present, to determine the likelihood of listed species of conservation significance occurring and its likely overall value to them on a local and regional scale.

### 3.2.2 Ground Vertebrate Fauna Survey

To provide information on the abundance and distribution of conservation significant ground fauna present (i.e. small mammals and reptile species), trapping, utilising a combination of cage traps and Elliott traps (to target small/medium sized mammal species), fly wire drift fences with associated pit fall traps (to target small mammals and reptile species) and funnel traps (to target reptile species) were utilised. The location of the trap sites is shown in Figure 5.

Five “trap arrays” were established within the proposed 14 ha extraction area.

One trap array (labelled P1 to P10 – Figure 5) consisted of ten ~7m to 10m long, 30 cm high fly wire drift fences with a centrally located pit trap (20L bucket) dug in underneath and a single funnel trap located at each end of the drift fence. One Elliott (B) trap or cage trap was placed in the vicinity of each pit trap.

Pit traps could not be utilised at the other four trap array sites (labelled Trap Line 1 to 4 – Figure 5) as they were characterised by outcropping limestone which made digging holes impossible. At these sites trapping involved the installation of a 30m long drift fence along which 10 funnel traps were placed (five on either side, arranged as pairs).

An additional 14 cage traps and four Elliot (B) traps were place across the proposed extraction area (Figure 5).

Trapping took place from between the 6 April 2020 and 17 April 2020. The five trap arrays were left in place for between nine and 11 nights. Cages and Elliots were left in place for between eight and 10 nights.

A summary of trap nights for each trap type is provided in Table 2 below. Additional details on trap locations and timing are provided in Appendix B.

**Table 2: Summary of Trap Nights**

Trap Type	Number of Traps	Trap Nights
Pit	10	110
Funnel Trap	60	590
Cage	19	183
Elliott (B)	9	90
<b>Total Trap Nights</b>		<b>973</b>

Species of conservation significance that were targeted as part of this component of the field survey included but was not limited to:

- Coastal Plains Skink *Ctenotus ora*
- Lined Skink *Lerista lineata*
- Quenda *Isoodon fusciventer*
- South-western Brush-tailed Phascogale *Phascogale tapoatafa wambenger*
- Western Ringtail Possum *Pseudocheirus occidentalis*

### 3.2.3 Camera Traps

Fifteen motion sensing, infrared “camera traps” (Acorn model LTI 5210A) were placed within subject site between the 7 April and the 9 April 2020. These were retrieved between on the 23 May 2020 (up to 46 days of deployment). The camera traps were set to take three consecutive pictures when triggered, with a five second time lapse before any subsequent trigger event. The location of each camera trap is shown in Figure 5. Additional details on trap locations and timing are provided in Appendix B.

A total of 558 “camera trap days” were achieved and several thousand pictures taken, though it should be noted that on some cameras a high percentage of photos taken were caused by moving vegetation. All pictures were examined and fauna species, where possible, identified. Only one image of each species taken on any one day was documented as a record.

Species of conservation significance that were targeted as part of this component of the field survey included but was not limited to:

- Quenda *Isoodon fusciventer*
- South-western Brush-tailed Phascogale *Phascogale tapoatafa wambenger*
- Western Ringtail Possum *Pseudocheirus occidentalis*
- Western Brush Wallaby *Notamacropus Irma*

### 3.2.4 Acoustic Bat Recordings

Three nights (7, 8 & 9 April 2020) of acoustic bat call recordings were undertaken using a Wildlife Acoustics SM2+ Bat Detector. The recordings were commenced at sunset and continued until sunrise the following day. The recording locations area shown in Figure 5. Additional details on trap locations and timing are provided in Appendix B.

The detector converts ultrasonic echolocation signals produced by bats into audible electronic signals that are then recorded. The recordings were later processed by Bob Bullen (Bat Call WA Pty Ltd) to determine the presence of species specific calls.

Species of conservation significance that were targeted as part of this component of the field survey included but was not limited to:

- Western False Pipistrelle *Falsistrellus mackenziei*

### 3.2.5 Call Playback

Attempts to determine the presence of the masked owl were made using playback calls on two nights (8 and 9 April 2020) at two locations with the proposed extraction area, one in the south and one in the north. This involved five minutes of listening, followed

by five minutes of playback of pre-recorded calls of the target species using a mobile speaker system. This was followed by spotlighting in the vicinity and a further five minutes of listening.

Species of conservation significance that were targeted as part of this component of the field survey included:

- Masked Owl *Tyto n. novaehollandiae*

### 3.2.6 Bird Surveys

Sampling of avifauna was carried out using a combination of techniques, including:

- Traverses on foot within to the subject site.
- Opportunistic observations of avifauna during all other activities carried out during survey period.

Species of conservation significance that were targeted as part of this component of the field survey included but were not limited to:

- Sharp-tailed Sandpiper *Calidris acuminata*
- Peregrine Falcon *Falco peregrinus*
- Baudin's Cockatoo *Calyptorhynchus baudinii*
- Carnaby's Cockatoo *Calyptorhynchus latirostris*
- Forest Red-tailed black cockatoo *Calyptorhynchus banksii naso*
- Rainbow Bee-eater *Merops ornatus*

### 3.2.7 Active and Opportunistic Searching

Microhabitats within the proposed extraction area were actively searched with the aim of locating various cryptic species that maybe present. Searches included but were not limited to investigating burrows, investigating scats, tracks and other traces, turning fallen timber and rocks, opening standing timber crevices, peeling bark and raking leaf litter. Any opportunistic observations of fauna species were also recorded.

Species of conservation significance that were targeted as part of this component of the field survey included but were not limited to:

- Coastal Plains Skink *Ctenotus ora*
- Lined Skink *Lerista lineata*

### 3.2.8 Spotlighting/Head Torching

Two nights of on foot/in car nocturnal surveys were carried out across the proposed extraction area, along the access road and Preston Beach Road North with the aim of locating nocturnal species that may be difficult to detect using alternative techniques (see western ringtail possum survey section for additional details). The nocturnal surveys were carried out on the 9 and 11 May 2020 over a total period of about 4 hours. The location of nocturnal transects within the proposed 14 ha extraction area are shown in Figure 4.

Species of conservation significance that were targeted as part of this component of the field survey included but were not limited to:

- Masked Owl *Tyto n. novaehollandiae*
- South-western Brush-tailed Phascogale *Phascogale tapoatafa wambenger*
- Western Ringtail Possum *Pseudocheirus occidentalis*

### 3.2.9 Western Ringtail Possum Assessment

A western ringtail possum survey was carried out over the subject site. The survey was carried out in accordance with various methods (where relevant) recommended within the DAWE's "Survey guidelines for Australia's threatened mammals" (Commonwealth of Australia 2011), DBCA's "Development Guidelines for Western Ringtail Possums" (DEC 2009) and "Technical Guide - Terrestrial Vertebrate Fauna Surveys for Environmental Impact Assessment (DEC/EPA 2010).

The survey included:

- Diurnal Survey: A series of day time surveys were carried out to locate and record dreys, obvious tree hollows, scats and individual WRPs along with habitat characteristics. This involved a series of traverses on foot across areas of forest/woodland habitat within the subject site. The day surveys were carried out on various days within April and May 2020. Daytime field time totalled about 33 hours. The location of daytime transects within the proposed 14 ha extraction area are shown in Figure 4.
- Nocturnal Survey: Two nocturnal surveys were carried out to determine the distribution and abundance of western ringtail possums within the subject site. This involved a series of traverses on foot across areas of forest/woodland within the subject site. Lake Preston Drive North was surveyed by spotlight from a car. The nocturnal surveys were carried out on the 9 and 11 May 2020 over a total of about four hours. The location of all transects within the proposed 14 ha extraction area are shown in Figure 4.

### 3.2.10 Black Cockatoo Habitat Assessment

The following methods were employed during the black cockatoo habitat assessment to comply with the defined scope of works and are based on guidelines published by the DAWE (Commonwealth of Australia 2012) 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.

Habitat used by black cockatoos have been placed into three categories by the DotEE (Commonwealth of Australia 2012) these being:

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

So as to comply with the requested scope of works and in line with the published guidelines the following was carried out on various days during April and May 2020.

#### 3.2.10.1 Black Cockatoo Breeding Habitat

The black cockatoo breeding habitat assessment involved the identification of all suitable breeding trees species (native, endemic species only) within the subject site that had a DBH of equal to or over 50cm. The DBH of each tree was estimated using a pre-made 50 cm "caliper".

Target tree species included marri, tuart and jarrah or any other *Corymbia/Eucalyptus* species of a suitable size that may have been present. Peppermints, *banksia*, sheoak and *melaleuca* tree species (for example) were not assessed as they typically do not develop hollows that are used by black cockatoos.

The location of each tree identified as being over the threshold DBH was recorded with a GPS and details on 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 for easy future reference.

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 possible hollow appears to be unsuitable for nesting i.e. wrong orientation, too small, too low or too shallow); or
- Large (cockatoo) = ~>10cm diameter (entrance appears big enough to provide access to a possible hollow that may be suitable for a black cockatoo to use for nesting).

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

- Tree < 50cm DBH or an unsuitable species (not 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 cockatoo nest hollow was defined as:

*Generally, any tree which is alive or dead that contains one or more visible hollows (cavities within the trunk or branches) or possible hollows suitable for occupation by black cockatoo for the purpose of nesting/breeding. 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, were 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). Trees with possible nest hollows were also scratched and raked with a large stick/pole in attempt to flush any sitting birds from hollows and calls of chicks were also listened for. It should be noted that the survey may have been conducted outside of the main breeding season of one or more of the three species of black cockatoo.

### **3.2.10.2 Black Cockatoo Foraging Habitat**

The location and nature of black cockatoo foraging evidence (e.g. chewed fruits around base of trees) observed during the reconnaissance survey was recorded. The nature and extent of potential foraging habitat present was also documented irrespective of the presence of any actual foraging evidence.

### **3.2.10.3 Black Cockatoo Roosting Habitat**

Direct and indirect evidence of black cockatoos roosting within trees located in subject site was noted if observed (e.g. branch clippings, droppings or moulted feathers).

## **4. SURVEY CONSTRAINTS**

No seasonal sampling has been 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 also be recognised that site conditions can change with time.

Some fauna species are reported as potentially occurring based on there being suitable habitat (quality and extent) within the subject site or immediately adjacent. With respect to opportunistic observations, the possibility exists that certain species may not have been detected during field investigations due to:

- seasonal inactivity during the field survey;
- species present within micro habitats not surveyed;
- cryptic species able to avoid detection; and
- transient wide-ranging species not present during the survey period.

Lack of observational data on some species should therefore 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.

The habitat requirements and ecology of many of the species known to occur in the wider area are often not well understood or documented. It can therefore be difficult to exclude species from the potential list based on an apparent lack of a specific habitat or microhabitat within the subject site. As a consequence of this limitation the potential fauna list produced is most likely an overestimation of those species that actually utilise the subject site for some purpose. Some species may be present in the general area but may only use the subject site itself on rare occasions or as vagrants/transients.

In recognition of survey limitations, a precautionary approach has been adopted for this assessment. Any fauna species that would possibly occur within the subject site (or immediately adjacent), as identified through ecological databases, publications, discussions with local experts/residents and the habitat knowledge of the Author, has been assumed to potentially occur in the subject site.

During the black cockatoo habitat survey 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.

## **5. RESULTS**

### **5.1 POTENTIAL FAUNA INVENTORY – LITERATURE REVIEW**

A list of vertebrate fauna species considered as having some potential to occur within or near the subject site has been compiled from information obtained during the literature review and is presented in Appendix C. This listing was refined after information gathered during the site reconnaissance survey was assessed. The results of some previous fauna surveys carried out in the general area are summarised in this listing as are the DBCA NatureMap database search results (with species considered unlikely to occur being omitted). The raw database search results from NatureMap (DBCA 2020) and the Protected Matters Search Tool (DAWE 2020) are contained within Appendix D.

The list of potential fauna takes into consideration that firstly, the species in question is not known to be locally extinct and secondly, that suitable habitat for each species is present within the subject site or nearby, though compiling an accurate list has limitations (see Section 4 above) and therefore as discussed, the listing is very likely to be an overestimation of the fauna species actually present within the subject site at any one time.

With respect to native vertebrate fauna, 17 mammal (including nine bat species), 83 bird, 37 reptile and two frog species have previously been recorded in the wider area, some of which have the potential to occur in or utilise sections of the subject site at times. Nine species of introduced animals could also frequent the area.

Of the 139 native vertebrate animals that are listed as potentially occurring, six are considered to be endangered/vulnerable or in need of special protection under State and/or Federal law. In addition, six DBCA priority species are also listed as potentially occurring. These particular species are discussed in further detail in the following sections of the report.

## 5.2 SITE SURVEYS

### 5.2.1 Fauna Habitat Assessment

The proposed extraction area and access track alignment within Lot 1002 appear to have been subject to significant historical disturbance with much of the area showing evidence of extensive clearing and in some areas, subsequent regrowth.

The central section of the proposed extraction area is covered with a shrubland dominated by grass trees (*Xanthorrhoea preissii*). This area appears to have been totally cleared in the past with the subsequent regrowth of grass trees with few other plant species evident. Groundcover is sparse with grass trees generally being separated by areas of open bare sand. A small area of closed heath is present in the north eastern section of the proposed extraction area. It is assumed that this unit represents the original vegetation type where the grass tree shrubland now occurs.

Other habitat units within the proposed extraction area include a peppermint (*Agonis flexuosa*) low open forest which also, at least in part appears to be regrowth from a clearing event. As with the shrubland native groundcover is sparse with limited variety of associated plants species. The proposed extraction area also contains two areas of tuart (*Eucalyptus gomphocephala*) and redheart moit/limestone marlock (*E. decipiens*) woodland over low open shrubland. Two small areas of shrub mallee (*Eucalyptus petrensis*) are also present near the eastern boundary of the proposed extraction area. The balance of the site is a cleared pasture of onion weed herbland.




Almost all of the proposed extraction area is characterised by outcropping limestone with a thin veneer of sand. Thicker sand cover is limited to the south west and north west corners of the proposed extraction area.




The proposed access road alignment within Lot 1002 largely follows a pre-existing cleared track but contains some regrowth grass trees along with a small number of tuart and peppermint trees over bare sand/limestone or onion weed herbland.

Preston Beach Road North has a total length of almost 6 km. Vegetation/fauna habitats bordering the existing road vary and include areas of heathland, banksia and jarrah woodland, redheart moit/limestone marlock woodland, tuart and peppermint woodland, and onion grass herbland. The nature and extent of these units along the road are shown in Natural Areas report in Table 7 and Figure 6 (Natural Area 2019).

Example images of the fauna habitats present within the proposed extraction area are provide in Table 3, with their extent being shown in Figure 6.

#### **Table 3: Main Fauna Habitats Within the Proposed Extraction Area**

Fauna Habitat Description	Example Image
<p>Tuart (<i>Eucalyptus gomphocephala</i>) and Redheart Moit/Limestone Marlock (<i>E. decipiens</i>) Woodland over low open shrubland</p> <p>Area = ~2.99 ha (21.34%)</p>	
<p>Peppermint (<i>Agonis flexuosa</i>) Low Open Forest on sand and limestone.</p> <p>Area = ~2.50 ha (17.89%)</p>	
<p>Grasstree (<i>Xanthorrhoea preissii</i>) Shrubland with occasional emergent Tuart (<i>E. gomphocephala</i>) and scattered <i>Melaleuca systema</i> and <i>Banksia dallanneyi</i> over <i>Lepidosperma gladiatum</i> on limestone.</p> <p>Area = ~6.26 ha (44.68%)</p>	

Fauna Habitat Description	Example Image
<p>Closed Heath including <i>Xanthorrhoea preissiana</i>, <i>Acacia cyclops</i>, <i>Melaleuca systema</i>, <i>Hibbertia racemosa</i> and <i>Spyridium globulosum</i> over a weedy understorey of <i>Trachyandra divaricate</i>.</p> <p>Area = ~0.19 ha (1.33%)</p>	
<p>Limestone Mallee (<i>Eucalyptus petrensis</i>) Shrub Mallee on limestone.</p> <p>Area = ~0.63 ha (4.50%)</p>	
<p>Cleared/Onion Weed (<i>Trachyandra divaricate</i>) Herbland on sand.</p> <p>Area = ~1.44 ha (10.28%)</p>	

### 5.2.2 Ground Vertebrate Fauna Survey

The complete list of captures at each trap site is contained within Appendix E. In total 12 species of fauna were captured.

The only conservation significant fauna species captured was the Priority 4 listed quenda (*Isoodon fusciventer*) (see Figure 7).

### 5.2.3 Camera Traps

The complete results of the camera trapping carried out are provided within Appendix E. In total, 19 fauna species were recorded.

Of most interest was the recording of the Schedule 6 listed south-western brush-tailed phascogale (*Phascogale tapoatafa wambenger*) and the Priority 4 listed quenda (*Isoodon fusciventer*) at several locations within the proposed extraction area (see Figure 7).

Feral species recorded included a number of red fox (*Vulpes vulpes*) individuals, rabbits (*Oryctolagus cuniculus*) and a cat (*Felis catus*).

### 5.2.4 Acoustic Bat Recordings

The complete results of the bat survey are provided within Appendix C and E. Eight bat species were recorded during the survey including the Priority 4 species, the western false pipistrelle (*Falsistrellus mackenziei*). The locations of the recordings are shown in Figure 7.

### 5.2.5 Call Playback

The two separate call playback surveys targeting the masked owl failed to detect the presence of this species.

### 5.2.6 Bird Surveys

A total of 36 bird species were recorded during the fauna survey. The species observed are listed within Appendix C.

A group four Carnaby's cockatoo (*Calyptorhynchus latirostris*) were recorded on one occasion flying over the proposed extraction area. No other conservation significant bird species were detected.

### 5.2.7 Active and Opportunistic Searching

A total of four reptile species were recorded during active searching the results of which are listed in Appendix E (as opportunistic observations). None of the species collected were of conservation significance.

### 5.2.8 Spotlighting/Head Torching

Five fauna species were detected during the spotlighting surveys, these being the western ringtail possum (Preston Beach Road North only), common brushtail possum, western grey kangaroos, boobook owl and the tawny frogmouth. Western ringtail possums are discussed further in the section below.

## 5.2.9 Western Ringtail Possum Assessment

The locations of possum observations made during the site surveys are shown in Figure 8.

Three western ringtail possum sightings were made during the spotlight surveys along Preston Beach Road North (two individuals on night 1 and one individual on night 2). No other evidence of the species (i.e. dreys, scats or skeletons) were recorded despite intensive searching particularly within the proposed extraction area.

The majority of the proposed extraction area (~60% - 8.4 ha) does not contain habitat suitable for western ringtail possums (i.e. the mallee, shrubland, heathland and herbland areas). The forest/woodland habitat units (~40% - 5.6ha of proposed extraction area) appear superficially to represent suitable habitat, at least in part, but the complete lack of evidence of the species suggests these areas are unsuitable or at best marginal in quality.

Western ringtail possums have recently been found to be relatively common in other sections of Yalgorup National Park (Biota 2020) and therefore it can be assumed that if the habitat within the proposed extraction area was suitable, they would be present and would have been detected.

The common brushtail possum was recorded 19 times during the survey period, seven times during the nocturnal surveys and 12 times in cage or on camera trap footage (Figure 8).

## 5.2.10 Black Cockatoo Habitat Assessment

### 5.2.10.1 Black Cockatoo Habitat Tree Assessment

Trees considered potentially suitable for black cockatoos to use as nesting habitat (subject to a suitable hollow being present and other factors) which were found within the subject site are comprised of the following species:

- Tuart – *Eucalyptus gomphocephala*;
- Limestone Marlock - *Eucalyptus decipiens*; and
- Jarrah - *Eucalyptus marginata*.

A summary of the potential black cockatoo breeding trees (using DAWE criteria i.e. any suitable tree species with a DBH  $\geq$  50cm (Commonwealth of Australia 2012)) observed within the subject site is provided in Table 4 below and their location shown in Figure 9 (proposed extraction area only).



**Table 4: Summary of Potential Cockatoo Breeding Habitat Trees (DBH  $\geq$ 50cm)**

Area	Total Number of Habitat Trees	Number of Trees with <u>No Hollows</u> Observed	Number of Trees with Hollows Considered <u>Unsuitable</u> for Nesting Black Cockatoos	Number of Trees with Hollows Considered <u>Possibly Suitable</u> for Nesting Black Cockatoos	Tree Species		
					Tuart	Limestone Marlock	Jarrah
Extraction Area	52	45	7	0	39	13	0
Access Track	9	8	1	0	9	0	0
Lake Preston Road North	26	20	5	1	23	2	1
<b>Total</b>	<b>87</b>	<b>73</b>	<b>13</b>	<b>1</b>	<b>71</b>	<b>15</b>	<b>1</b>

The assessment identified a total of 87 trees with a DBH of  $\geq$ 50cms within the subject site. Most (73, ~84%) were not observed to contain hollows of any size. Thirteen trees (~15%) contained one or more possible hollows considered by the Author not to be suitable for black cockatoos to use for nesting purposes.

One tree (within the Preston Beach Road North reserve) was observed as potentially containing a hollow that appeared possibly big enough to allow the entry of a black cockatoo into a suitably sized and orientated branch/trunk though conclusive evidence of actual use by black cockatoos (e.g. chew marks) was not seen.

It should be noted that not all of the identified habitat trees will necessarily require removal, in particular those along Preston Road North and the access track are likely to mostly be avoided.

In addition, limestone marlock is not documented in the literature as being use by black cockatoos as nesting habitat and the propensity of this tree species to develop hollows that are subsequently suitable for black cockatoos is unknown. Based on observations of the trees growth habit, form and size it would seem unlikely that trees of this species would develop hollows suitable for black cockatoos.

Additional details on each habitat tree observed can be found in Appendix F.

### 5.2.10.2 Black Cockatoo Foraging Habitat Assessment

Following is a list of the main flora species observed within the subject site during the fauna assessment that are known and documented as being used as a direct food source (i.e. seeds, flowers, bark, invertebrates) by one or more species of black cockatoo:

- Orange Wattle - *Acacia saligna* (bark, invertebrates)
- Peppermint - *Agonis flexuosa* (bark, invertebrates)
- Slender Banksia - *Banksia attenuata* (flowers, seeds, invertebrate)
- Couch Honeypot Dryandra - *Banksia dallanneyi* (flowers, seeds)
- Parrot bush - *Banksia sessilis* (flowers, seeds)
- Tuart - *Eucalyptus gomphocephala* (flowers, seeds, nectar)
- Jarrah - *Eucalyptus marginata* (seeds)
- Harsh Hakea - *Hakea prostrata* (seeds)
- Candle Hakea - *Hakea ruscifolia* (seeds)
- Grey Stinkwood - *Jacksonia furcellata* (seeds)
- Grass Tree - *Xanthorrhoea preissii* (flowers, seeds)

The distribution and abundance the various species listed varies considerably across the subject site. and therefore, the exact extent and quality is difficult to quantify. In some areas the favoured foraging species are absent or represented by only a small number of specimens. For example, the proposed extraction area, due to its history of disturbance, contains only a very small number of *banksia* and *hakea* specimens.

The grass trees present within the subject site also appear to have never produced flower spikes and therefore do not at this present time present a foraging resource. It should also be noted that some of the listed plant species (e.g. peppermint and tuart) are only foraged upon on infrequent occasions and therefore cannot be regarded as quality foraging habitat.

No foraging debris left by black cockatoos was observed within the subject site during the survey period.

Observation made during the field survey suggest that overall, the proposed extraction area (~14ha) and access track represent low value black cockatoo foraging habitat.

### 5.2.10.3 Black Cockatoo Roosting Habitat Assessment

No evidence of black cockatoo roosting within trees located within the subject site was observed during the field reconnaissance survey.

A review of the 2019 Great Cocky Count database shows no documented roost sites within the survey area. There are however two documented roost sites within close proximity of survey area. One site (ref: WARPRER001) is located on private property 700m south of Lot 1002. This roost site was being used by 158 “white-tailed black cockatoos” during the 2016 Great Cocky Count (April 2019) (Peck *et al.* 2019) but no use has been recorded since. A second documented roost site is located just east of the Lake Preston Road North and Lake Preston Road intersection (ref: WARPRER002) has no recorded use since 2010 (Peck *et al.* 2019).

## 5.3 FAUNA INVENTORY – SUMMARY

Table 5 summarises the number of fauna species potentially occurring within or utilising at times the subject site, based on results from the literature review and observations made during the field assessment. A complete list of fauna possibly inhabiting or frequenting the subject site is located in Appendix C.

**Table 5: Summary of Potential Vertebrate Fauna Species (as listed in Appendix C)**

Group	Total number of Potential species	Potential number of <u>Specially Protected</u> species	Potential number of <u>Migratory</u> species	Potential number of <u>Priority</u> species	Number of species <u>Observed:</u> Field Survey 2020
Amphibians	2	0	0	0	0
Reptiles	37	0	0	2	9
Birds	86 <sup>3</sup>	4	0	1	36 <sup>1</sup>
Non-Volant Mammals	14 <sup>6</sup>	2	0	2	9 <sup>4</sup>
Volant Mammals (Bats)	9	0	0	1	8
<b>Total</b>	<b>148<sup>9</sup></b>	<b>6</b>	<b>0</b>	<b>6</b>	<b>62<sup>5</sup></b>

Superscript = number of introduced species included in total.

As previously indicated, not all species listed as potentially occurring within the wider area in existing databases and publications (i.e. *EPBC Act* Threatened Fauna and

Migratory species lists, DBCA's NatureMap database, various reports and publications) are shown in the expected listing in Appendix C. Some species have been excluded from this list based largely on the lack of suitable habitat at the subject site and in the general area or known local extinction even if suitable habitat is present.

Despite the omission of some species it should be noted that the list provided is still very likely an over estimation of the fauna species utilising the site (either on a regular or infrequent basis) as a result of the precautionary approach adopted for the assessment. At any one time only a subset of the listed potential species are likely to be present within the bounds of the subject site.

The following conservation significant fauna species were detected within the subject site during the course of the fauna survey.

- Carnaby's Cockatoo *Calyptorhynchus latirostris* (Endangered)
- Quenda *Isoodon fusciventer* (Priority 4)
- South-western Brush-tailed Phascogale *Phascogale tapoatafa wambenger* (Conservation Dependent)
- Western Ringtail Possum *Pseudocheirus occidentalis* (Critically Endangered)
- Western False Pipistrelle *Falsistrellus mackenziei* (Priority 4)

The following conservation significant fauna species were not detected within the subject site during the course of the fauna survey.

- Coastal Plains Skink *Ctenotus ora* (Priority 3)
- Lined Skink *Lerista lineata* – (Priority 3)
- Peregrine Falcon *Falco peregrinus* (other specially protected fauna)
- Masked Owl *Tyto n. novaehollandiae* (Priority 3)
- Sharp-tailed Sandpiper *Calidris acuminata* (Migratory)
- Baudin's Cockatoo *Calyptorhynchus baudinii* (Endangered)
- Forest Red-tailed black cockatoo *Calyptorhynchus banksii naso* (Vulnerable)
- Rainbow Bee-eater *Merops ornatus* (not listed)
- Western Brush Wallaby (*Notamacropus irma*) (Priority 4)

These species are discussed in further detail in the following section.

## 6. DISCUSSION – FAUNA SPECIES OF CONSERVATION SIGNIFICANCE

### 6.1 COASTAL PLAINS SKINK *CTENOTUS ORA* (PRIORITY 3)

This species was not detected during the fauna survey.

*Ctenotus ora* is a relatively newly described species of medium sized skink with a restricted range, mainly confined to the Swan Coastal Plain. The species prefers sandy substrates with low vegetation (including heath) in open *Eucalyptus/Corymbia* woodland over *Banksia* (Kay & Keogh 2012). Individuals have been found sheltering under *Banksia* logs on white sand, and trapped in eucalypt woodland with *Banksia* or peppermint mid-storey, or heath (Bamford *et al.* 2010) and open eucalypt woodland over *Banksia* and low vegetation on sandy coastal plain and coastal dunes (Wilson and Swan 2017).

As indicated this species was not recorded during the fauna survey. This can in part be attributed to the degraded nature of much of the subject site.

Nature Map (2020) shows 32 records of *Ctenotus ora*, only one of which is located within the bounds of Yalgorup National Park. The record, from 1980, plots within Lot 1002 however this would appear to be erroneous as at that location the area is a cleared paddock, unsuitable habitat for the species. It is assumed to have actually been collected nearby within bushland of the Yalgorup National Park.

Four *Ctenotus ora* specimens were collected during a fauna survey along the Dampier Bunbury Natural Gas Pipeline (DBNGP) route (Harewood 2014) to the south east of the subject site. The species was also recorded at Kemerton in 2010 (Harewood 2010). None of the other main surveys referenced in the wider area have recorded the species except for Bamford (BCE 2010) at Point Grey, which is about 20km north east of the subject site.

It is difficult to predict the likelihood of this species occurring within the subject site, however the extent of suitable habitat is probably limited to the small areas of heathland along the eastern edge of the proposed extraction area and heath and *banksia* woodland areas bordering Lake Clifton Road North. The fact that it has not been collected within the Yalgorup National Park (or nearby) recently despite several detailed surveys over many years (e.g. ATA 1998, BCE 2003, Western Wildlife 2007 and ENV 2009) suggests it is at best, very uncommon.

### 6.2 LINED SKINK *LERISTA LINEATA* (PRIORITY 3)

This species was not detected during the fauna survey.

This small species of skink inhabits white sands (Storr *et al.* 1999) under areas of shrubs and heath where it inhabits loose soil and leaf litter particularly in association with banksias (Bush *et al.* 2007)

Nature Map (2020) shows 431 records of *Lerista lineata*, with several being found within the bounds of Yalgorup National Park. The species appears to be most common along the near coastal strip where it has been recorded in most surveys carried out in the area between Mandurah, Binningup and Kemerton (e.g. Western Wildlife 2008, 360 Environmental 2008, Bamford 2008, ENV 2009 and Harewood 2010).

As indicated this species was not recorded during the fauna survey. This can in part be attributed to the degraded nature of much of the subject site.

It is difficult to predict the likelihood of this species occurring within the subject site, however the extent of suitable habitat is probably limited to the small areas of heathland along the eastern edge of the proposed extraction area and heath and *banksia* woodland areas bordering Lake Clifton Road North. While it has been collected during surveys in the area, it appears to be uncommon as only a small number of specimens were recorded in each case despite intensive trapping being employed.

### **6.3 PEREGRINE FALCON *FALCO PEREGRINUS* (OTHER SPECIALLY PROTECTED FAUNA)**

This species was not detected during the fauna survey.

Individuals of this species are uncommon/rare but wide ranging across Australia. The species occupies diverse habitats ranging from rainforest to arid shrublands, from coastal heath to alpine (Morcombe 2004). Mainly frequents cliffs along coasts, rivers and ranges and about wooded watercourses and lakes (Johnstone and Storr 1998). The species utilises the ledges, cliff faces and large hollows/broken spouts of trees for nesting. It will also occasionally use the abandoned nests of other birds of prey.

There are over 1,500 records of the peregrine falcon within NatureMap (2020) a small number of which are from within Yalgorup National Park.

This species may very occasionally fly over/forage with the subject site but would not be specifically attracted to the area. It is unlikely to breed within the subject site.

### **6.4 MASKED OWL *TYTO N. NOVAEHOLLANDIAE* (PRIORITY 3)**

This species was not detected during the fauna survey.

The masked owl is locally common in south west but generally uncommon (Johnstone and Storr 1998). They roost and nest in heavy forest and hunt over open woodlands and farmlands (Morcombe 2004). The species appears to breed in the forested deep south west with some autumn–winter wanderings northwards (Johnstone and Storr 1998).

There are 75 records of the masked owl within NatureMap (2020) none of which are from within Yalgorup National Park. The species has not been recorded during any previous fauna surveys in the general area.

It is difficult to predict the likelihood of this species occurring within the subject site, however given the lack of any previous records from Yalgorup it can be assumed to only occur rarely presumably due to habitat being generally unsuitable.

#### **6.5 SHARP-TAILED SANDPIPER *CALIDRIS ACUMINATA* (MIGRATORY)**

This species was not detected during the fauna survey.

The sharp-tailed sandpiper is a common summer visitor to Australia. Generally very numerous in fresh to saline inland wetlands but also forages in nearby damp grasslands and often utilises tidal flats (Menkhorst *et al.* 2017).

As previously mentioned this species appears to have been added to the target species list by the EPA/DWER because Natural Area reported that individuals of the species “have been recorded within the proposed clearing area” (Natural Area 2019). The actual source of this record is not provided but given the subject site contains no suitable habitat for the species it would not occur under normal circumstance it is concluded that the statement is erroneous/based on incorrect interpretation of data.

As indicated this species would not be present within any section of the subject site under normal circumstance due to a complete absence of suitable habitat.

#### **6.6 BAUDIN’S COCKATOO *CALYPTORHYNCHUS BAUDINII* (ENDANGERED)**

This species was not detected during the fauna survey.

Baudin’s cockatoo is confined to the south-west of Western Australia, north to Gidgegannup, east to Mt Helena, Wandering, Quindanning, Kojonup, Frankland and King River and west to the eastern strip of the Swan Coastal Plain including West Midland, Byford, North Dandalup, Yarloop, Wokalup and Bunbury (Johnstone and Storr 1998). On the southern Swan Coastal Plain this cockatoo is in some areas resident but mainly a migrant moving from the deep south-west to the central and northern Darling Range.

Between March and September most flocks move north and are concentrated in the northern parts of the Darling Range. During this period birds forage well out onto the southern Swan Coastal Plain to areas such as Harvey, Myalup, Bunbury, Capel, Dunsborough and Meelup. While generally more common in the Darling Range this species can also be common on parts of the southern Swan Coastal Plain especially in mid-August – September when flocks begin to return to their breeding quarters (Johnstone 2008).

The survey did not identify any confirmed/existing breeding habitat trees within the subject site (i.e. tree with a large hollow confirmed as being in use/used for nesting purposes). Foraging habitat also appears to be generally low quality within the proposed extraction area. Some better quality foraging habitat (i.e. *banksia* woodland) occurs along Lake Preston Road North. No roosting activity was observed within the subject site.

The results of the literature review and field survey suggest that this species may occur in the general area on occasions but would not be specifically attracted the subject site itself as it for the most part represents low quality black cockatoo habitat.

## **6.7 CARNABY'S COCKATOO *CALYPTORHYNCHUS LATIROSTRIS* (ENDANGERED)**

This species was detected during the fauna survey with about four individuals observed flying overhead during the April 2020 survey period. No other evidence of the species utilising the subject site was recorded.

Carnaby's cockatoo is endemic to the south-west of Western Australia, north to the lower Murchison River and east to Nabawa, Wilroy, Waddi Forest, Nugadong, Manmanning, Durokoppin, Noogar (Moorine Rock), Lake Cronin, Ravensthorpe Range, head of Oldfield River, 20 km ESE of Coondingup and Cape Arid; also casual on Rottnest Island (Johnstone and Storr 1998).

This species tends to move from inland areas in wheatbelt west after breeding into higher rainfall zones especially on the Swan Coastal Plain. Judging from records in the Storr-Johnstone Bird Data Bank, this species is currently expanding its breeding range westward and south into the Jarrah – Marri forest of the Darling Scarp and into the Tuart forests of the Swan Coastal Plain including the region between Mandurah and Bunbury. There are small resident populations on the southern Swan Coastal Plain near Mandurah, Lake Clifton and near Bunbury. At each of these sites the birds forage in remnant vegetation and adjacent pine plantations (Johnstone 2008).

The survey did not identify any confirmed/existing breeding habitat trees within the subject site (i.e. tree with a large hollow confirmed as being in use/used for nesting purposes). Foraging habitat also appears to be generally low quality within the proposed extraction area. Some better quality foraging habitat (i.e. *banksia* woodland) occurs along Lake Preston Road North. No roosting activity was observed within the subject site.

The results of the literature review and field survey suggest that this species may occur in the general area on occasions but would not be specifically attracted the subject site as it for the most part represents low quality black cockatoo habitat.



## **6.8 FOREST RED-TAILED BLACK COCKATOO *CALYPTORHYNCHUS BANKSII* NASO (VULNERABLE)**

This species was not detected during the fauna survey.

This species is found in the humid and subhumid south west, mainly hilly interior, north to Gingin and east to Mt Helena, Christmas Tree Well, North Bannister, Mt Saddleback, Rock Gully and the upper King River (Johnstone and Storr 1998).

NatureMap (2020) shows numerous records of this species however none are west of Lake Clifton. It is however likely that the species occurs at least occasionally within or near the subject site but maybe favouring areas further east where marri (the species preferred foraging source) is more dominant. The Author has observed FRTBC feeding on tuart fruits but this appears to be an uncommon occurrence.

The survey did not identify any confirmed/existing breeding habitat trees within the subject site (i.e. tree with a large hollow confirmed as being in use/used for nesting purposes). Foraging habitat also appears to be generally low quality within the proposed extraction area and other sections of the subject site. No roosting activity was observed within the subject site.

The results of the literature review and field survey suggest that this species may occur in the general area on occasions but would not be specifically attracted the subject site as it for the most part represents low quality black cockatoo habitat.

## **6.9 RAINBOW BEE-EATER *MEROPS ORNATUS* (NOT LISTED)**

This species was not detected during the fauna survey.

The rainbow bee-eater is a common, widespread summer migrant to southern Australia but in the north they are resident (Morcombe 2004). In recent years this species has been removed from migratory bird lists at a federal and state level and is therefore no longer a “fauna species of conservation significance” under these criteria.

The species favours open country, of woodlands, open forest, semi arid scrub, grasslands, clearings in heavier forest, farmlands). It breeds underground in burrows where areas of suitable soft soil, firm enough to support tunnel building exist. (Morcombe 2004)

This species is likely to occur within the subject site during summer months but was not detected during the recent survey which was carried out in autumn. The majority of the proposed extraction area is unsuitable breeding habitat for this species to breed in due to shallow soil and outcropping limestone being dominant over much of the area.

#### **6.10 QUENDA ISOODON FUSCIVENTER (PRIORITY 4)**

This species was detected several times at several locations across the proposed extraction area during the fauna survey.

The species is widely distributed in the south west from near Cervantes north of Perth to east of Esperance and inland as far as Hyden, though it has a patchy distribution through the jarrah and karri forest and on the Swan Coastal Plain.

The species is most often recorded in areas of dense scrubby, often swampy, vegetation with dense cover up to one metre high. Quenda often feed in adjacent forest and woodland that is burnt on a regular basis and in areas of pasture and cropland lying close to dense cover. Populations inhabiting jarrah and wandoo forests are usually associated with watercourses. Quendas can thrive in more open habitat subject to exotic predator control.

This species is likely to occur anywhere within the subject site where dense ground cover persists.

#### **6.11 WESTERN RINGTAIL POSSUM *PSEUDOCHEIRUS OCCIDENTALIS* (CRITICALLY ENDANGERED)**

This species was detected in the subject site but only along the southern section of Preston Beach Road North. It was not detected within the proposed extraction area or access road.

The WRP once occurred throughout much of south-western Western Australia in a patchy distribution (Shortridge 1909; Maxwell *et al.* 1996). Early WA Museum records indicate its presence from north of Perth to around Cranbrook and the Pallinup River in the south-east (Burbidge and de Tores 1998; de Tores *et al.* 2005a). It was regularly recorded in Tutanning Nature Reserve near Pingelly in the 1970s (de Tores *et al.* 2005) but is now mostly extinct from the northern and inland majority of its range and the distribution has now contracted to the wetter parts of the south-west and is believed to be about 80-90% of its former range (Map 2) (Jones *et al.* 1994; Jones 2004; de Tores *et al.* 2005; Woinarski *et al.* 2014).

Vegetation communities critical to the species include long unburnt mature remnants of peppermint (*Agonis flexuosa*) woodlands with high canopy continuity and high foliage nutrients (high in nitrogen and low toxin levels); jarrah (*Eucalyptus marginata*)/marri (*Corymbia calophylla*) forests and woodlands with limited anthropogenic disturbance (unlogged or lightly logged, and a low intensity and low frequency fire history), that are intensively fox-baited and have low indices of fragmentation; coastal heath, jarrah/marri woodland and forest, peppermint woodlands, myrtaceous heaths and shrublands, Bullich (*Eucalyptus megacarpa*) dominated riparian zones and karri forest.

While not detected within the proposed extraction area or access road, western ringtail possums have recently been found to be relatively common in other sections of Yalgorup National Park (Biota 2020).

The apparent absence of the species from the proposed extraction area and access road despite intensive survey work suggests habitat in these areas is unsuitable or at best marginal for the species.

#### **6.12 SOUTH-WESTERN BRUSH-TAILED PHASCOGALE *PHASCOGALE TAPOATAFA WAMBENGER* (CONSERVATION DEPENDENT)**

This species was detected several times at several locations across the proposed extraction area during the fauna survey.

The present distribution of the south-western brush-tailed phascogale is believed to have been reduced to approximately 50 per cent of its former range. Now known from Perth and south to Albany, west of Albany Highway. Occurs at low densities in the northern jarrah forest. Highest densities occur in the Perup/Kingston area, Collie River valley, and near Margaret River and Busselton (DBCA information pamphlet). Records are less common from wetter forests. Can also persist in floristically degraded areas such as relatively dense and continuous, but parkland cleared woodland in farmland. Previous local records from Kemerton, Binningup, Dardanup and College Grove (G. Harewood pers. obs.).

This subspecies has been observed in dry sclerophyll forests and open woodlands that contain hollow-bearing trees but a sparse ground cover. A nocturnal carnivore relying on tree hollows as nest sites. The home range for a female brush-tailed phascogale is estimated at between 20 and 70 ha, whilst that for males is given as twice that of females. In addition, they tend to utilise a large number (approximately 20) of different nest sites throughout their range (Van Dyk 2014).

The survey results suggest this species is likely to occur anywhere within the subject site where woodland habitats (with some hollow bearing trees) occur.

#### **6.13 WESTERN BRUSH WALLABY *NOTAMACROPUS IRMA* (PRIORITY 4)**

This species was not detected during the fauna survey.

The western brush wallaby is distributed across the south-west of Western Australia from north of Kalbarri to Cape Arid. The species optimum habitat is open forest or woodland, particularly favouring open, seasonally wet flats with low grasses and open scrubby thickets. It is also found in some areas of mallee and heathland, and is uncommon in karri forest (DBCA information pamphlet).

There are no records of the western brush wallaby from the Yalgorup National Park. It has however been recorded nearby by during the DBNGP fauna survey along Riverdale

Road (Harewood 2014). It has also been recorded at Kemerton (Harewood 2009, 2010). Hyder and Dell (2009) also report one sighting south of Myalup.

This species may persist in Yalgorup National Park despite a lack of records. The proposed extraction area is however largely unsuitable for the species and therefore western brush wallabies can be expected to only occur as very occasional transients.

#### **6.14 WESTERN FALSE PIPISTRELLE *FALSISTRELLUS MACKENZIEI* (PRIORITY 4)**

This species was detected several times at several locations across the proposed extraction area during the fauna survey.

Historically, the western false pipistrelle has been found in the Swan Coastal Plain and the jarrah forest as far north as the Great Eastern Highway. At 20 grams it is the second largest of the insectivorous bats that inhabit the South West forest and adjacent coastal plains. Due to its size, this bat requires a particularly productive habitat to persist. Its preferred habitat is hardwood forest and the open woodlands that adjoin it (Start and McKenzie 2008). It commonly roosts in tree hollows and branches (Bullen 2009).

In recent years it appears to be withdrawing southward with the progressive drying of the Darling Range (Bullen 2008).

This species has previously been recorded between Dawesville and Binningup at several localities (Bullen 2009) including some in or near Yalgorup National Park. It has also been recorded at Kemerton (Harewood 2010) and at two other nearby locations (Brunswick River and Kemerton Silica Sands) (Harewood 2014).

## 7. CONCLUSION

The targeted fauna survey within the subject was primarily undertaken to determine the presence/absence of a number of fauna species of conservation significance previously recorded in the general area.

The following conservation significant fauna species were detected within the subject site during the course of the fauna survey.

- Carnaby's Cockatoo *Catyptorhynchus latirostris* (Endangered)  
A small group of individuals were observed flying over the proposed extraction area on one occasion.
- Quenda *Isoodon fusciventer* (Priority 4)  
Several individuals recorded within the proposed extraction area.
- South-western Brush-tailed Phascogale *Phascogale tapoatafa wambenger* (Conservation Dependent)  
Several individuals recorded within the proposed extraction area.
- Western Ringtail Possum *Pseudocheirus occidentalis* (Critically Endangered)  
Recorded along the southern section of Preston Beach Road North. Appears to be absent from the proposed extraction area.
- Western False Pipistrelle *Falsistrellus mackenziei* (Priority 4)  
Recorded several times within the proposed extraction area.

Several other of the listed conservation significant fauna species may occur but were not detected. Habitat for most of these species within the proposed extraction area appears to be limited in extent and/or the species are generally uncommon so the probability of detection would have been low. Some species would not occur in the subject site (e.g. sharp-tailed sandpiper) due to a complete lack of suitable habitat.

Ongoing planning will need to take into account the presence of the identified species of conservation significance and fauna in general so that any impacts can be minimised or offset. It is recommended that when project planning and approvals has progressed that fauna management plans and protocols aimed at minimising direct and indirect impact on fauna should be formulated for implementation during site development and operation.

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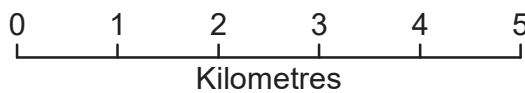
# FIGURES



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

**Legend**

- Subject Site
- Yalgorup National Park



Drawn: G. Harewood  
Date: July 2020  
Scale: 1:75,000

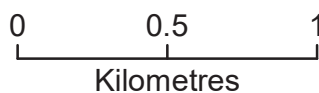
**Lot 1002  
Preston Beach Road North  
Subject Site  
&  
Surrounds**



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

**Legend**

- Subject Site
- Yalgorup National Park



Drawn: G. Harewood  
Date: July 2020  
Scale: 1:25,250

Projection/Coordinate System: UTM/MGA Zone 50

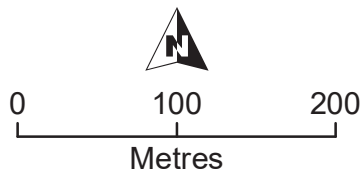
**Lot 1002**  
**Preston Beach Road North**  
**Aerial Photograph**  
**Subject Site**

Figure: 2



**Legend**

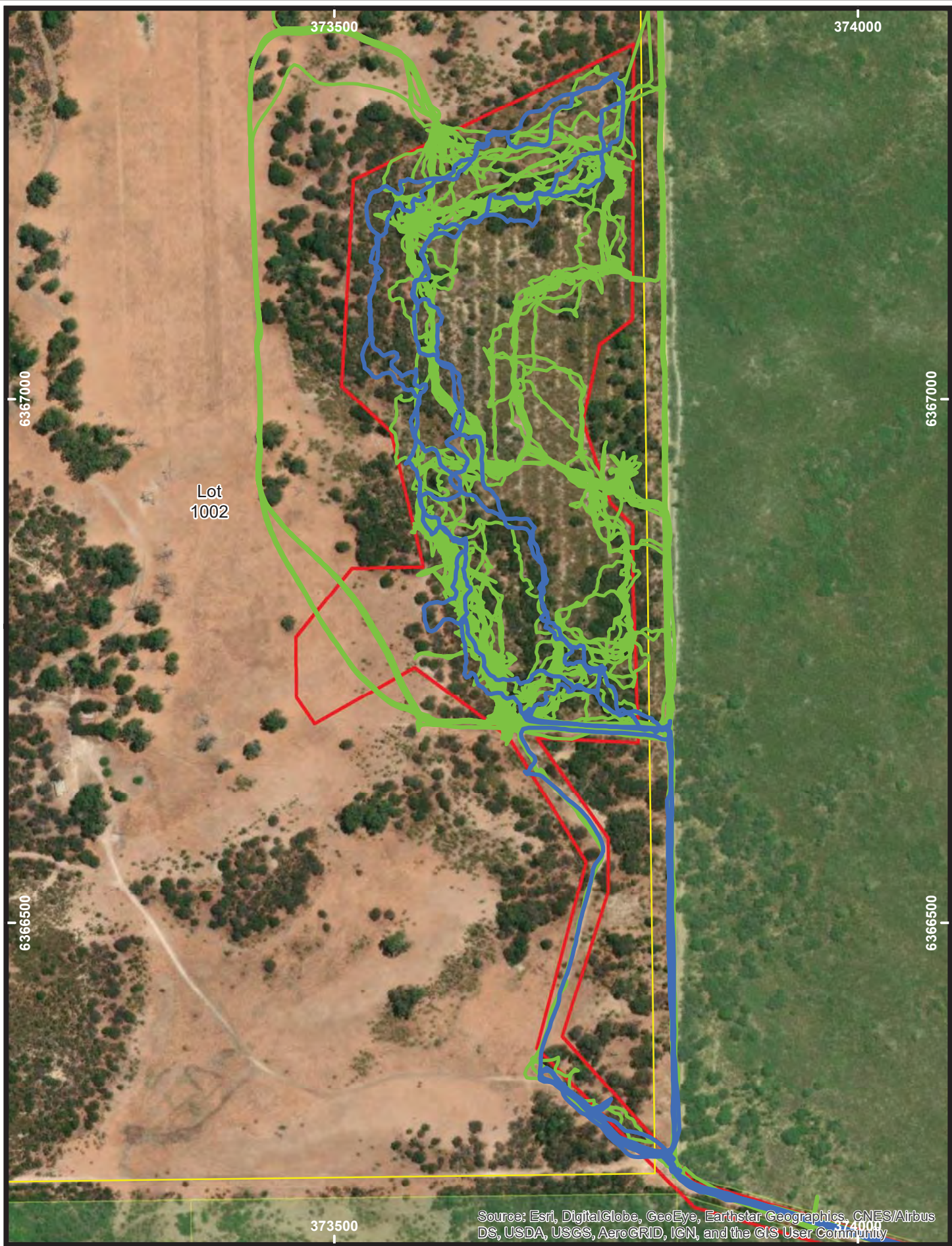
- Lot 1002 Boundary
- Subject Site
- Yalgorup National Park



Drawn: G. Harewood  
 Date: July 2020  
 Scale: 1:4,750






Projection/Coordinate System: UTM/MGA Zone 50 | Figure: 3

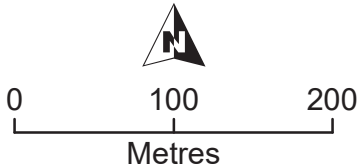
**Lot 1002**  
**Preston Beach Road North**  
**Aerial Photograph**  
**Proposed Extraction**  
**Area**



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

**Legend**

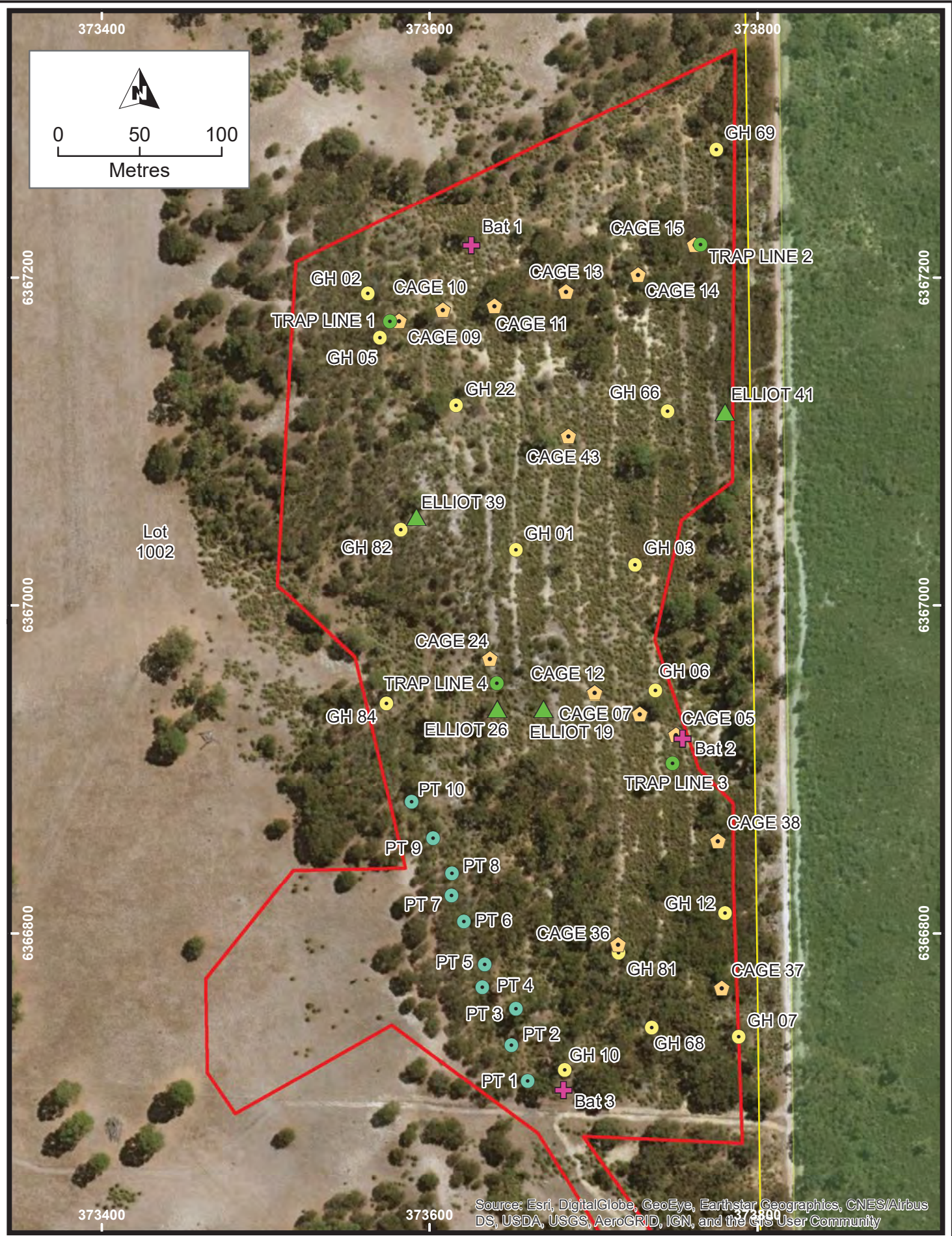
-  Lot 1002 Boundary
-  Subject Site
-  Yalgorup National Park
-  Nocturnal Transects
-  Daytime Transects



Drawn: G. Harewood  
Date: Nov 2021  
Scale: 1:4,750

**Lot 1002**  
**Preston Beach Road North**  
**Survey Transects**  
**Proposed Extraction Area**





Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

**Legend**

- Lot 1002 Boundary
- Subject Site
- Yalgorup National Park
- + Bat Recording
- Camera Trap
- ⬠ Cage Trap
- ▲ Elliot (B) Trap
- Pit/Funnel Traps/Drift Fence
- Funnel Traps/Drift Fence



Drawn: G. Harewood  
Date: July 2020  
Scale: 1:3,000  
Projection/Coordinate System: UTM/MGA Zone 50

**Lot 1002  
Preston Beach Road North  
Trap & Recording  
Locations  
Proposed Extraction  
Area**

## Fauna Habitats Proposed Extraction Area

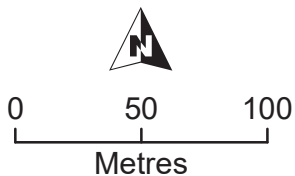
- Tuart and Redheart Moit Woodland
- Peppermint Low Open Forest
- Closed Heath
- Limestone Mallee
- Cleared/Onion Weed Herbland
- Grasstree Shrubland



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

### Legend

- Lot 1002 Boundary
- Subject Site
- Yalgorup National Park

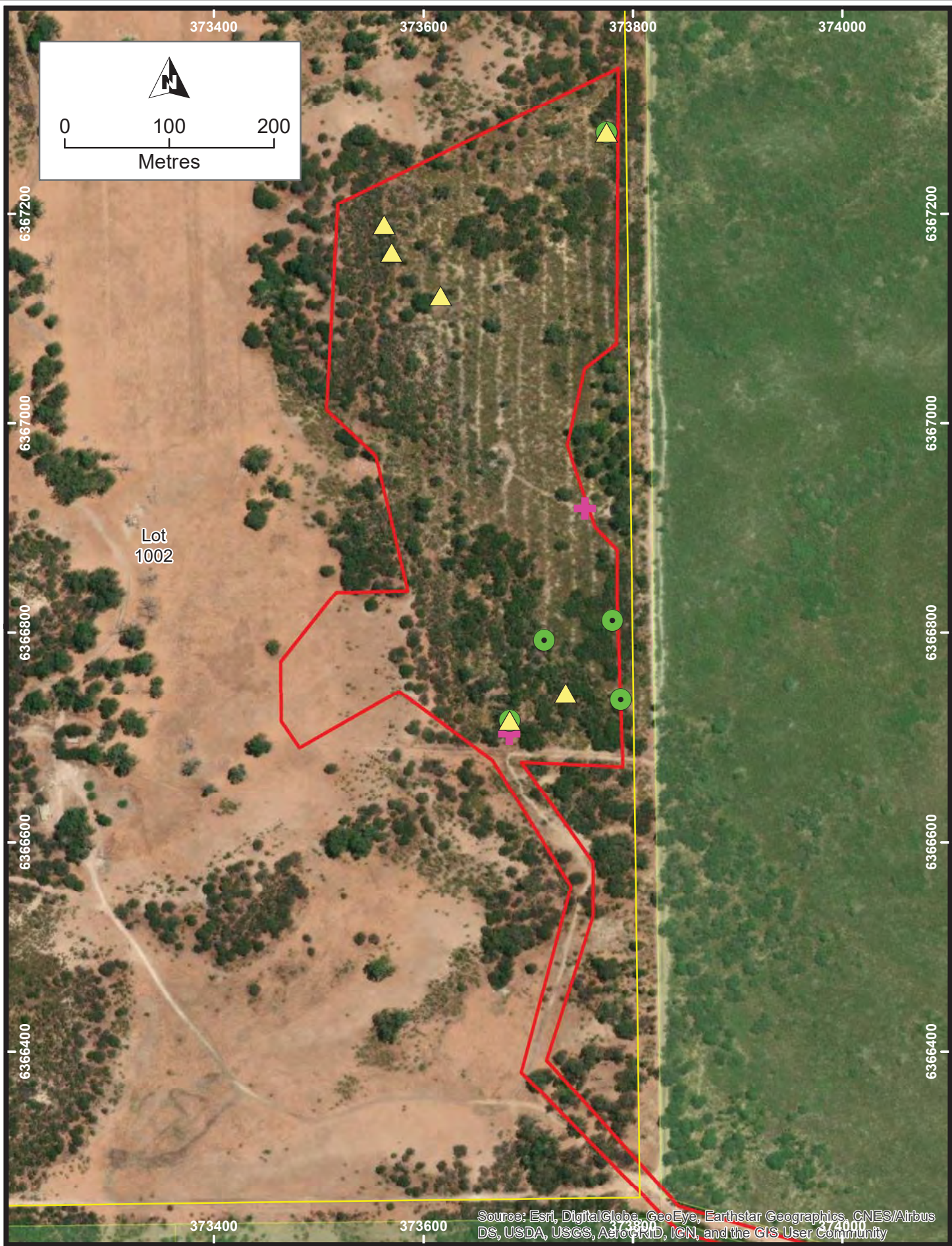


Drawn: G. Harewood  
Date: July 2020  
Scale: 1:3,000

Projection/Coordinate System: UTM/MGA Zone 50

Lot 1002  
Preston Beach Road North  
**Fauna Habitats  
Proposed Extraction  
Area**

Figure: 6



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

**Legend**

- Lot 1002 Boundary
- Subject Site
- Yalgorup National Park
- South-western Brush-tailed Phascogale (S6)
- Quenda (P4)
- Western False Pipistrelle (P4)



Drawn: G. Harewood  
Date: July 2020  
Scale: 1:4,750

**Lot 1002  
Preston Beach Road North  
Significant Fauna  
Records  
Proposed Extraction  
Area**



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

**Legend**

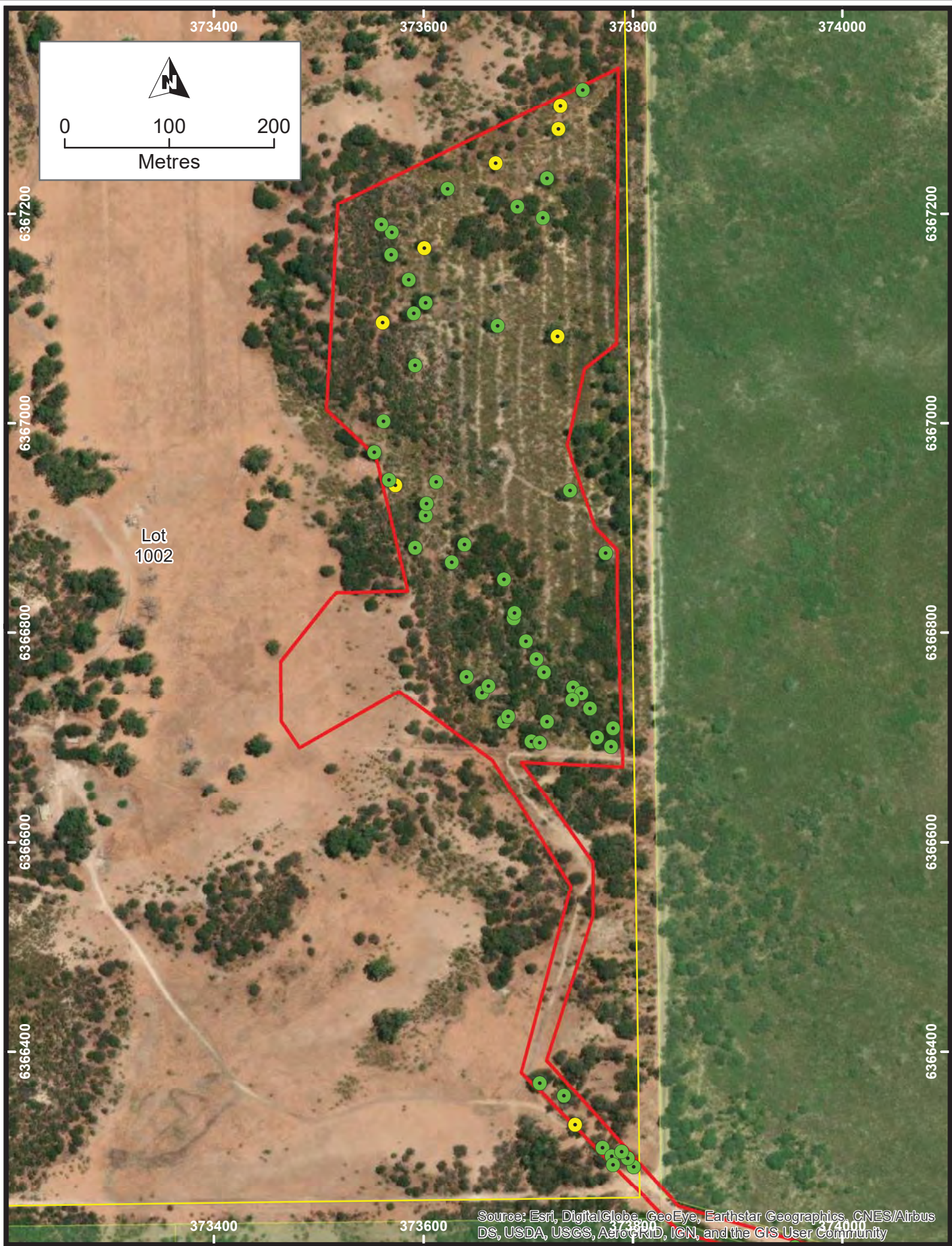
- Lot 1002 Boundary
- Subject Site
- Yalgorup National Park

- ▲ Common Brushtail Possum (Cage)
- ▲ Common Brushtail Possum (Camera)
- ▲ Common Brushtail Possum (Spotlighting)
- Western Ringtail Possum (Spotlighting)






Drawn: G. Harewood  
Date: July 2020  
Scale: 1:25,000



**Lot 1002  
Preston Beach Road North  
Possum  
Observations  
Subject Site**



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

**Legend**

-  Lot 1002 Boundary
-  Subject Site
-  Yalgorup National Park

-  Habitat Tree - No hollows observed
-  Habitat Tree - One or more hollows unsuitable for black cockatoos



Drawn: G. Harewood  
Date: July 2020  
Scale: 1:4,750

Projection/Coordinate System: UTM/MGA Zone 50

**Lot 1002**  
**Preston Beach Road North**  
**Habitat Trees**  
**Proposed Extraction**  
**Area**

Figure: 9

# **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:

Category	Code	Description
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 2018 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 in the immediate future.
Schedule 2 (S2) Endangered species	EN	Threatened species considered to be facing a very high risk of extinction in the wild in the near future.
Schedule 3 (S3) Vulnerable species	VU	Threatened species considered to be facing a high risk of extinction in the wild in the medium-term future.
Schedule 4 (S4) Presumed extinct species	EX	Species which have been adequately searched for and there is no reasonable doubt that the last member of the species has died.
Schedule 5 (S5) Migratory birds protected under an international agreement	MI	Fauna that periodically or occasionally visit Australia or an external Territory or the exclusive economic zone; or 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	(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.  (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.  (c) Species that have been removed from the list of threatened species during the past five years for reasons other than taxonomy.

\*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.

<b>Category</b>	<b>Code</b>	<b>Description</b>
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**

## **FAUNA TRAP AND RECORDING SITES – COORDINATES**

### Trap Site Coordinates

Datum Australian Geocentric 1994 (GDA94)

Trap Site	Trap Type	Zone	MGA		Opened	Closed	Nights
			mE	mN			
PT 1	Pit trap, drift fence, funnel trap (2), Cage	50H	373659	6366709	06-04-2020	17-04-2020	11
PT 10	Pit trap, drift fence, funnel trap (2), Elliot B	50H	373588	6366880	06-04-2020	17-04-2020	11
PT 2	Pit trap, drift fence, funnel trap (2), Cage	50H	373649	6366731	06-04-2020	17-04-2020	11
PT 3	Pit trap, drift fence, funnel trap (2), Elliot B	50H	373652	6366753	06-04-2020	17-04-2020	11
PT 4	Pit trap, drift fence, funnel trap (2), Cage	50H	373632	6366766	06-04-2020	17-04-2020	11
PT 5	Pit trap, drift fence, funnel trap (2), Elliot B	50H	373633	6366781	06-04-2020	17-04-2020	11
PT 6	Pit trap, drift fence, funnel trap (2), Cage	50H	373621	6366807	06-04-2020	17-04-2020	11
PT 7	Pit trap, drift fence, funnel trap (2), Elliot B	50H	373613	6366823	06-04-2020	17-04-2020	11
PT 8	Pit trap, drift fence, funnel trap (2), Cage	50H	373613	6366836	06-04-2020	17-04-2020	11
PT 9	Pit trap, drift fence, funnel trap (2), Elliot B	50H	373602	6366858	06-04-2020	17-04-2020	11
TRAP LINE 1	30m drift fence with 10 funnel traps	50H	373575	6367173	07-04-2020	17-04-2020	10
TRAP LINE 2	30m drift fence with 10 funnel traps	50H	373765	6367220	07-04-2020	17-04-2020	10
TRAP LINE 3	30m drift fence with 10 funnel traps	50H	373748	6366903	08-04-2020	17-04-2020	9
TRAP LINE 4	30m drift fence with 10 funnel traps	50H	373641	6366952	08-04-2020	17-04-2020	9
CAGE 05	Cage Trap	50H	373750	6366921	08-04-2020	17-04-2020	9
CAGE 07	Cage Trap	50H	373728	6366933	08-04-2020	17-04-2020	9
CAGE 09	Cage Trap	50H	373581	6367173	07-04-2020	17-04-2020	10
CAGE 10	Cage Trap	50H	373608	6367180	07-04-2020	17-04-2020	10
CAGE 11	Cage Trap	50H	373639	6367183	07-04-2020	17-04-2020	10
CAGE 12	Cage Trap	50H	373700	6366946	08-04-2020	17-04-2020	9
CAGE 13	Cage Trap	50H	373683	6367191	07-04-2020	17-04-2020	10
CAGE 14	Cage Trap	50H	373727	6367201	07-04-2020	17-04-2020	10
CAGE 15	Cage Trap	50H	373761	6367220	07-04-2020	17-04-2020	10
CAGE 24	Cage Trap	50H	373636	6366967	08-04-2020	17-04-2020	9
CAGE 36	Cage Trap	50H	373714	6366793	09-04-2020	17-04-2020	8
CAGE 37	Cage Trap	50H	373778	6366766	09-04-2020	17-04-2020	8
CAGE 38	Cage Trap	50H	373775	6366856	09-04-2020	17-04-2020	8
CAGE 43	Cage Trap	50H	373684	6367103	09-04-2020	17-04-2020	8
ELLIOT 19	Elliot B	50H	373669	6366937	08-04-2020	17-04-2020	9
ELLIOT 26	Elliot B	50H	373641	6366936	08-04-2020	17-04-2020	9
ELLIOT 39	Elliot B	50H	373591	6367054	09-04-2020	17-04-2020	9
ELLIOT 41	Elliot B	50H	373780	6367118	09-04-2020	17-04-2020	8
<b>Total</b>							<b>311</b>

### Bat Recording Sites

Datum Australian Geocentric 1994 (GDA94)

Recording Site	Zone	MGA		Description	Commenced	Ended	Recording Minutes
		mE	mN				
BAT 1	50H	373625	6367219	Open woodland over shrubland	07-04-2020	08-04-2020	750
BAT 2	50H	373754	6366918	Shrubland adjacent to woodland	08-04-2020	09-04-2020	750
BAT 3	50H	373681	6366704	Woodland over shrubland	09-04-2020	10-04-2020	750
Total							2250

### Motion Sensing Camera Recording Sites

Datum Australian Geocentric 1994 (GDA94)

Recording Site	Zone	MGA		Description	Commenced	Ended	Recording Days
		mE	mN				
GH 01	50H	373652	6367033	Shrubland	08-04-2020	23-05-2020	45
GH 02	50H	373562	6367190	Low woodland	07-04-2020	23-05-2020	46
GH 03	50H	373725	6367024	Shrubland	08-04-2020	23-05-2020	45
GH 05	50H	373569	6367163	Low woodland	07-04-2020	23-05-2020	46
GH 06	50H	373737	6366948	Shrubland	08-04-2020	23-05-2020	45
GH 07	50H	373788	6366736	Woodland over shrubland	07-04-2020	23-05-2020	46
GH 10	50H	373682	6366716	Woodland over shrubland	07-04-2020	23-05-2020	46
GH 12	50H	373780	6366812	Low open forest	07-04-2020	23-05-2020	46
GH 22	50H	373616	6367121	Shrubland	07-04-2020	23-05-2020	46
GH 66	50H	373745	6367118	Shrubland	09-04-2020	27-04-2020	18
GH 68	50H	373735	6366742	Woodland over shrubland	07-04-2020	23-05-2020	46
GH 69	50H	373774	6367278	Low open forest	09-04-2020	23-05-2020	44
GH 81	50H	373715	6366788	Woodland over shrubland	09-04-2020	25-04-2020	16
GH 82	50H	373582	6367046	Low woodland	09-04-2020	16-04-2020	7
GH 84	50H	373573	6366940	Woodland over shrubland	09-04-2020	25-04-2020	16
Total							558

# **APPENDIX C**

## **OBSERVED AND POTENTIAL VERTEBRATE FAUNA LISTING**

# Observed and Potential Vertebrate Fauna Listing

Compiled by Greg Harewood - June 2020

Recorded (Captured/Recorded/Sighted/Heard/Signs) = X

Approximate centroid = 32.827913° and 115.650313°

## Lot 1002 Lake Preston Road North and Lake Preston Road North

A = Harewood, G. (2020). Targeted Fauna Survey. Lot 1002 Lake Preston Road North and Lake Preston Road North. Unpublished report for Doyles Lime Service Pty Ltd.

B = Harewood, G. (2015). Fauna Survey (Level 2) Dampier to Bunbury Natural Gas Pipeline Corridor. Bristol Road to Clifton Road. Unpublished report for Aurora Environmental.

C = Harewood, G. (2010). Kemerton Industrial Core - Fauna Survey. Unpublished report for Landcorp.

D = ENV (2009). Clifton Beach Fauna Assessment. Unpublished report for Cape Bouvard Investments Pty Ltd.

E = Western Wildlife (2009). Lot 76 Binningup Rd, Binningup: Fauna Survey 2008. Unpublished report for Niche Consulting.

F = 360 Environmental Pty Ltd (2008). Southern Seawater Desalination Project 2007, Terrestrial Flora and Fauna Survey Report. Unpublished report for the Water Corporation.

G = Bamford Consulting Ecologists (2008). Fauna Assessment of the Proposes South Binningup Development. Unpublished report for RPS Consulting/Mirvac.

H = Western Wildlife (2007). Lot 801 and Lot 4 Preston Beach Fauna Survey 2007. Unpublished report for RPS Bowman Bishaw Gorham Perth.

I = Bamford Consulting Ecologists (2003). Fauna Values of Cape Bouvard Investment's Pty Ltd Land, Yalgorup. Unpublished report for RPS.

J = ATA (1998). Vertebrate Fauna. Lake Clifton Land Exchange Proposal. Unpublished report for Bouvard Investment's Pty Ltd.

K = DBCA (2020). NatureMap Database search. "By Circle" Centre - 115° 39' 01" E, 32° 49' 40" S - Accessed 9/04/2020.

Class Family Species	Common Name	Conservation Status	A	B	C	D	E	F	G	H	I	J	K
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## Amphibia

### Myobatrachidae

Ground or Burrowing Frogs

<i>Heleioporus eyrei</i>	Moaning Frog	LC		X	X	X	X	X	X			X	X
<i>Limnodynastes dorsalis</i>	Western Banjo Frog	LC		X	X	X	X	X	X			X	X

## Reptilia

### Diplodactylidae

Geckoes

<i>Strophurus spinigerus</i>	Soft Spiny-tailed Gecko	LC				X		X		X	X	X	X
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<b>Gekkonidae</b>													
Geckoes													
<i>Christinus marmoratus</i>	Marbled Gecko	LC		X	X	X	X	X	X	X	X	X	X
<b>Pygopodidae</b>													
Legless Lizards													
<i>Aprasia repens</i>	Sandplain Worm Lizard	LC											X
<i>Delma fraseri</i>	Fraser's Legless Lizard	LC				X	X	X				X	X
<i>Delma grayii</i>	Side-barred Delma	LC				X				X			X
<i>Lialis burtonis</i>	Burton's Legless Lizard	LC	X	X	X	X	X	X	X	X	X		X
<i>Pygopus lepidopodus</i>	Common Scaly Foot	LC				X						X	X
<b>Agamidae</b>													
Dragon Lizards													
<i>Ctenophorus adelaidensis</i>	Southern Heath Dragon	LC				X		X	X	X			X
<i>Pogona minor</i>	Western Bearded Dragon	LC	X	X	X	X	X	X	X	X	X		X
<b>Varanidae</b>													
Monitor's or Goanna's													
<i>Varanus gouldii</i>	Sand Monitor	LC		X	X			X					X
<i>Varanus rosenbergi</i>	Heath Monitor	LC		X	X	X							

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<b>Scincidae</b>													
Skins													
<i>Acritoscincus trilineatum</i>	Southwestern Cool Skink	LC		X	X	X	X			X		X	
<i>Cryptoblepharus buchananii</i>	Buchanan's Snake-eyed Skink	LC	X	X	X	X	X				X		X
<i>Ctenotus australis</i>	Western Ctenotus	LC				X	X		X	X			X
<i>Ctenotus fallens</i>	West Coast Ctenotus	LC						X					X
<i>Ctenotus impar</i>	Odd-striped Ctenotus	LC		X	X								X
<i>Ctenotus ora</i>	Coastal Plains Skink	P3		X	X								X
<i>Egernia kingii</i>	King's Skink	LC						X					X
<i>Egernia luctuosa</i>	Western Swamp Skink	LC								X			
<i>Egernia napoleonis</i>	Salmon-bellied Skink	LC		X	X	X				X	X	X	X
<i>Hemiergis quadrilineata</i>	Two-toed Mulch Skink	LC	X	X	X	X	X	X	X	X	X	X	X
<i>Lerista elegans</i>	West Coast Four-toed Lerista	LC		X	X	X	X	X	X	X	X		X
<i>Lerista lineata</i>	Perth Lined Lerista	P3			X	X	X	X	X		X		X
<i>Lerista lineopunctulata</i>	Line-spotted Robust Lerista	LC						X			X		X
<i>Menetia greyii</i>	Dwarf Skink	LC	X	X	X	X	X	X	X	X	X	X	X
<i>Morethia lineocellata</i>	West Coast Pale-flecked Morethia	LC	X	X	X	X	X	X	X	X	X		X
<i>Morethia obscura</i>	Shrubland Pale-flecked Morethia	LC				X							X

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<i>Tiliqua rugosa</i>	Bobtail	LC	X	X	X	X	X	X	X		X		X
<b>Typhlopidae</b> Blind Snakes													
<i>Anilius australis</i>	Southern Blind Snake	LC			X	X	X	X		X		X	
<b>Boidae</b> Pythons, Boas													
<i>Morelia spilota imbricata</i>	Carpet Python	LC				X							X
<b>Elapidae</b> Elapid Snakes													
<i>Demansia reticulata</i>	Reticulated Whipsnake	LC	X			X						X	X
<i>Echiopsis curta</i>	Bardick	LC	X						X	X			X
<i>Neelaps bimaculatus</i>	Black-naped Snake	LC			X	X	X	X					X
<i>Notechis scutatus</i>	Tiger Snake	LC		X	X			X			X		
<i>Pseudonaja affinis</i>	Dugite	LC		X	X	X		X		X	X	X	X
<i>Simoselaps bertholdi</i>	Jan's Banded Snake	LC		X		X	X	X			X	X	X
<i>Suta gouldii</i>	Gould's Hooded Snake	LC			X	X	X					X	X
<b>Aves</b>													
<b>Casuariidae</b> Emus, Cassowaries													
<i>Dromaius novaehollandiae</i>	Emu	Bp LC	X	X	X	X				X	X	X	X

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<b>Phasianidae</b>													
Quails, Pheasants													
<i>Coturnix pectoralis</i>	Stubble Quail	LC											X
<i>Coturnix ypsilophora</i>	Brown Quail	LC											X
<b>Accipitridae</b>													
Kites, Goshawks, Eagles, Harriers													
<i>Accipiter cirrocephalus</i>	Collared Sparrowhawk	Bp LC				X					X	X	X
<i>Accipiter fasciatus</i>	Brown Goshawk	Bp LC			X			X					X
<i>Aquila audax</i>	Wedge-tailed Eagle	Bp LC		X	X	X		X		X	X		X
<i>Aquila morphnoides</i>	Little Eagle	Bp LC					X		X			X	X
<i>Circus approximans</i>	Swamp Harrier	LC			X	X							X
<i>Elanus caeruleus</i>	Black-shouldered Kite	LC			X				X				
<i>Haliastur sphenurus</i>	Whistling Kite	Bp LC	X	X	X	X					X		X
<i>Hamirostra isura</i>	Square-tailed Kite	Bp LC			X		X		X				X
<b>Falconidae</b>													
Falcons													
<i>Falco berigora</i>	Brown Falcon	Bp LC				X			X		X	X	X
<i>Falco cenchroides</i>	Australian Kestrel	LC		X	X	X		X	X		X	X	X
<i>Falco longipennis</i>	Australian Hobby	LC										X	X
<i>Falco peregrinus</i>	Peregrine Falcon	S7 Bp LC						X					X

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<b>Turnicidae</b>													
Button-quails													
<i>Turnix varia</i>	Painted Button-quail	Bp LC	X	X			X	X					
<b>Columbidae</b>													
Pigeons, Doves													
<i>Ocyphaps lophotes</i>	Crested Pigeon	LC		X	X		X		X				X
<i>Phaps chalcoptera</i>	Common Bronzewing	Bh LC	X	X	X	X	X	X	X	X	X	X	X
<i>Phaps elegans</i>	Brush Bronzewing	Bh LC	X										X

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<b>Psittacidae</b>													
Parrots													
<i>Cacatua roseicapilla</i>	Galah	LC	X	X	X		X	X	X	X	X	X	X
<i>Cacatua sanguinea gymnopsis</i>	Little Corella	Introduced			X		X						X
<i>Cacatua tenuirostris</i>	Eastern Long-billed Corella	Introduced											X
<i>Calyptorhynchus banksii naso</i>	Forest Red-tailed Black-Cockatoo	S3 VU Bp LC		X	X		X			X			X
<i>Calyptorhynchus baudinii</i>	Baudin's Black-Cockatoo	S2 EN Bp EN			X	X						X	X
<i>Calyptorhynchus latirostris</i>	Carnaby's Black-Cockatoo	S2 EN Bp EN	X	X	X	X		X	X		X	X	X
<i>Glossopsitta porphyrocephala</i>	Purple-crowned Lorikeet	LC				X	X		X	X			
<i>Neophema elegans</i>	Elegant Parrot	LC		X	X	X		X					X
<i>Platycercus icterotis icterotis</i>	Western Rosella (western ssp)	Bp LC											X
<i>Platycercus spurius</i>	Red-capped Parrot	LC	X	X	X	X	X		X		X	X	X
<i>Platycercus zonarius</i>	Australian Ringneck	LC	X	X	X	X	X	X	X	X	X	X	X
<i>Polytelis anthopeplus</i>	Regent Parrot	LC	X	X	X	X			X		X		X

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<b>Cuculidae</b>													
Parasitic Cuckoos													
<i>Cacomantis flabelliformis</i>	Fan-tailed Cuckoo	LC				X	X					X	X
<i>Chrysococcyx basalis</i>	Horsfield's Bronze Cuckoo	LC				X							X
<i>Chrysococcyx lucidus</i>	Shining Bronze Cuckoo	LC		X	X	X	X	X			X		
<i>Cuculus pallidus</i>	Pallid Cuckoo	LC				X					X		X
<b>Strigidae</b>													
Hawk Owls													
<i>Ninox novaeseelandiae</i>	Boobook Owl	LC	X	X	X	X	X	X	X		X		
<b>Tytonidae</b>													
Barn Owls													
<i>Tyto alba</i>	Barn Owl	LC									X		
<i>Tyto n. novaehollandiae</i>	Masked Owl (SW pop)	P3 Bp											X
<b>Podargidae</b>													
Frogmouths													
<i>Podargus strigoides</i>	Tawny Frogmouth	LC	X		X		X				X		X
<b>Caprimulgidae</b>													
Nightjars													
<i>Eurostopodus argus</i>	Spotted Nightjar	LC	X										X

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<b>Aegothelidae</b> Owlet-nightjars													
<i>Aegotheles cristatus</i>	Australian Owlet-nightjar	LC					X						X
<b>Halcyonidae</b> Tree Kingfishers													
<i>Dacelo novaeguineae</i>	Laughing Kookaburra	Introduced	X	X	X	X	X		X	X	X	X	X
<i>Todiramphus sanctus</i>	Sacred Kingfisher	LC		X	X	X	X						X
<b>Meropidae</b> Bee-eaters													
<i>Merops ornatus</i>	Rainbow Bee-eater	JA LC		X	X	X	X	X			X		X
<b>Maluridae</b> Fairy Wrens, GrassWrens													
<i>Malurus splendens</i>	Splendid Fairy-wren	Bh LC	X	X	X	X	X	X	X	X	X	X	X
<b>Acanthizidae</b> Thornbills, Geryones, Fieldwrens & Whitefaces													
<i>Acanthiza apicalis</i>	Broad-tailed Thornbill	Bh LC	X	X	X	X	X	X	X	X	X	X	X
<i>Acanthiza chrysorrhoa</i>	Yellow-rumped Thornbill	Bh LC	X	X	X	X	X			X	X		X
<i>Acanthiza inornata</i>	Western Thornbill	Bh LC											X
<i>Gerygone fusca</i>	Western Gerygone	LC	X	X	X	X	X	X	X	X	X		X
<i>Sericornis maculatis</i>	Spotted Scrubwren	Bh LC		X	X	X	X	X	X	X	X	X	X
<i>Smicromis brevirostris</i>	Weebill	Bh LC	X	X	X	X	X	X	X	X	X	X	X

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<b>Pardalotidae</b>													
Pardalotes													
<i>Pardalotus punctatus</i>	Spotted Pardalote	LC		X						X		X	X
<i>Pardalotus striatus</i>	Striated Pardalote	LC	X	X	X	X	X	X	X	X	X	X	X
<b>Meliphagidae</b>													
Honeyeaters, Chats													
<i>Acanthorhynchus superciliosus</i>	Western Spinebill	LC		X	X							X	X
<i>Anthochaera carunculata</i>	Red Wattlebird	LC	X	X	X	X	X	X	X	X	X	X	X
<i>Anthochaera lunulata</i>	Western Little Wattlebird	Bp LC					X						X
<i>Epthianura albifrons</i>	White-fronted Chat	LC				X					X		X
<i>Gavicalis virescens</i>	Singing Honeyeater	LC	X			X	X	X		X	X	X	X
<i>Lichmera indistincta</i>	Brown Honeyeater	LC		X	X	X	X	X		X	X	X	X
<i>Phylidonyris melanops</i>	Tawny-crowned Honeyeater	Bp LC			X								
<i>Phylidonyris nigra</i>	White-cheeked Honeyeater	Bp LC											
<i>Phylidonyris novaehollandiae</i>	New Holland Honeyeater	Bp LC			X	X		X	X		X	X	X
<b>Petroicidae</b>													
Australian Robins													
<i>Eopsaltria australis</i>	Western Yellow Robin	Bh LC	X		X	X				X			X
<i>Petroica multicolor</i>	Scarlet Robin	Bh LC	X	X	X	X					X	X	X

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<b>Neosittidae</b>													
Sitellas													
<i>Daphoenositta chrysoptera</i>	Varied Sittella	Bh LC									X		X
<b>Pachycephalidae</b>													
Crested Shrike-tit, Crested Bellbird, Shrike Thrushes, Whistlers													
<i>Colluricincla harmonica</i>	Grey Shrike-thrush	Bh LC	X	X	X	X	X	X		X	X	X	X
<i>Pachycephala occidentalis</i>	Western Whistler	Bh LC	X	X	X	X	X	X	X	X	X	X	
<i>Pachycephala rufiventris</i>	Rufous Whistler	LC		X		X	X			X	X	X	X
<b>Dicruridae</b>													
Monarchs, Magpie Lark, Flycatchers, Fantails, Drongo													
<i>Grallina cyanoleuca</i>	Magpie-lark	LC		X	X		X		X				X
<i>Rhipidura fuliginosa</i>	Grey Fantail	LC	X	X	X	X	X	X	X	X	X	X	
<i>Rhipidura leucophrys</i>	Willie Wagtail	LC	X	X	X	X	X	X	X		X	X	X
<b>Campephagidae</b>													
Cuckoo-shrikes, Trillers													
<i>Coracina novaehollandiae</i>	Black-faced Cuckoo-shrike	LC	X	X	X	X	X	X	X		X	X	X
<i>Lalage tricolor</i>	White-winged Triller	LC				X		X					
<b>Artamidae</b>													
Woodswallows, Butcherbirds, Currawongs													
<i>Artamus cinereus</i>	Black-faced Woodswallow	Bp LC	X		X	X					X		X
<i>Artamus cyanopterus</i>	Dusky Woodswallow	Bp LC		X								X	X

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<b>Cracticidae</b>													
Currawongs, Magpies & Butcherbirds													
<i>Cracticus tibicen</i>	Australian Magpie	LC	X	X	X	X	X		X	X	X	X	X
<i>Cracticus torquatus</i>	Grey Butcherbird	LC	X	X	X	X	X	X	X	X	X	X	X
<i>Strepera versicolor</i>	Grey Currawong	Bp LC			X								X
<b>Corvidae</b>													
Ravens, Crows													
<i>Corvus coronoides</i>	Australian Raven	LC	X	X	X	X	X	X	X	X	X	X	X
<b>Motacillidae</b>													
Old World Pipits, Wagtails													
<i>Anthus australis</i>	Australian Pipit	LC			X	X							X
<b>Dicaeidae</b>													
Flowerpeckers													
<i>Dicaeum hirundinaceum</i>	Mistletoebird	LC										X	X
<b>Hirundinidae</b>													
Swallows, Martins													
<i>Hirundo neoxena</i>	Welcome Swallow	LC	X	X	X	X	X				X	X	X
<i>Hirundo nigricans</i>	Tree Martin	LC	X	X	X	X	X		X		X	X	X

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<b>Sylviidae</b>													
Old World Warblers													
<i>Cincloramphus cruralis</i>	Brown Songlark	LC					X						
<i>Cincloramphus mathewsi</i>	Rufous Songlark	LC		X									
<b>Zosteropidae</b>													
White-eyes													
<i>Zosterops lateralis</i>	Silvereye	LC	X	X	X	X	X	X	X	X	X	X	X
<b>Mammalia</b>													
<b>Tachyglossidae</b>													
Echidnas													
<i>Tachyglossus aculeatus</i>	Echidna	LC					X						
<b>Dasyuridae</b>													
Carnivorous Marsupials													
<i>Phascogale tapoatafa wambenger</i>	South-western Brush-tailed Phascogale	S6 NT	X	X	X								X
<b>Peramelidae</b>													
Bandicoots													
<i>Isodon fusciventer</i>	Quenda	P4 LC	X	X	X	X							X
<b>Phalangeridae</b>													
Brush-tail Possums, Cuscuses													
<i>Trichosurus vulpecula</i>	Common Brushtail Possum	LC	X	X	X	X	X	X	X	X	X	X	X

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Class Family Species	Common Name	Conservation Status	A	B	C	D	E	F	G	H	I	J	K
<b>Burramyidae</b>													
Pygmy Possums													
<i>Cercartetus concinnus</i>	Western Pygmy-possum	LC			X								X
<b>Pseudocheiridae</b>													
Ringtail Possums													
<i>Pseudocheirus occidentalis</i>	Western Ringtail Possum	S1 CR CR	X		X			X					X
<b>Macropodidae</b>													
Kangaroos, Wallabies													
<i>Macropus fuliginosus</i>	Western Grey Kangaroo	LC	X	X	X	X	X	X	X		X	X	X
<i>Notamacropus irma</i>	Western Brush Wallaby	P4 LC		X	X								X
<b>Molossidae</b>													
Freetail Bats													
<i>Austronomus australis</i>	White-striped Free-tailed Bat	LC	X	X	X			X	X		X		
<i>Ozimops kitcheneri</i>	Western Free-tailed Bat	LC	X	X	X			X	X				

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Class Family Species	Common Name	Conservation Status	A	B	C	D	E	F	G	H	I	J	K
<b>Vespertilionidae</b>													
Ordinary Bats													
<i>Chalinolobus gouldii</i>	Gould's Wattled Bat	LC	X	X	X	X		X				X	X
<i>Chalinolobus morio</i>	Chocolate Wattled Bat	LC	X	X	X								X
<i>Falsistrellus mackenziei</i>	Western False Pipistrelle	P4 NT	X	X	X								X
<i>Nyctophilus geoffroyi</i>	Lesser Long-eared Bat	LC	X	X	X	X					X		X
<i>Nyctophilus gouldi</i>	Gould's Long-eared Bat	LC		X									
<i>Nyctophilus major major</i>	Western Long-eared Bat	LC	X	X	X								X
<i>Vespadelus regulus</i>	Southern Forest Bat	LC	X	X	X	X			X		X		X
<b>Muridae</b>													
Rats, Mice													
<i>Mus musculus</i>	House Mouse	Introduced	X	X		X	X	X	X	X	X	X	X
<i>Rattus rattus</i>	Black Rat	Introduced		X								X	X
<b>Canidae</b>													
Dogs, Foxes													
<i>Vulpes vulpes</i>	Red Fox	Introduced	X	X	X	X	X	X	X		X		X
<b>Felidae</b>													
Cats													
<i>Felis catus</i>	Cat	Introduced	X	X	X		X		X		X	X	X

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Class	Common Name	Conservation Status	A	B	C	D	E	F	G	H	I	J	K
<b>Family</b> <i>Species</i>													
<b>Suidae</b> Pigs													
<i>Sus scrofa</i>	Pig	Introduced		X	X	X							
<b>Leporidae</b> Rabbits, Hares													
<i>Oryctolagus cuniculus</i>	Rabbit	Introduced	X	X	X	X	X	X	X		X	X	X

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# **APPENDIX D**

## **DBCA NATUREMAP & PROTECTED MATTERS SEARCH TOOL RESULTS**

# NatureMap - Lot 1002 20km

Created By Greg Harewood on 09/04/2020

**Kingdom** Animalia  
**Current Names Only** Yes  
**Core Datasets Only** Yes  
**Method** 'By Circle'  
**Centre** 115° 39' 01" E, 32° 49' 40" S  
**Buffer** 20km  
**Group By** Species Group

Species Group	Species	Records
Amphibian	9	355
Bird	226	18805
Fish	15	31
Invertebrate	127	530
Mammal	29	743
Reptile	51	850
<b>TOTAL</b>	<b>457</b>	<b>21314</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.	25410 <i>Heleioporus eyrei</i> (Moaning Frog)			
5.	25415 <i>Limnodynastes dorsalis</i> (Western Banjo Frog)			
6.	25378 <i>Litoria adelaidensis</i> (Slender Tree Frog)			
7.	25388 <i>Litoria moorei</i> (Motorbike Frog)			
8.	25432 <i>Pseudophryne douglasi</i> (Gorge Toadlet)			
9.	25433 <i>Pseudophryne guentheri</i> (Crawling Toadlet)			
<b>Bird</b>				
10.	24260 <i>Acanthiza apicalis</i> (Broad-tailed Thornbill, Inland Thornbill)			
11.	24261 <i>Acanthiza chrysorrhoa</i> (Yellow-rumped Thornbill)			
12.	24262 <i>Acanthiza inornata</i> (Western Thornbill)			
13.	24560 <i>Acanthorhynchus superciliosus</i> (Western Spinebill)			
14.	25535 <i>Accipiter cirrocephalus</i> (Collared Sparrowhawk)			
15.	25536 <i>Accipiter fasciatus</i> (Brown Goshawk)			
16.	25537 <i>Accipiter novaehollandiae</i> (Grey Goshawk)			
17.	25755 <i>Acrocephalus australis</i> (Australian Reed Warbler)			
18.	41323 <i>Actitis hypoleucos</i> (Common Sandpiper)		IA	
19.	25544 <i>Aegotheles cristatus</i> (Australian Owlet-nightjar)			
20.	24301 <i>Aegotheles cristatus</i> subsp. <i>cristatus</i> (Australian Owlet-nightjar)			
21.	24310 <i>Anas castanea</i> (Chestnut Teal)			
22.	24312 <i>Anas gracilis</i> (Grey Teal)			
23.	24313 <i>Anas platyrhynchos</i> (Mallard)			
24.	24315 <i>Anas rhynchotis</i> (Australasian Shoveler)			
25.	24316 <i>Anas superciliosa</i> (Pacific Black Duck)			
26.	47414 <i>Anhinga novaehollandiae</i> (Australasian Darter)			
27.	24561 <i>Anthochaera carunculata</i> (Red Wattlebird)			
28.	24562 <i>Anthochaera lunulata</i> (Western Little Wattlebird)			
29.	25670 <i>Anthus australis</i> (Australian Pipit)			
30.	24600 <i>Anthus cervinus</i> (Red-throated Pipit)			
31.	24285 <i>Aquila audax</i> (Wedge-tailed Eagle)			
32.	24337 <i>Ardea garzetta</i> subsp. <i>nigripes</i> (Little Egret)			
33.	25558 <i>Ardea ibis</i> (Cattle Egret)			
34.	41324 <i>Ardea modesta</i> (great egret, white egret)			
35.	24340 <i>Ardea novaehollandiae</i> (White-faced Heron)			
36.	24341 <i>Ardea pacifica</i> (White-necked Heron)			
37.	25560 <i>Ardea sacra</i> (Eastern Reef Egret, Eastern Reef Heron)			
38.	48573 <i>Ardenna pacifica</i> (Wedge-tailed Shearwater)			
39.	24610 <i>Ardeotis australis</i> (Australian Bustard)		IA	



Name ID	Species Name	Naturalised	Conservation Code	<sup>1</sup> Endemic To Query Area
40.	25736 <i>Arenaria interpres</i> (Ruddy Turnstone)		IA	
41.	25566 <i>Artamus cinereus</i> (Black-faced Woodswallow)			
42.	24353 <i>Artamus cyanopterus</i> (Dusky Woodswallow)			
43.	24318 <i>Aythya australis</i> (Hardhead)			
44.	<i>Barnardius zonarius</i>			
45.	24319 <i>Biziura lobata</i> (Musk Duck)			
46.	25713 <i>Cacatua galerita</i> (Sulphur-crested Cockatoo)			
47.	25714 <i>Cacatua pastinator</i> (Western Long-billed Corella)			
48.	25715 <i>Cacatua roseicapilla</i> (Galah)			
49.	25716 <i>Cacatua sanguinea</i> (Little Corella)			
50.	24729 <i>Cacatua tenuirostris</i> (Eastern Long-billed Corella)	Y		
51.	25598 <i>Cacomantis flabelliformis</i> (Fan-tailed Cuckoo)			
52.	42307 <i>Cacomantis pallidus</i> (Pallid Cuckoo)			
53.	24779 <i>Calidris acuminata</i> (Sharp-tailed Sandpiper)		IA	
54.	24780 <i>Calidris alba</i> (Sanderling)		IA	
55.	25738 <i>Calidris canutus</i> (Red Knot, knot)		IA	
56.	24784 <i>Calidris ferruginea</i> (Curlew Sandpiper)		T	
57.	24786 <i>Calidris melanotos</i> (Pectoral Sandpiper)		IA	
58.	24787 <i>Calidris minuta</i> (Little Stint)			
59.	24788 <i>Calidris ruficollis</i> (Red-necked Stint)		IA	
60.	24789 <i>Calidris subminuta</i> (Long-toed Stint)		IA	
61.	24790 <i>Calidris tenuirostris</i> (Great Knot)		T	
62.	25717 <i>Calyptorhynchus banksii</i> (Red-tailed Black-Cockatoo)			
63.	24731 <i>Calyptorhynchus banksii</i> subsp. <i>naso</i> (Forest Red-tailed Black Cockatoo)		T	
64.	24733 <i>Calyptorhynchus baudinii</i> (Baudin's Cockatoo, White-tailed Long-billed Black Cockatoo)		T	
65.	24734 <i>Calyptorhynchus latirostris</i> (Carnaby's Cockatoo, White-tailed Short-billed Black Cockatoo)		T	
66.	48400 <i>Calyptorhynchus</i> sp. (white-tailed black cockatoo)		T	
67.	25573 <i>Charadrius bicinctus</i> (Double-banded Plover)		IA	
68.	25575 <i>Charadrius leschenaultii</i> (Greater Sand Plover)		T	
69.	25576 <i>Charadrius mongolus</i> (Lesser Sand Plover)		T	
70.	24377 <i>Charadrius ruficapillus</i> (Red-capped Plover)			
71.	24321 <i>Chenonetta jubata</i> (Australian Wood Duck, Wood Duck)			
72.	41332 <i>Chlidonias leucopterus</i> (White-winged Black Tern, white-winged tern)		IA	
73.	<i>Chroicocephalus novaehollandiae</i>			
74.	24431 <i>Chrysococcyx basalis</i> (Horsfield's Bronze Cuckoo)			
75.	24288 <i>Circus approximans</i> (Swamp Harrier)			
76.	24289 <i>Circus assimilis</i> (Spotted Harrier)			
77.	24774 <i>Cladorhynchus leucocephalus</i> (Banded Stilt)			
78.	25675 <i>Colluricincla harmonica</i> (Grey Shrike-thrush)			
79.	24613 <i>Colluricincla harmonica</i> subsp. <i>rufiventris</i> (Grey Shrike-thrush)			
80.	25568 <i>Coracina novaehollandiae</i> (Black-faced Cuckoo-shrike)			
81.	24362 <i>Coracina novaehollandiae</i> subsp. <i>novaehollandiae</i> (Black-faced Cuckoo-shrike)			
82.	25592 <i>Corvus coronoides</i> (Australian Raven)			
83.	24671 <i>Coturnix pectoralis</i> (Stubble Quail)			
84.	25701 <i>Coturnix ypsilophora</i> (Brown Quail)			
85.	25595 <i>Cracticus tibicen</i> (Australian Magpie)			
86.	25596 <i>Cracticus torquatus</i> (Grey Butcherbird)			
87.	24322 <i>Cygnus atratus</i> (Black Swan)			
88.	30901 <i>Dacelo novaeguineae</i> (Laughing Kookaburra)	Y		
89.	25673 <i>Daphoenositta chrysoptera</i> (Varied Sittella)			
90.	25607 <i>Dicaeum hirundinaceum</i> (Mistletoebird)			
91.	24470 <i>Dromaius novaehollandiae</i> (Emu)			
92.	<i>Egretta garzetta</i>			
93.	<i>Egretta novaehollandiae</i>			
94.	<i>Elanus axillaris</i>			
95.	47937 <i>Eiseyornis melanops</i> (Black-fronted Dotterel)			
96.	<i>Eolophus roseicapillus</i>			
97.	25692 <i>Eopsaltria australis</i> (Yellow Robin)			
98.	24651 <i>Eopsaltria australis</i> subsp. <i>griseogularis</i> (Western Yellow Robin)			
99.	24567 <i>Epthianura albifrons</i> (White-fronted Chat)			
100.	24379 <i>Erythronyctes albus</i> (Red-kneed Dotterel)			
101.	24368 <i>Eurostopodus argus</i> (Spotted Nightjar)			
102.	25621 <i>Falco berigora</i> (Brown Falcon)			
103.	25622 <i>Falco cenchroides</i> (Australian Kestrel, Nankeen Kestrel)			
104.	25623 <i>Falco longipennis</i> (Australian Hobby)			
105.	25624 <i>Falco peregrinus</i> (Peregrine Falcon)		S	
106.	25727 <i>Fulica atra</i> (Eurasian Coot)			
107.	24761 <i>Fulica atra</i> subsp. <i>australis</i> (Eurasian Coot)			

Name ID	Species Name	Naturalised	Conservation Code	<sup>1</sup> Endemic To Query Area
108.	24791 <i>Gallinago hardwickii</i> (Latham's Snipe, Japanese snipe)		IA	
109.	25729 <i>Gallinula tenebrosa</i> (Dusky Moorhen)			
110.	24763 <i>Gallinula tenebrosa</i> subsp. <i>tenebrosa</i> (Dusky Moorhen)			
111.	25730 <i>Gallirallus philippensis</i> (Buff-banded Rail)			
112.	42314 <i>Gavialis virescens</i> (Singing Honeyeater)			
113.	47954 <i>Gelochelidon nilotica</i> (Gull-billed Tern)		IA	
114.	25530 <i>Gerygone fusca</i> (Western Gerygone)			
115.	24481 <i>Glareola maldivarum</i> (Oriental Pratincole)		IA	
116.	24443 <i>Grallina cyanoleuca</i> (Magpie-lark)			
117.	24487 <i>Haematopus longirostris</i> (Pied Oystercatcher)			
118.	24293 <i>Haliaeetus leucogaster</i> (White-bellied Sea-Eagle)			
119.	24295 <i>Haliastur sphenurus</i> (Whistling Kite)			
120.	24296 <i>Hamirostra isura</i> (Square-tailed Kite)			
121.	47965 <i>Hieraaetus morphnoides</i> (Little Eagle)			
122.	25734 <i>Himantopus himantopus</i> (Black-winged Stilt)			
123.	24491 <i>Hirundo neoxena</i> (Welcome Swallow)			
124.	25630 <i>Hirundo rustica</i> (Barn Swallow)		IA	
125.	48587 <i>Hydroprogne caspia</i> (Caspian Tern)		IA	
126.	25637 <i>Larus novaehollandiae</i> (Silver Gull)			
127.	24511 <i>Larus novaehollandiae</i> subsp. <i>novaehollandiae</i> (Silver Gull)			
128.	25638 <i>Larus pacificus</i> (Pacific Gull)			
129.	25661 <i>Lichmera indistincta</i> (Brown Honeyeater)			
130.	25739 <i>Limicola falcinellus</i> (Broad-billed Sandpiper)		IA	
131.	30932 <i>Limosa lapponica</i> (Bar-tailed Godwit)		IA	
132.	25741 <i>Limosa limosa</i> (Black-tailed Godwit)		IA	
133.	<i>Lophoictinia isura</i>			
134.	24690 <i>Macronectes giganteus</i> (Southern Giant Petrel)		IA	
135.	24326 <i>Malacorhynchus membranaceus</i> (Pink-eared Duck)			
136.	25651 <i>Malurus lamberti</i> (Variegated Fairy-wren)			
137.	25654 <i>Malurus splendens</i> (Splendid Fairy-wren)			
138.	24583 <i>Manorina flavigula</i> (Yellow-throated Miner)			
139.	25758 <i>Megalurus gramineus</i> (Little Grassbird)			
140.	25663 <i>Melithreptus brevirostris</i> (Brown-headed Honeyeater)			
141.	24586 <i>Melithreptus brevirostris</i> subsp. <i>leucogenys</i> (Brown-headed Honeyeater)			
142.	24598 <i>Merops ornatus</i> (Rainbow Bee-eater)			
143.	<i>Microcarbo melanoleucos</i>			
144.	25693 <i>Microeca fascians</i> (Jacky Winter)			
145.	48008 <i>Morus serrator</i> (Australasian Gannet)			
146.	24738 <i>Neophema elegans</i> (Elegant Parrot)			
147.	24739 <i>Neophema petrophila</i> (Rock Parrot)			
148.	24798 <i>Numenius madagascariensis</i> (Eastern Curlew)		T	
149.	24799 <i>Numenius minutus</i> (Little Curlew, Little Whimbrel)		IA	
150.	25742 <i>Numenius phaeopus</i> (Whimbrel)		IA	
151.	25564 <i>Nycticorax caledonicus</i> (Rufous Night Heron)			
152.	24497 <i>Oceanites oceanicus</i> (Wilson's Storm-petrel)		IA	
153.	24407 <i>Ocyphaps lophotes</i> (Crested Pigeon)			
154.	41347 <i>Onychoprion anaethetus</i> (Bridled Tern)		IA	
155.	24328 <i>Oxyura australis</i> (Blue-billed Duck)		P4	
156.	25680 <i>Pachycephala rufiventris</i> (Rufous Whistler)			
157.	24692 <i>Pachyptila belcheri</i> (Slender-billed Prion)			
158.	24693 <i>Pachyptila desolata</i> (Antarctic Prion)			
159.	25707 <i>Pachyptila salvini</i> (Salvin's Prion)			
160.	48591 <i>Pandion cristatus</i> (Osprey, Eastern Osprey)		IA	
161.	25681 <i>Pardalotus punctatus</i> (Spotted Pardalote)			
162.	25682 <i>Pardalotus striatus</i> (Striated Pardalote)			
163.	24630 <i>Pardalotus striatus</i> subsp. <i>westraliensis</i> (Striated Pardalote)			
164.	24648 <i>Pelecanus conspicillatus</i> (Australian Pelican)			
165.	48060 <i>Petrochelidon ariel</i> (Fairy Martin)			
166.	48061 <i>Petrochelidon nigricans</i> (Tree Martin)			
167.	48066 <i>Petroica boodang</i> (Scarlet Robin)			
168.	24659 <i>Petroica goodenovii</i> (Red-capped Robin)			
169.	25697 <i>Phalacrocorax carbo</i> (Great Cormorant)			
170.	24665 <i>Phalacrocorax fuscescens</i> (Black-faced Cormorant)			
171.	25698 <i>Phalacrocorax melanoleucos</i> (Little Pied Cormorant)			
172.	24667 <i>Phalacrocorax sulcirostris</i> (Little Black Cormorant)			
173.	25699 <i>Phalacrocorax varius</i> (Pied Cormorant)			
174.	24409 <i>Phaps chalcoptera</i> (Common Bronzewing)			
175.	25587 <i>Phaps elegans</i> (Brush Bronzewing)			
176.	24675 <i>Phasianus colchicus</i> (Common Pheasant, Domestic Pheasant)	Y		
177.	24802 <i>Philomachus pugnax</i> (Ruff, reeve)		IA	

Name ID	Species Name	Naturalised	Conservation Code	<sup>1</sup> Endemic To Query Area
178.	48071 <i>Phylidonyris niger</i> (White-cheeked Honeyeater)			
179.	24596 <i>Phylidonyris novaehollandiae</i> (New Holland Honeyeater)			
180.	24841 <i>Platalea flavipes</i> (Yellow-billed Spoonbill)			
181.	25720 <i>Platycercus icterotis</i> (Western Rosella)			
182.	24747 <i>Platycercus spurius</i> (Red-capped Parrot)			
183.	25721 <i>Platycercus zonarius</i> (Australian Ringneck, Ring-necked Parrot)			
184.	24750 <i>Platycercus zonarius</i> subsp. <i>semitorquatus</i> (Twenty-eight Parrot)			
185.	24843 <i>Plegadis falcinellus</i> (Glossy Ibis)		IA	
186.	24381 <i>Pluvialis dominica</i> (American Golden Plover)			
187.	24382 <i>Pluvialis fulva</i> (Pacific Golden Plover)		IA	
188.	24383 <i>Pluvialis squatarola</i> (Grey Plover)		IA	
189.	25703 <i>Podargus strigoides</i> (Tawny Frogmouth)			
190.	24679 <i>Podargus strigoides</i> subsp. <i>brachypterus</i> (Tawny Frogmouth)			
191.	25704 <i>Podiceps cristatus</i> (Great Crested Grebe)			
192.	24681 <i>Polioccephalus poliocephalus</i> (Hoary-headed Grebe)			
193.	25722 <i>Polytelis anthopeplus</i> (Regent Parrot)			
194.	25731 <i>Porphyrio porphyrio</i> (Purple Swamphen)			
195.	24767 <i>Porphyrio porphyrio</i> subsp. <i>bellus</i> (Purple Swamphen)			
196.	24769 <i>Porzana fluminea</i> (Australian Spotted Crane)			
197.	24771 <i>Porzana tabuensis</i> (Spotless Crane)			
198.	<i>Purpureicephalus spurius</i>			
199.	24776 <i>Recurvirostra novaehollandiae</i> (Red-necked Avocet)			
200.	48096 <i>Rhipidura albiscapa</i> (Grey Fantail)			
201.	25614 <i>Rhipidura leucophrys</i> (Willie Wagtail)			
202.	24454 <i>Rhipidura leucophrys</i> subsp. <i>leucophrys</i> (Willie Wagtail)			
203.	48237 <i>Rostratula australis</i> (Australian Painted Snipe)		T	
204.	25534 <i>Sericornis frontalis</i> (White-browed Scrubwren)			
205.	24279 <i>Sericornis frontalis</i> subsp. <i>maculatus</i> (White-browed Scrubwren)			
206.	30948 <i>Smicrornis brevirostris</i> (Weebill)			
207.	24645 <i>Stagonopleura oculata</i> (Red-eared Firetail)			
208.	24522 <i>Sterna bergii</i> (Crested Tern)			
209.	25642 <i>Sterna hirundo</i> (Common Tern)		IA	
210.	48594 <i>Sternula nereis</i> (Fairy Tern)			
211.	24329 <i>Stictonetta naevosa</i> (Freckled Duck)			
212.	25655 <i>Stipiturus malachurus</i> (Southern Emu-wren)			
213.	24554 <i>Stipiturus malachurus</i> subsp. <i>westemensis</i> (Southern Emu-wren)			
214.	25597 <i>Strepera versicolor</i> (Grey Currawong)			
215.	25590 <i>Streptopelia senegalensis</i> (Laughing Turtle-Dove)	Y		
216.	25705 <i>Tachybaptus novaehollandiae</i> (Australasian Grebe, Black-throated Grebe)			
217.	24682 <i>Tachybaptus novaehollandiae</i> subsp. <i>novaehollandiae</i> (Australasian Grebe, Black-throated Grebe)			
218.	24331 <i>Tadorna tadornoides</i> (Australian Shelduck, Mountain Duck)			
219.	34007 <i>Thalassarche chlororhynchos</i> (Atlantic Yellow-nosed Albatross)		T	
220.	48597 <i>Thalasseus bergii</i> (Crested Tern)		IA	
221.	48135 <i>Thinornis rubricollis</i> (Hooded Plover, Hooded Dotterel)		P4	
222.	24845 <i>Threskiornis spinicollis</i> (Straw-necked Ibis)			
223.	25549 <i>Todiramphus sanctus</i> (Sacred Kingfisher)			
224.	48141 <i>Tribonyx ventralis</i> (Black-tailed Native-hen)			
225.	25723 <i>Trichoglossus haematodus</i> (Rainbow Lorikeet)			
226.	24803 <i>Tringa brevipes</i> (Grey-tailed Tattler)		P4	
227.	24806 <i>Tringa glareola</i> (Wood Sandpiper)		IA	
228.	24808 <i>Tringa nebularia</i> (Common Greenshank, greenshank)		IA	
229.	24809 <i>Tringa stagnatilis</i> (Marsh Sandpiper, little greenshank)		IA	
230.	48147 <i>Turnix varius</i> (Painted Button-quail)			
231.	24855 <i>Tyto novaehollandiae</i> subsp. <i>novaehollandiae</i> (Masked Owl (southwest))		P3	
232.	25577 <i>Vanellus miles</i> (Masked Lapwing)			
233.	24386 <i>Vanellus tricolor</i> (Banded Lapwing)			
234.	41351 <i>Xenus cinereus</i> (Terek Sandpiper)		IA	
235.	25765 <i>Zosterops lateralis</i> (Grey-breasted White-eye, Silvereye)			

### Fish

236.	??			
237.	<i>Anoplocapros lenticularis</i>			
238.	<i>Cheilopogon</i> sp.			
239.	<i>Contusus brevicaudus</i>			
240.	<i>Cristiceps aurantiacus</i>			
241.	<i>Cynoglossus broadhursti</i>			
242.	<i>Edelia vittata</i>			
243.	<i>Eubalichthys caeruleoguttatus</i>			
244.	34028 <i>Galaxias occidentalis</i> (Western Minnow)			
245.	34030 <i>Geotria australis</i> (Pouched Lamprey)			

Name ID	Species Name	Naturalised	Conservation Code	<sup>1</sup> Endemic To Query Area
			P3	
246.	<i>Lobotes surinamensis</i>			
247.	<i>Pegasus volitans</i>			
248.	<i>Pseudogobius olorum</i>			
249.	<i>Seriola hippos</i>			
250.	<i>Siphonognathus argyrophanes</i>			

**Invertebrate**

251.	<i>Acariformes sp.</i>			
252.	<i>Acritoptila sp.</i>			
253.	<i>Aeshnidae sp.</i>			
254.	<i>Agraptocorixa sp.</i>			
255.	<i>Amphisopodidae sp.</i>			
256.	<i>Aname mainae</i>			
257.	<i>Anax papuensis</i>			
258.	<i>Ancyliidae sp.</i>			
259.	<i>Anisops hyperion</i>			
260.	<i>Anisops sp.</i>			
261.	<i>Anisops thienemanni</i>			
262.	<i>Anopheles annulipes s.l.</i>			
263.	<i>Antiporus sp.</i>			
264.	<i>Artonia linnaei</i>			
265.	<i>Austracantha minax</i>			
266.	<i>Austrochiltonia sp.</i>			
267.	<i>Austrochiltonia subtenuis</i>			
268.	<i>Austrolestes analis</i>			
269.	<i>Austrolestes annulosus</i>			
270.	<i>Baetidae sp.</i>			
271.	<i>Berosus approximans</i>			
272.	<i>Berosus discolor</i>			
273.	<i>Berosus majusculus</i>			
274.	<i>Berosus sp.</i>			
275.	<i>Caenidae sp.</i>			
276.	<i>Calamoecia clitellata</i>			
277.	<i>Calanoida sp.</i>			
278.	<i>Ceinidae sp.</i>			
279.	<i>Celaenia excavata</i>			
280.	<i>Ceratopogonidae sp.</i>			
281.	<i>Cercophonius sulcatus</i>			
282.	<i>Chironomidae sp.</i>			
283.	<i>Chironominae sp.</i>			
284.	<i>Cladocera (non-chydoridae)</i>			
285.	<i>Cladocera (unident.)</i>			
286.	<i>Coenagrionidae sp.</i>			
287.	<i>Corduliidae sp.</i>			
288.	<i>Corixidae sp.</i>			
289.	<i>Cormocephalus aurantiipes</i>			
290.	<i>Culicidae sp.</i>			
291.	<i>Cyprretta baylyi</i>			
292.	<i>Cyprideis australiensis</i>			
293.	<i>Cypridae sp.</i>			
294.	<i>Daphniidae sp.</i>			
295.	<i>Diaprepocoris barycephala</i>			
296.	<i>Dugesiiidae sp.</i>			
297.	<i>Dytiscidae sp.</i>			
298.	<i>Ecnomidae sp.</i>			
299.	<i>Ephydriidae sp.</i>			
300.	<i>Ethmostigmus rubripes</i>			
301.	<i>Eylais sp.</i>			
302.	<i>Geogarypus taylori</i>			
303.	<i>Glossiphoniidae sp.</i>			
304.	<i>Gomphidae sp.</i>			
305.	<i>Gripopterygidae sp.</i>			
306.	<i>Gyrinidae sp.</i>			
307.	<i>Halipus sp.</i>			
308.	<i>Hebridae sp.</i>			
309.	<i>Hemicordulia tau</i>			
310.	<i>Hemicorduliidae sp.</i>			
311.	<i>Hoggicosa castanea</i>			
312.	<i>Hydraenidae sp.</i>			
313.	<i>Hydrobiosidae sp.</i>			

Name ID	Species Name	Naturalised	Conservation Code	<sup>1</sup> Endemic To Query Area
314.	<i>Hydrophilidae sp.</i>			
315.	<i>Hydropsychidae sp.</i>			
316.	<i>Hydroptilidae sp.</i>			
317.	<i>Hyphydrus sp.</i>			
318.	<i>Hyriidae sp.</i>			
319.	<i>Idiommata blackwallii</i>			
320.	48935 <i>Idiosoma sigillatum</i> (Swan Coastal Plain shield-backed trapdoor spider)		P3	
321.	<i>Lancetes lanceolatus</i>			
322.	<i>Lathrocordulia metallica</i>			
323.	<i>Latrodectus hasseltii</i>			
324.	<i>Leptoceridae sp.</i>			
325.	<i>Leptocythere sp. 385</i>			Y
326.	<i>Leptophlebiidae sp.</i>			
327.	<i>Lestidae sp.</i>			
328.	<i>Libellulidae sp.</i>			
329.	<i>Limbodessus sp.</i>			
330.	<i>Limnesia dentifera</i>			
331.	<i>Limnesiidae sp.</i>			
332.	<i>Limnochares australica</i>			
333.	<i>Lymnaeidae sp.</i>			
334.	<i>Maratus pavonis</i>			
335.	<i>Maratus spicatus</i>			
336.	<i>Megaporus solidus</i>			
337.	<i>Megaporus sp.</i>			
338.	<i>Mesoveliidae sp.</i>			
339.	<i>Micronecta robusta</i>			
340.	<i>Missulena granulosa</i>			
341.	<i>Missulena occatoria</i>			
342.	<i>Mytilocypris mytiloides</i>			
343.	<i>Nematoda sp.</i>			
344.	33984 <i>Neopasiphae simplicior</i> (a short-tongued bee)		T	
345.	<i>Nicodamus mainae</i>			
346.	<i>Notalina spira</i>			
347.	<i>Notonectidae sp.</i>			
348.	<i>Oecetis sp.</i>			
349.	<i>Oligochaeta sp.</i>			
350.	<i>Onychohydrus sp.</i>			
351.	<i>Orthoclaadiinae sp.</i>			
352.	<i>Ostracoda (unident.)</i>			
353.	<i>Palaemonidae sp.</i>			
354.	<i>Parastacidae sp.</i>			
355.	<i>Perthiidae sp.</i>			
356.	<i>Physidae sp.</i>			
357.	<i>Pinkfloydia harveii</i>			
358.	<i>Platynectes sp.</i>			
359.	<i>Psychodidae sp.</i>			
360.	<i>Raveniella peckorum</i>			
361.	<i>Richardsonianidae sp.</i>			
362.	<i>Sigara mullaka</i>			
363.	<i>Sigara truncatipala</i>			
364.	<i>Simuliidae sp.</i>			
365.	<i>Staphylinidae sp.</i>			
366.	<i>Sternopriscus multimaculatus</i>			
367.	<i>Stratiomyidae sp.</i>			
368.	<i>Supunna picta</i>			
369.	33992 <i>Synemon gratiosa</i> (Graceful Sunmoth)		P4	
370.	<i>Tanypodinae sp.</i>			
371.	<i>Tenebrionidae sp.</i>			
372.	<i>Tipulidae sp.</i>			
373.	<i>Triplectides australis</i>			
374.	<i>Urodacus novaehollandiae</i>			
375.	<i>Veliidae sp.</i>			
376.	<i>Venator immansueta</i>			
377.	34113 <i>Westralunio carteri</i> (Carter's Freshwater Mussel)		T	
<b>Mammal</b>				
378.	24086 <i>Cercartetus concinnus</i> (Western Pygmy-possum, Mundarda)			
379.	24186 <i>Chalinolobus gouldii</i> (Gould's Wattled Bat)			
380.	24187 <i>Chalinolobus morio</i> (Chocolate Wattled Bat)			
381.	24092 <i>Dasyurus geoffroi</i> (Chuditch, Western Quoll)			
382.	24043 <i>Eubalaena australis</i> (Southern Right Whale)		T	

Name ID	Species Name	Naturalised	Conservation Code	<sup>1</sup> Endemic To Query Area
383.	24189 <i>Falsistrellus mackenziei</i> (Western False Pipistrelle, Western Falsistrelle)		T P4	
384.	24041 <i>Felis catus</i> (Cat)	Y		
385.	24215 <i>Hydromys chrysogaster</i> (Water-rat, Rakali)		P4	
386.	48588 <i>Isoodon fusciventer</i> (Quenda, southwestern brown bandicoot)		P4	
387.	24132 <i>Macropus fuliginosus</i> (Western Grey Kangaroo)			
388.	24223 <i>Mus musculus</i> (House Mouse)	Y		
389.	24042 <i>Mustela putorius</i> (European Polecat, Ferret)	Y		
390.	24210 <i>Neophoca cinerea</i> (Australian Sea-lion)		T	
391.	48022 <i>Notamacropus irma</i> (Western Brush Wallaby)		P4	
392.	24194 <i>Nyctophilus geoffroyi</i> (Lesser Long-eared Bat)			
393.	43366 <i>Nyctophilus major subsp. major</i> (Southwestern Long-eared Bat)			
394.	24085 <i>Oryctolagus cuniculus</i> (Rabbit)	Y		
395.	48070 <i>Phascogale tapoatafa subsp. wambenger</i> (South-western Brush-tailed Phascogale, Wambenger)		S	
396.	24166 <i>Pseudocheirus occidentalis</i> (Western Ringtail Possum, ngwayir)		T	
397.	24230 <i>Pseudomys albocinereus</i> (Ash-grey Mouse)			
398.	24173 <i>Pteropus scapulatus</i> (Little Red Flying-fox)			
399.	24245 <i>Rattus rattus</i> (Black Rat)	Y		
400.	25515 <i>Sminthopsis griseoventer</i> (Grey-bellied Dunnart)			
401.	24167 <i>Tarsipes rostratus</i> (Honey Possum, Noolbenger)			
402.	25521 <i>Trichosurus vulpecula</i> (Common Brushtail Possum)			
403.	24158 <i>Trichosurus vulpecula subsp. vulpecula</i> (Common Brushtail Possum)			
404.	30954 <i>Tursiops aduncus</i> (Indo-Pacific Bottlenose Dolphin)			
405.	24206 <i>Vespadelus regulus</i> (Southern Forest Bat)			
406.	24040 <i>Vulpes vulpes</i> (Red Fox)	Y		

### Reptile

407.	42368 <i>Acritoscincus trilineatus</i> (Western Three-lined Skink)			
408.	24991 <i>Aprasia repens</i> (Sand-plain Worm-lizard)			
409.	43380 <i>Chelodina colliei</i> (South-western Snake-necked Turtle)			
410.	24980 <i>Christinus marmoratus</i> (Marbled Gecko)			
411.	25456 <i>Crenadactylus ocellatus</i> (Clawless Gecko)			
412.	30893 <i>Cryptoblepharus buchananii</i>			
413.	25020 <i>Cryptoblepharus plagiocephalus</i>			
414.	30899 <i>Ctenophorus adelaidensis</i> (Southern Heath Dragon, Western Heath Dragon)			
415.	25027 <i>Ctenotus australis</i>			
416.	25039 <i>Ctenotus fallens</i>			
417.	25047 <i>Ctenotus impar</i>			
418.	25049 <i>Ctenotus labillardieri</i>			
419.	41641 <i>Ctenotus ora</i> (Coastal Plains Skink)		P3	
420.	25074 <i>Ctenotus schomburgkii</i>			
421.	25766 <i>Delma fraseri</i> (Fraser's Legless Lizard)			
422.	24999 <i>Delma grayii</i>			
423.	25468 <i>Demansia psammophis</i> (Yellow-faced Whipsnake)			
424.	25296 <i>Demansia psammophis subsp. reticulata</i> (Yellow-faced Whipsnake)			
425.	24939 <i>Diplodactylus polyophthalmus</i>			
426.	25251 <i>Echiopsis curta</i> (Bardick)			
427.	25096 <i>Egernia kingii</i> (King's Skink)			
428.	25100 <i>Egernia napoleonis</i>			
429.	25119 <i>Hemiergis quadrilineata</i>			
430.	43384 <i>Hydrophis platurus</i> (Yellow-bellied Seasnake)			
431.	25128 <i>Lerista christinae</i>			
432.	25131 <i>Lerista distinguenda</i>			
433.	25133 <i>Lerista elegans</i>			
434.	25147 <i>Lerista lineata</i> (Perth Slider, Lined Skink)		P3	
435.	25148 <i>Lerista lineopunctulata</i>			
436.	25165 <i>Lerista praepedita</i>			
437.	25005 <i>Lialis burtonis</i>			
438.	25184 <i>Menetia greyii</i>			
439.	25494 <i>Morelia spilota</i> (Carpet Python)			
440.	25240 <i>Morelia spilota subsp. imbricata</i> (Carpet Python)			
441.	25190 <i>Morethia butleri</i>			
442.	25191 <i>Morethia lineocellata</i>			
443.	25192 <i>Morethia obscura</i>			
444.	25248 <i>Neelaps bimaculatus</i> (Black-naped Snake)			
445.	25253 <i>Parasuta gouldii</i>			
446.	25510 <i>Pogona minor</i> (Dwarf Bearded Dragon)			
447.	24907 <i>Pogona minor subsp. minor</i> (Dwarf Bearded Dragon)			
448.	25511 <i>Pseudonaja affinis</i> (Dugite)			
449.	25259 <i>Pseudonaja affinis subsp. affinis</i> (Dugite)			

Name ID	Species Name	Naturalised	Conservation Code	<sup>1</sup> Endemic To Query Area
450.	25008 <i>Pygopus lepidopodus</i> (Common Scaly Foot)			
451.	25266 <i>Simoselaps bertholdi</i> (Jan's Banded Snake)			
452.	25518 <i>Strophurus spinigerus</i>			
453.	24942 <i>Strophurus spinigerus subsp. spinigerus</i>			
454.	25519 <i>Tiliqua rugosa</i>			
455.	25218 <i>Varanus gouldii</i> (Bungarra or Sand Monitor)			
456.	25526 <i>Varanus tristis</i> (Racehorse Monitor)			
457.	25227 <i>Varanus tristis subsp. 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: 09/04/20 18:18:21

## [Summary](#)

### [Details](#)

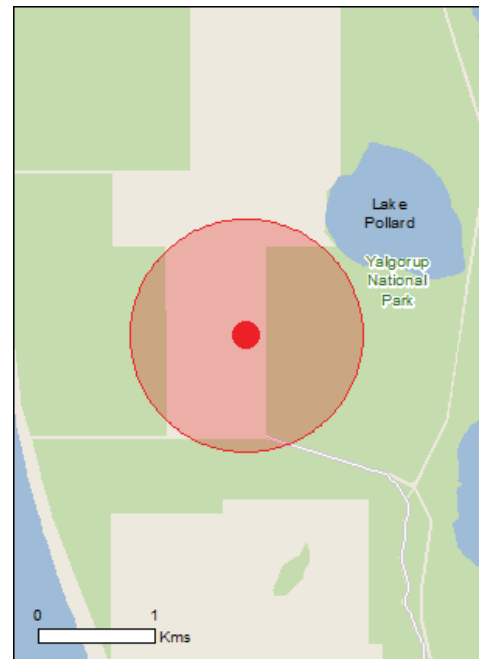
[Matters of NES](#)

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

[Extra Information](#)

### [Caveat](#)

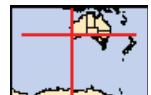
### [Acknowledgements](#)



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[Coordinates](#)

Buffer: 1.0Km





# 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>	1
<a href="#">Great Barrier Reef Marine Park:</a>	None
<a href="#">Commonwealth Marine Area:</a>	None
<a href="#">Listed Threatened Ecological Communities:</a>	2
<a href="#">Listed Threatened Species:</a>	23
<a href="#">Listed Migratory Species:</a>	31

## 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>	41
<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>	1
<a href="#">Regional Forest Agreements:</a>	None
<a href="#">Invasive Species:</a>	23
<a href="#">Nationally Important Wetlands:</a>	1
<a href="#">Key Ecological Features (Marine)</a>	None

# Details

## Matters of National Environmental Significance

Wetlands of International Importance (Ramsar)		[ Resource Information ]
Name		Proximity
<a href="#">Peel-yalgorup system</a>		Within Ramsar site

## 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 may occur within area
<a href="#">Tuart (Eucalyptus gomphocephala) Woodlands and Forests of the Swan Coastal Plain ecological community</a>	Critically 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 may occur within area
<a href="#">Calidris canutus</a> Red Knot, Knot [855]	Endangered	Species or species habitat may occur within area
<a href="#">Calidris ferruginea</a> Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area
<a href="#">Calidris tenuirostris</a> Great Knot [862]	Critically Endangered	Roosting known to occur within area
<a href="#">Calyptorhynchus banksii naso</a> Forest Red-tailed Black-Cockatoo, Karrak [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="#">Charadrius leschenaultii</a> Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Roosting known to occur within area
<a href="#">Charadrius mongolus</a> Lesser Sand Plover, Mongolian Plover [879]	Endangered	Roosting known to occur within area
<a href="#">Leipoa ocellata</a> Malleefowl [934]	Vulnerable	Species or species habitat likely to occur within area

Name	Status	Type of Presence
<a href="#">Limosa lapponica baueri</a> Bar-tailed Godwit (baueri), Western Alaskan Bar-tailed Godwit [86380]	Vulnerable	Species or species habitat likely to occur within area
<a href="#">Limosa lapponica menzbieri</a> Northern Siberian Bar-tailed Godwit, Bar-tailed Godwit (menzbieri) [86432]	Critically Endangered	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 known to occur within area
<a href="#">Pachyptila turtur subantarctica</a> Fairy Prion (southern) [64445]	Vulnerable	Species or species habitat likely to occur within area
<a href="#">Rostratula australis</a> Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur within area
<a href="#">Sternula nereis nereis</a> Australian Fairy Tern [82950]	Vulnerable	Species or species habitat known to 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 likely to occur within area

#### Plants

<a href="#">Caladenia huegeli</a> King Spider-orchid, Grand Spider-orchid, Rusty Spider-orchid [7309]	Endangered	Species or species habitat likely to occur within area
<a href="#">Diuris micrantha</a> Dwarf Bee-orchid [55082]	Vulnerable	Species or species habitat likely to occur within area
<a href="#">Diuris purdiei</a> Purdie's Donkey-orchid [12950]	Endangered	Species or species habitat may occur within area
<a href="#">Drakaea micrantha</a> Dwarf Hammer-orchid [56755]	Vulnerable	Species or species habitat likely to occur within area
<a href="#">Eucalyptus argutifolia</a> Yanchep Mallee, Wabbling Hill Mallee [24263]	Vulnerable	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
<a href="#">Ardenna carneipes</a> Flesh-footed Shearwater, Fleshy-footed Shearwater [82404]		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

Name	Threatened	Type of Presence
<b>Migratory Wetlands Species</b>		
<a href="#">Actitis hypoleucos</a> Common Sandpiper [59309]		Species or species habitat known to occur within area
<a href="#">Arenaria interpres</a> Ruddy Turnstone [872]		Roosting known to occur within area
<a href="#">Calidris acuminata</a> Sharp-tailed Sandpiper [874]		Roosting known to occur within area
<a href="#">Calidris alba</a> Sanderling [875]		Roosting known to occur within area
<a href="#">Calidris canutus</a> Red Knot, Knot [855]	Endangered	Species or species habitat may occur within area
<a href="#">Calidris ferruginea</a> Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area
<a href="#">Calidris melanotos</a> Pectoral Sandpiper [858]		Species or species habitat may occur within area
<a href="#">Calidris ruficollis</a> Red-necked Stint [860]		Roosting known to occur within area
<a href="#">Calidris subminuta</a> Long-toed Stint [861]		Roosting known to occur within area
<a href="#">Calidris tenuirostris</a> Great Knot [862]	Critically Endangered	Roosting known to occur within area
<a href="#">Charadrius leschenaultii</a> Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Roosting known to occur within area
<a href="#">Charadrius mongolus</a> Lesser Sand Plover, Mongolian Plover [879]	Endangered	Roosting known to occur within area
<a href="#">Gallinago megala</a> Swinhoe's Snipe [864]		Roosting likely to occur within area
<a href="#">Gallinago stenura</a> Pin-tailed Snipe [841]		Roosting likely to occur within area
<a href="#">Limicola falcinellus</a> Broad-billed Sandpiper [842]		Roosting known to occur within area
<a href="#">Limosa lapponica</a> Bar-tailed Godwit [844]		Species or species habitat likely to occur within area
<a href="#">Limosa limosa</a> Black-tailed Godwit [845]		Roosting known to occur within area
<a href="#">Numenius madagascariensis</a> Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area
<a href="#">Numenius minutus</a> Little Curlew, Little Whimbrel [848]		Roosting likely to occur within area
<a href="#">Numenius phaeopus</a> Whimbrel [849]		Roosting known to occur within area
<a href="#">Pandion haliaetus</a> Osprey [952]		Species or species habitat likely to occur within area

Name	Threatened	Type of Presence
<a href="#">Philomachus pugnax</a> Ruff (Reeve) [850]		Roosting known to occur within area
<a href="#">Pluvialis fulva</a> Pacific Golden Plover [25545]		Roosting known to occur within area
<a href="#">Tringa brevipes</a> Grey-tailed Tattler [851]		Roosting known to occur within area
<a href="#">Tringa glareola</a> Wood Sandpiper [829]		Roosting known to occur within area
<a href="#">Tringa nebularia</a> Common Greenshank, Greenshank [832]		Species or species habitat known to occur within area
<a href="#">Tringa stagnatilis</a> Marsh Sandpiper, Little Greenshank [833]		Roosting known to occur within area
<a href="#">Tringa totanus</a> Common Redshank, Redshank [835]		Roosting known 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
<b>Birds</b>		
<a href="#">Actitis hypoleucos</a> Common Sandpiper [59309]		Species or species habitat known to 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]		Species or species habitat likely to occur within area
<a href="#">Ardea ibis</a> Cattle Egret [59542]		Species or species habitat may occur within area
<a href="#">Arenaria interpres</a> Ruddy Turnstone [872]		Roosting known to occur within area
<a href="#">Calidris acuminata</a> Sharp-tailed Sandpiper [874]		Roosting known to occur within area
<a href="#">Calidris alba</a> Sanderling [875]		Roosting known to occur within area
<a href="#">Calidris canutus</a> Red Knot, Knot [855]	Endangered	Species or species habitat may occur within area
<a href="#">Calidris ferruginea</a> Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area
<a href="#">Calidris melanotos</a> Pectoral Sandpiper [858]		Species or species habitat may occur within area

Name	Threatened	Type of Presence
<a href="#">Calidris ruficollis</a> Red-necked Stint [860]		Roosting known to occur within area
<a href="#">Calidris subminuta</a> Long-toed Stint [861]		Roosting known to occur within area
<a href="#">Calidris tenuirostris</a> Great Knot [862]	Critically Endangered	Roosting known to occur within area
<a href="#">Charadrius leschenaultii</a> Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Roosting known to occur within area
<a href="#">Charadrius mongolus</a> Lesser Sand Plover, Mongolian Plover [879]	Endangered	Roosting known to occur within area
<a href="#">Charadrius ruficapillus</a> Red-capped Plover [881]		Roosting known to occur within area
<a href="#">Gallinago megala</a> Swinhoe's Snipe [864]		Roosting likely to occur within area
<a href="#">Gallinago stenura</a> Pin-tailed Snipe [841]		Roosting likely to occur within area
<a href="#">Haliaeetus leucogaster</a> White-bellied Sea-Eagle [943]		Species or species habitat likely to occur within area
<a href="#">Heteroscelus brevipes</a> Grey-tailed Tattler [59311]		Roosting known to occur within area
<a href="#">Himantopus himantopus</a> Pied Stilt, Black-winged Stilt [870]		Roosting known to occur within area
<a href="#">Limicola falcinellus</a> Broad-billed Sandpiper [842]		Roosting known to occur within area
<a href="#">Limosa lapponica</a> Bar-tailed Godwit [844]		Species or species habitat likely to occur within area
<a href="#">Limosa limosa</a> Black-tailed Godwit [845]		Roosting known 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 area
<a href="#">Numenius madagascariensis</a> Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area
<a href="#">Numenius minutus</a> Little Curlew, Little Whimbrel [848]		Roosting likely to occur within area
<a href="#">Numenius phaeopus</a> Whimbrel [849]		Roosting known to occur within area
<a href="#">Pachyptila turtur</a> Fairy Prion [1066]		Species or species habitat likely to occur within area
<a href="#">Pandion haliaetus</a> Osprey [952]		Species or species habitat likely to occur within area
<a href="#">Philomachus pugnax</a> Ruff (Reeve) [850]		Roosting known to occur

Name	Threatened	Type of Presence
<a href="#">Pluvialis fulva</a> Pacific Golden Plover [25545]		Roosting known to occur within area
<a href="#">Puffinus carneipes</a> Flesh-footed Shearwater, Fleshy-footed Shearwater [1043]		Species or species habitat likely to occur within area
<a href="#">Recurvirostra novaehollandiae</a> Red-necked Avocet [871]		Roosting known to occur within area
<a href="#">Rostratula benghalensis (sensu lato)</a> Painted Snipe [889]	Endangered*	Species or species habitat likely to occur within area
<a href="#">Thinornis rubricollis</a> Hooded Plover [59510]		Species or species habitat known to occur within area
<a href="#">Tringa glareola</a> Wood Sandpiper [829]		Roosting known to occur within area
<a href="#">Tringa nebularia</a> Common Greenshank, Greenshank [832]		Species or species habitat known to occur within area
<a href="#">Tringa stagnatilis</a> Marsh Sandpiper, Little Greenshank [833]		Roosting known to occur within area
<a href="#">Tringa totanus</a> Common Redshank, Redshank [835]		Roosting known to occur within area

## Extra Information

State and Territory Reserves	[ Resource Information ]
Name	State
Yalgorup	WA

## 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>		
Anas platyrhynchos Mallard [974]		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

Name	Status	Type of Presence habitat likely to occur within area
<b>Mammals</b>		
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
Feral deer Feral deer species in Australia [85733]		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 rattus Black Rat, Ship Rat [84]		Species or species habitat likely to occur within area
Sus scrofa Pig [6]		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>		
Asparagus asparagoides Bridal Creeper, Bridal Veil Creeper, Smilax, Florist's Smilax, Smilax Asparagus [22473]		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 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]		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



Nationally Important Wetlands

[ Resource Information ]

Name

State

[Yalgorup Lakes System](#)

WA

# 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

-32.82791 115.65031

# 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 E**

## **RAW VERTEBRATE TRAPPING & RECORDING RESULTS**

**Trap and Opportunistic Observations**  
(excluding birds observed opportunistically)

Date	Trap Site	Trap Type	Common Name	Species	Abundance
06-04-2020	Opportunistic	Opportunistic	Bobtail	<i>Tiliqua rugosa</i>	1
06-04-2020	Bat Site 1	Wildlife Acoustics	White-striped Free-tailed Bat	<i>Austronomus australis</i>	1
06-04-2020	Bat Site 1	Wildlife Acoustics	Gould's Wattleed Bat	<i>Chalinolobus gouldii</i>	1
06-04-2020	PT 1	Bucket	Dwarf Skink	<i>Menetia greyii</i>	1
06-04-2020	Bat Site 1	Wildlife Acoustics	Western Long-eared Bat	<i>Nyctophilus major</i>	1
06-04-2020	Bat Site 1	Wildlife Acoustics	Southern Forest Bat	<i>Vespadelus regulus</i>	1
07-04-2020	GH 07	Camera Trap	Western Grey Kangaroo	<i>Macropus fuliginosus</i>	2
07-04-2020	GH 68	Camera Trap	Western Grey Kangaroo	<i>Macropus fuliginosus</i>	1
07-04-2020	GH 68	Camera Trap	Rabbit	<i>Oryctolagus cuniculus</i>	1
08-04-2020	Bat Site 2	Wildlife Acoustics	White-striped Free-tailed Bat	<i>Austronomus australis</i>	1
08-04-2020	Bat Site 2	Wildlife Acoustics	Gould's Wattleed Bat	<i>Chalinolobus gouldii</i>	1
08-04-2020	Bat Site 2	Wildlife Acoustics	Chocolate Wattleed Bat	<i>Chalinolobus morio</i>	1
08-04-2020	Bat Site 2	Wildlife Acoustics	Western False Pipistrelle	<i>Falsistrellus mackenziei</i>	1
08-04-2020	Opportunistic	Opportunistic	Two-toed Mulch Skink	<i>Hemiergis quadrilineata</i>	1
08-04-2020	Opportunistic	Opportunistic	West Coast Pale-flecked Morethia	<i>Morethia lineocellata</i>	1
08-04-2020	GH 07	Camera Trap	Western Grey Kangaroo	<i>Macropus fuliginosus</i>	2
08-04-2020	GH 07	Camera Trap	Western Grey Kangaroo	<i>Macropus fuliginosus</i>	1
08-04-2020	GH 10	Camera Trap	Common Brushtail Possum	<i>Trichosurus vulpecula</i>	1
08-04-2020	GH 10	Camera Trap	Western Grey Kangaroo	<i>Macropus fuliginosus</i>	1
08-04-2020	GH 12	Camera Trap	Western Grey Kangaroo	<i>Macropus fuliginosus</i>	2
09-04-2020	Bat Site 3	Wildlife Acoustics	White-striped Free-tailed Bat	<i>Austronomus australis</i>	1
09-04-2020	Bat Site 3	Wildlife Acoustics	Gould's Wattleed Bat	<i>Chalinolobus gouldii</i>	1
09-04-2020	PT 1	Funnel	Buchanan's Snake-eyed Skink	<i>Cryptoblepharus buchananii</i>	1
09-04-2020	Bat Site 3	Wildlife Acoustics	Western False Pipistrelle	<i>Falsistrellus mackenziei</i>	1
09-04-2020	PT 2	Bucket	Burton's Legless Lizard	<i>Lialis burtonis</i>	1
09-04-2020	PT 1	Bucket	Dwarf Skink	<i>Menetia greyii</i>	1
09-04-2020	PT 3	Bucket	Dwarf Skink	<i>Menetia greyii</i>	1
09-04-2020	TRAP LINE 4	Funnel	Dwarf Skink	<i>Menetia greyii</i>	1
09-04-2020	Opportunistic	Opportunistic	Dwarf Skink	<i>Menetia greyii</i>	1
09-04-2020	Opportunistic	Opportunistic	Dwarf Skink	<i>Menetia greyii</i>	1
09-04-2020	Opportunistic	Opportunistic	Dwarf Skink	<i>Menetia greyii</i>	1
09-04-2020	TRAP LINE 4	Funnel	West Coast Pale-flecked Morethia	<i>Morethia lineocellata</i>	1
09-04-2020	PT 9	Elliot (A)	House Mouse	<i>Mus musculus</i>	1
09-04-2020	Bat Site 3	Wildlife Acoustics	Lesser Long-eared Bat	<i>Nyctophilus geoffroyi</i>	1
09-04-2020	Bat Site 3	Wildlife Acoustics	Western Long-eared Bat	<i>Nyctophilus major</i>	1
09-04-2020	Bat Site 3	Wildlife Acoustics	Western Free-tailed Bat	<i>Ozimops kitcheneri</i>	1
09-04-2020	Bat Site 3	Wildlife Acoustics	Southern Forest Bat	<i>Vespadelus regulus</i>	1
09-04-2020	GH 05	Camera Trap	Western Grey Kangaroo	<i>Macropus fuliginosus</i>	1
09-04-2020	GH 07	Camera Trap	Western Grey Kangaroo	<i>Macropus fuliginosus</i>	1
09-04-2020	GH 12	Camera Trap	Quenda	<i>Isoodon fusciventer</i>	1
09-04-2020	GH 68	Camera Trap	Western Grey Kangaroo	<i>Macropus fuliginosus</i>	1
09-04-2020	GH 69	Camera Trap	Western Grey Kangaroo	<i>Macropus fuliginosus</i>	1
10-04-2020	Opportunistic	Opportunistic	Two-toed Mulch Skink	<i>Hemiergis quadrilineata</i>	1
10-04-2020	CAGE 36	Cage	Quenda	<i>Isoodon fusciventer</i>	1
10-04-2020	PT 4	Bucket	Dwarf Skink	<i>Menetia greyii</i>	1
10-04-2020	Opportunistic	Opportunistic	Dwarf Skink	<i>Menetia greyii</i>	1
10-04-2020	Opportunistic	Opportunistic	Dwarf Skink	<i>Menetia greyii</i>	1
10-04-2020	PT 1	Funnel	West Coast Pale-flecked Morethia	<i>Morethia lineocellata</i>	1
10-04-2020	TRAP LINE 3	Funnel	Western Bearded Dragon	<i>Pogona minor</i>	1
10-04-2020	CAGE 24	Cage	Common Brushtail Possum	<i>Trichosurus vulpecula</i>	1
10-04-2020	CAGE 14	Cage	Common Brushtail Possum	<i>Trichosurus vulpecula</i>	1
10-04-2020	TRAP LINE 4	Funnel	Burton's Legless Lizard	<i>Lialis burtonis</i>	1
10-04-2020	TRAP LINE 3	Funnel	West Coast Pale-flecked Morethia	<i>Morethia lineocellata</i>	1
10-04-2020	ELLIOT 26	Elliot (B)	Bobtail	<i>Tiliqua rugosa</i>	1
10-04-2020	GH 01	Camera Trap	Splendid Fairy-wren	<i>Malurus splendens</i>	1
10-04-2020	GH 10	Camera Trap	Common Brushtail Possum	<i>Trichosurus vulpecula</i>	1
10-04-2020	GH 69	Camera Trap	Common Brushtail Possum	<i>Trichosurus vulpecula</i>	1
10-04-2020	GH 84	Camera Trap	Common Brushtail Possum	<i>Trichosurus vulpecula</i>	1
11-04-2020	Opportunistic	Opportunistic	Two-toed Mulch Skink	<i>Hemiergis quadrilineata</i>	1
11-04-2020	TRAP LINE 4	Funnel	West Coast Pale-flecked Morethia	<i>Morethia lineocellata</i>	1
11-04-2020	PT 9	Elliot (B)	House Mouse	<i>Mus musculus</i>	1
11-04-2020	CAGE 13	Cage	Common Brushtail Possum	<i>Trichosurus vulpecula</i>	1
11-04-2020	GH 01	Camera Trap	Splendid Fairy-wren	<i>Malurus splendens</i>	1
11-04-2020	GH 69	Camera Trap	Western Grey Kangaroo	<i>Macropus fuliginosus</i>	2
12-04-2020	TRAP LINE 2	Funnel	Two-toed Mulch Skink	<i>Hemiergis quadrilineata</i>	1
12-04-2020	PT 3	Bucket	Dwarf Skink	<i>Menetia greyii</i>	1
12-04-2020	CAGE 14	Cage	Dwarf Skink	<i>Menetia greyii</i>	1
12-04-2020	TRAP LINE 2	Funnel	West Coast Pale-flecked Morethia	<i>Morethia lineocellata</i>	1
12-04-2020	Opportunistic	Opportunistic	West Coast Pale-flecked Morethia	<i>Morethia lineocellata</i>	1
12-04-2020	PT 5	Elliot (B)	House Mouse	<i>Mus musculus</i>	1
12-04-2020	GH 01	Camera Trap	Western Grey Kangaroo	<i>Macropus fuliginosus</i>	1
12-04-2020	GH 06	Camera Trap	Western Grey Kangaroo	<i>Macropus fuliginosus</i>	1

Date	Trap Site	Trap Type	Common Name	Species	Abundance
12-04-2020	GH 07	Camera Trap	Western Grey Kangaroo	<i>Macropus fuliginosus</i>	1
12-04-2020	GH 69	Camera Trap	Australian Magpie	<i>Cracticus tibicen</i>	2
12-04-2020	GH 84	Camera Trap	Western Grey Kangaroo	<i>Macropus fuliginosus</i>	1
13-04-2020	TRAP LINE 1	Funnel	Bardick	<i>Echiopsis curta</i>	1
13-04-2020	PT 1	Funnel	Two-toed Mulch Skink	<i>Hemiergis quadrilineata</i>	1
13-04-2020	Opportunistic	Opportunistic	Two-toed Mulch Skink	<i>Hemiergis quadrilineata</i>	1
13-04-2020	PT 3	Funnel	Dwarf Skink	<i>Menetia greyii</i>	1
13-04-2020	PT 3	Funnel	Dwarf Skink	<i>Menetia greyii</i>	1
13-04-2020	TRAP LINE 2	Funnel	West Coast Pale-flecked Morethia	<i>Morethia lineocellata</i>	1
13-04-2020	Opportunistic	Opportunistic	West Coast Pale-flecked Morethia	<i>Morethia lineocellata</i>	1
13-04-2020	Opportunistic	Opportunistic	West Coast Pale-flecked Morethia	<i>Morethia lineocellata</i>	1
13-04-2020	CAGE 24	Cage	Bobtail	<i>Tiliqua rugosa</i>	1
13-04-2020	CAGE 43	Cage	Bobtail	<i>Tiliqua rugosa</i>	1
13-04-2020	CAGE 13	Cage	Common Brushtail Possum	<i>Trichosurus vulpecula</i>	1
13-04-2020	CAGE 14	Cage	Common Brushtail Possum	<i>Trichosurus vulpecula</i>	1
13-04-2020	CAGE 15	Cage	Common Brushtail Possum	<i>Trichosurus vulpecula</i>	1
13-04-2020	GH 06	Camera Trap	Western Grey Kangaroo	<i>Macropus fuliginosus</i>	1
13-04-2020	GH 07	Camera Trap	Western Grey Kangaroo	<i>Macropus fuliginosus</i>	1
13-04-2020	GH 68	Camera Trap	Western Grey Kangaroo	<i>Macropus fuliginosus</i>	1
13-04-2020	GH 69	Camera Trap	Western Grey Kangaroo	<i>Macropus fuliginosus</i>	1
13-04-2020	GH 82	Camera Trap	Common Bronzewing	<i>Phaps chalcoptera</i>	1
14-04-2020	Opportunistic	Opportunistic	Two-toed Mulch Skink	<i>Hemiergis quadrilineata</i>	1
14-04-2020	PT 5	Bucket	Dwarf Skink	<i>Menetia greyii</i>	1
14-04-2020	Opportunistic	Opportunistic	Dwarf Skink	<i>Menetia greyii</i>	1
14-04-2020	Opportunistic	Opportunistic	West Coast Pale-flecked Morethia	<i>Morethia lineocellata</i>	1
14-04-2020	Opportunistic	Opportunistic	Bobtail	<i>Tiliqua rugosa</i>	1
14-04-2020	CAGE 24	Cage	Common Brushtail Possum	<i>Trichosurus vulpecula</i>	1
14-04-2020	CAGE 37	Cage	Common Brushtail Possum	<i>Trichosurus vulpecula</i>	1
14-04-2020	CAGE 11	Cage	Common Brushtail Possum	<i>Trichosurus vulpecula</i>	1
14-04-2020	CAGE 15	Cage	Common Brushtail Possum	<i>Trichosurus vulpecula</i>	1
14-04-2020	GH 06	Camera Trap	Western Grey Kangaroo	<i>Macropus fuliginosus</i>	1
14-04-2020	GH 07	Camera Trap	Western Grey Kangaroo	<i>Macropus fuliginosus</i>	1
14-04-2020	GH 12	Camera Trap	Rabbit	<i>Oryctolagus cuniculus</i>	1
14-04-2020	GH 22	Camera Trap	Common Brushtail Possum	<i>Trichosurus vulpecula</i>	1
14-04-2020	GH 69	Camera Trap	Western Grey Kangaroo	<i>Macropus fuliginosus</i>	1
14-04-2020	GH 82	Camera Trap	Western Grey Kangaroo	<i>Macropus fuliginosus</i>	1
14-04-2020	GH 82	Camera Trap	Rabbit	<i>Oryctolagus cuniculus</i>	1
15-04-2020	TRAP LINE 1	Funnel	Bardick	<i>Echiopsis curta</i>	1
15-04-2020	PT 1	Funnel	West Coast Pale-flecked Morethia	<i>Morethia lineocellata</i>	1
15-04-2020	ELLIOT 26	Elliot (B)	House Mouse	<i>Mus musculus</i>	1
15-04-2020	CAGE 24	Cage	Bobtail	<i>Tiliqua rugosa</i>	1
15-04-2020	CAGE 37	Cage	Common Brushtail Possum	<i>Trichosurus vulpecula</i>	1
15-04-2020	CAGE 12	Cage	Common Brushtail Possum	<i>Trichosurus vulpecula</i>	1
15-04-2020	CAGE 15	Cage	Common Brushtail Possum	<i>Trichosurus vulpecula</i>	1
15-04-2020	GH 01	Camera Trap	Western Grey Kangaroo	<i>Macropus fuliginosus</i>	1
15-04-2020	GH 02	Camera Trap	Western Yellow Robin	<i>Eopsaltria griseogularis</i>	1
15-04-2020	GH 03	Camera Trap	Western Grey Kangaroo	<i>Macropus fuliginosus</i>	1
15-04-2020	GH 07	Camera Trap	Western Grey Kangaroo	<i>Macropus fuliginosus</i>	2
15-04-2020	GH 10	Camera Trap	Western Grey Kangaroo	<i>Macropus fuliginosus</i>	1
15-04-2020	GH 68	Camera Trap	Western Grey Kangaroo	<i>Macropus fuliginosus</i>	2
15-04-2020	GH 69	Camera Trap	Western Grey Kangaroo	<i>Macropus fuliginosus</i>	2
16-04-2020	PT 2	Funnel	Dwarf Skink	<i>Menetia greyii</i>	1
16-04-2020	Opportunistic	Opportunistic	West Coast Pale-flecked Morethia	<i>Morethia lineocellata</i>	1
16-04-2020	GH 07	Camera Trap	Western Grey Kangaroo	<i>Macropus fuliginosus</i>	2
16-04-2020	GH 66	Camera Trap	Western Grey Kangaroo	<i>Macropus fuliginosus</i>	1
16-04-2020	GH 66	Camera Trap	Emu	<i>Dromaius novaehollandiae</i>	1
16-04-2020	GH 68	Camera Trap	Western Grey Kangaroo	<i>Macropus fuliginosus</i>	1
16-04-2020	GH 69	Camera Trap	Western Grey Kangaroo	<i>Macropus fuliginosus</i>	1
16-04-2020	GH 82	Camera Trap	Common Bronzewing	<i>Phaps chalcoptera</i>	1
17-04-2020	PT 1	Funnel	Reticulated Whipsnake	<i>Demansia reticulata</i>	1
17-04-2020	PT 10	Funnel	Two-toed Mulch Skink	<i>Hemiergis quadrilineata</i>	1
17-04-2020	TRAP LINE 4	Funnel	Dwarf Skink	<i>Menetia greyii</i>	1
17-04-2020	TRAP LINE 4	Funnel	West Coast Pale-flecked Morethia	<i>Morethia lineocellata</i>	1
17-04-2020	PT 9	Bucket	House Mouse	<i>Mus musculus</i>	1
17-04-2020	GH 06	Camera Trap	Western Grey Kangaroo	<i>Macropus fuliginosus</i>	1
17-04-2020	GH 07	Camera Trap	Western Grey Kangaroo	<i>Macropus fuliginosus</i>	1
17-04-2020	GH 07	Camera Trap	Splendid Fairy-wren	<i>Malurus splendens</i>	1
17-04-2020	GH 12	Camera Trap	Western Grey Kangaroo	<i>Macropus fuliginosus</i>	2
17-04-2020	GH 68	Camera Trap	Western Grey Kangaroo	<i>Macropus fuliginosus</i>	1
17-04-2020	GH 69	Camera Trap	Western Grey Kangaroo	<i>Macropus fuliginosus</i>	1
18-04-2020	GH 02	Camera Trap	Splendid Fairy-wren	<i>Malurus splendens</i>	1
18-04-2020	GH 02	Camera Trap	Silvereye	<i>zosterops lateralis</i>	1
18-04-2020	GH 07	Camera Trap	Splendid Fairy-wren	<i>Malurus splendens</i>	1
18-04-2020	GH 07	Camera Trap	Western Grey Kangaroo	<i>Macropus fuliginosus</i>	2

Date	Trap Site	Trap Type	Common Name	Species	Abundance
18-04-2020	GH 10	Camera Trap	Western Grey Kangaroo	<i>Macropus fuliginosus</i>	1
18-04-2020	GH 69	Camera Trap	Red Fox	<i>Vulpes vulpes</i>	1
18-04-2020	GH 84	Camera Trap	Western Grey Kangaroo	<i>Macropus fuliginosus</i>	1
18-04-2020	GH 84	Camera Trap	Splendid Fairy-wren	<i>Malurus splendens</i>	1
19-04-2020	GH 02	Camera Trap	Splendid Fairy-wren	<i>Malurus splendens</i>	1
19-04-2020	GH 07	Camera Trap	Quenda	<i>Isoodon fusciventer</i>	1
19-04-2020	GH 07	Camera Trap	Rabbit	<i>Oryctolagus cuniculus</i>	1
19-04-2020	GH 68	Camera Trap	Western Grey Kangaroo	<i>Macropus fuliginosus</i>	1
19-04-2020	GH 69	Camera Trap	Common Brushtail Possum	<i>Trichosurus vulpecula</i>	1
19-04-2020	GH 69	Camera Trap	Red Fox	<i>Vulpes vulpes</i>	1
20-04-2020	GH 10	Camera Trap	Common Brushtail Possum	<i>Trichosurus vulpecula</i>	1
20-04-2020	GH 12	Camera Trap	Western Grey Kangaroo	<i>Macropus fuliginosus</i>	1
20-04-2020	GH 68	Camera Trap	Western Grey Kangaroo	<i>Macropus fuliginosus</i>	1
20-04-2020	GH 69	Camera Trap	Western Grey Kangaroo	<i>Macropus fuliginosus</i>	1
20-04-2020	GH 69	Camera Trap	Red Fox	<i>Vulpes vulpes</i>	1
20-04-2020	GH 84	Camera Trap	Splendid Fairy-wren	<i>Malurus splendens</i>	1
21-04-2020	GH 68	Camera Trap	Western Grey Kangaroo	<i>Macropus fuliginosus</i>	1
21-04-2020	GH 69	Camera Trap	Western Grey Kangaroo	<i>Macropus fuliginosus</i>	1
22-04-2020	GH 66	Camera Trap	Western Grey Kangaroo	<i>Macropus fuliginosus</i>	1
22-04-2020	GH 69	Camera Trap	Rabbit	<i>Oryctolagus cuniculus</i>	1
23-04-2020	GH 07	Camera Trap	Western Grey Kangaroo	<i>Macropus fuliginosus</i>	1
23-04-2020	GH 07	Camera Trap	Common Brushtail Possum	<i>Trichosurus vulpecula</i>	1
23-04-2020	GH 69	Camera Trap	Australian Raven	<i>Corvus coronoides</i>	1
23-04-2020	GH 69	Camera Trap	Western Grey Kangaroo	<i>Macropus fuliginosus</i>	1
23-04-2020	GH 84	Camera Trap	Western Grey Kangaroo	<i>Macropus fuliginosus</i>	1
23-04-2020	GH 84	Camera Trap	Splendid Fairy-wren	<i>Malurus splendens</i>	1
24-04-2020	GH 07	Camera Trap	Red Fox	<i>Vulpes vulpes</i>	1
24-04-2020	GH 22	Camera Trap	Western Grey Kangaroo	<i>Macropus fuliginosus</i>	1
24-04-2020	GH 68	Camera Trap	Western Grey Kangaroo	<i>Macropus fuliginosus</i>	2
24-04-2020	GH 69	Camera Trap	Western Grey Kangaroo	<i>Macropus fuliginosus</i>	1
24-04-2020	GH 69	Camera Trap	Quenda	<i>Isoodon fusciventer</i>	1
24-04-2020	GH 84	Camera Trap	Painted Button-quail	<i>Turnix varia</i>	2
25-04-2020	GH 10	Camera Trap	Quenda	<i>Isoodon fusciventer</i>	1
25-04-2020	GH 10	Camera Trap	Western Grey Kangaroo	<i>Macropus fuliginosus</i>	1
25-04-2020	GH 69	Camera Trap	Western Grey Kangaroo	<i>Macropus fuliginosus</i>	1
25-04-2020	GH 69	Camera Trap	Australian Raven	<i>Corvus coronoides</i>	1
25-04-2020	GH 84	Camera Trap	Common Brushtail Possum	<i>Trichosurus vulpecula</i>	1
25-04-2020	GH 84	Camera Trap	Splendid Fairy-wren	<i>Malurus splendens</i>	1
26-04-2020	GH 01	Camera Trap	Red Fox	<i>Vulpes vulpes</i>	1
26-04-2020	GH 68	Camera Trap	Western Grey Kangaroo	<i>Macropus fuliginosus</i>	1
27-04-2020	GH 02	Camera Trap	South-western Brush-tailed	<i>Phascogale tapoatafa</i>	1
27-04-2020	GH 06	Camera Trap	Western Grey Kangaroo	<i>Macropus fuliginosus</i>	1
27-04-2020	GH 07	Camera Trap	Western Grey Kangaroo	<i>Macropus fuliginosus</i>	1
27-04-2020	GH 68	Camera Trap	Western Grey Kangaroo	<i>Macropus fuliginosus</i>	1
28-04-2020	GH 02	Camera Trap	South-western Brush-tailed	<i>Phascogale tapoatafa</i>	1
28-04-2020	GH 05	Camera Trap	Western Grey Kangaroo	<i>Macropus fuliginosus</i>	1
28-04-2020	GH 07	Camera Trap	Western Grey Kangaroo	<i>Macropus fuliginosus</i>	1
28-04-2020	GH 68	Camera Trap	Western Grey Kangaroo	<i>Macropus fuliginosus</i>	1
29-04-2020	GH 06	Camera Trap	Rabbit	<i>Oryctolagus cuniculus</i>	1
29-04-2020	GH 06	Camera Trap	Western Grey Kangaroo	<i>Macropus fuliginosus</i>	1
29-04-2020	GH 07	Camera Trap	Western Grey Kangaroo	<i>Macropus fuliginosus</i>	1
29-04-2020	GH 07	Camera Trap	Emu	<i>Dromaius novaehollandiae</i>	1
29-04-2020	GH 68	Camera Trap	Western Grey Kangaroo	<i>Macropus fuliginosus</i>	1
30-04-2020	GH 03	Camera Trap	Rabbit	<i>Oryctolagus cuniculus</i>	1
30-04-2020	GH 07	Camera Trap	Western Grey Kangaroo	<i>Macropus fuliginosus</i>	1
30-04-2020	GH 10	Camera Trap	South-western Brush-tailed	<i>Phascogale tapoatafa</i>	1
30-04-2020	GH 10	Camera Trap	Western Grey Kangaroo	<i>Macropus fuliginosus</i>	1
30-04-2020	GH 10	Camera Trap	Australian Ringneck	<i>Platycercus zonarius</i>	1
30-04-2020	GH 68	Camera Trap	Western Grey Kangaroo	<i>Macropus fuliginosus</i>	1
30-04-2020	GH 69	Camera Trap	Western Grey Kangaroo	<i>Macropus fuliginosus</i>	2
01-05-2020	GH 02	Camera Trap	Western Yellow Robin	<i>Eopsaltria griseoangularis</i>	1
01-05-2020	GH 22	Camera Trap	South-western Brush-tailed	<i>Phascogale tapoatafa</i>	1
01-05-2020	GH 69	Camera Trap	Western Grey Kangaroo	<i>Macropus fuliginosus</i>	1
01-05-2020	GH 69	Camera Trap	Red Fox	<i>Vulpes vulpes</i>	1
02-05-2020	GH 02	Camera Trap	South-western Brush-tailed	<i>Phascogale tapoatafa</i>	1
02-05-2020	GH 05	Camera Trap	South-western Brush-tailed	<i>Phascogale tapoatafa</i>	1
02-05-2020	GH 07	Camera Trap	Western Grey Kangaroo	<i>Macropus fuliginosus</i>	1
02-05-2020	GH 10	Camera Trap	South-western Brush-tailed	<i>Phascogale tapoatafa</i>	1
02-05-2020	GH 69	Camera Trap	Western Grey Kangaroo	<i>Macropus fuliginosus</i>	1
02-05-2020	GH 69	Camera Trap	Cat	<i>Felis catus</i>	1
03-05-2020	GH 01	Camera Trap	Red Fox	<i>Vulpes vulpes</i>	1
03-05-2020	GH 07	Camera Trap	Western Grey Kangaroo	<i>Macropus fuliginosus</i>	1
03-05-2020	GH 07	Camera Trap	Western Grey Kangaroo	<i>Macropus fuliginosus</i>	2
03-05-2020	GH 68	Camera Trap	Western Grey Kangaroo	<i>Macropus fuliginosus</i>	2

Date	Trap Site	Trap Type	Common Name	Species	Abundance
03-05-2020	GH 69	Camera Trap	Western Grey Kangaroo	<i>Macropus fuliginosus</i>	1
04-05-2020	GH 01	Camera Trap	Red Fox	<i>Vulpes vulpes</i>	1
04-05-2020	GH 22	Camera Trap	Western Grey Kangaroo	<i>Macropus fuliginosus</i>	1
04-05-2020	GH 68	Camera Trap	Red Fox	<i>Vulpes vulpes</i>	1
04-05-2020	GH 69	Camera Trap	Western Grey Kangaroo	<i>Macropus fuliginosus</i>	1
05-05-2020	GH 07	Camera Trap	Red Fox	<i>Vulpes vulpes</i>	1
07-05-2020	GH 68	Camera Trap	Western Grey Kangaroo	<i>Macropus fuliginosus</i>	1
09-05-2020	GH 06	Camera Trap	Western Grey Kangaroo	<i>Macropus fuliginosus</i>	1
09-05-2020	GH 07	Camera Trap	Western Grey Kangaroo	<i>Macropus fuliginosus</i>	1
09-05-2020	GH 68	Camera Trap	Western Grey Kangaroo	<i>Macropus fuliginosus</i>	1
10-05-2020	GH 01	Camera Trap	Western Grey Kangaroo	<i>Macropus fuliginosus</i>	1
10-05-2020	GH 02	Camera Trap	South-western Brush-tailed	<i>Phascogale tapoatafa</i>	1
10-05-2020	GH 07	Camera Trap	Western Grey Kangaroo	<i>Macropus fuliginosus</i>	2
11-05-2020	GH 01	Camera Trap	Red Fox	<i>Vulpes vulpes</i>	1
11-05-2020	GH 02	Camera Trap	Western Whistler	<i>Pachycephala occidentalis</i>	1
11-05-2020	GH 06	Camera Trap	Western Grey Kangaroo	<i>Macropus fuliginosus</i>	2
11-05-2020	GH 07	Camera Trap	Western Grey Kangaroo	<i>Macropus fuliginosus</i>	1
11-05-2020	GH 07	Camera Trap	Rabbit	<i>Oryctolagus cuniculus</i>	1
11-05-2020	GH 68	Camera Trap	Western Grey Kangaroo	<i>Macropus fuliginosus</i>	1
11-05-2020	GH 69	Camera Trap	Emu	<i>Dromaius novaehollandiae</i>	1
12-05-2020	GH 02	Camera Trap	South-western Brush-tailed	<i>Phascogale tapoatafa</i>	1
12-05-2020	GH 07	Camera Trap	Red Fox	<i>Vulpes vulpes</i>	1
12-05-2020	GH 22	Camera Trap	Western Grey Kangaroo	<i>Macropus fuliginosus</i>	1
12-05-2020	GH 69	Camera Trap	Western Grey Kangaroo	<i>Macropus fuliginosus</i>	2
13-05-2020	GH 01	Camera Trap	Rabbit	<i>Oryctolagus cuniculus</i>	1
13-05-2020	GH 03	Camera Trap	Western Grey Kangaroo	<i>Macropus fuliginosus</i>	1
13-05-2020	GH 07	Camera Trap	Western Grey Kangaroo	<i>Macropus fuliginosus</i>	1
13-05-2020	GH 68	Camera Trap	Western Grey Kangaroo	<i>Macropus fuliginosus</i>	1
13-05-2020	GH 69	Camera Trap	Western Grey Kangaroo	<i>Macropus fuliginosus</i>	1
14-05-2020	GH 02	Camera Trap	South-western Brush-tailed	<i>Phascogale tapoatafa</i>	1
14-05-2020	GH 07	Camera Trap	Western Grey Kangaroo	<i>Macropus fuliginosus</i>	1
14-05-2020	GH 68	Camera Trap	Emu	<i>Dromaius novaehollandiae</i>	1
14-05-2020	GH 69	Camera Trap	Australian Magpie	<i>Cracticus tibicen</i>	1
14-05-2020	GH 69	Camera Trap	Western Grey Kangaroo	<i>Macropus fuliginosus</i>	1
15-05-2020	GH 01	Camera Trap	Emu	<i>Dromaius novaehollandiae</i>	2
15-05-2020	GH 01	Camera Trap	Western Grey Kangaroo	<i>Macropus fuliginosus</i>	1
15-05-2020	GH 02	Camera Trap	Western Whistler	<i>Pachycephala occidentalis</i>	1
15-05-2020	GH 02	Camera Trap	Western Grey Kangaroo	<i>Macropus fuliginosus</i>	1
15-05-2020	GH 06	Camera Trap	Western Grey Kangaroo	<i>Macropus fuliginosus</i>	2
15-05-2020	GH 07	Camera Trap	Western Grey Kangaroo	<i>Macropus fuliginosus</i>	1
15-05-2020	GH 07	Camera Trap	Emu	<i>Dromaius novaehollandiae</i>	1
15-05-2020	GH 07	Camera Trap	Rabbit	<i>Oryctolagus cuniculus</i>	1
15-05-2020	GH 68	Camera Trap	Western Grey Kangaroo	<i>Macropus fuliginosus</i>	1
15-05-2020	GH 68	Camera Trap	Laughing Kookaburra	<i>Dacelo novaeguineae</i>	1
15-05-2020	GH 68	Camera Trap	Rabbit	<i>Oryctolagus cuniculus</i>	1
15-05-2020	GH 69	Camera Trap	Western Grey Kangaroo	<i>Macropus fuliginosus</i>	1
16-05-2020	GH 01	Camera Trap	Red Fox	<i>Vulpes vulpes</i>	1
16-05-2020	GH 68	Camera Trap	Western Grey Kangaroo	<i>Macropus fuliginosus</i>	1
16-05-2020	GH 69	Camera Trap	Western Grey Kangaroo	<i>Macropus fuliginosus</i>	1
17-05-2020	GH 03	Camera Trap	Western Grey Kangaroo	<i>Macropus fuliginosus</i>	1
17-05-2020	GH 06	Camera Trap	Western Grey Kangaroo	<i>Macropus fuliginosus</i>	1
17-05-2020	GH 07	Camera Trap	Western Grey Kangaroo	<i>Macropus fuliginosus</i>	1
17-05-2020	GH 22	Camera Trap	Splendid Fairy-wren	<i>Malurus splendens</i>	1
17-05-2020	GH 68	Camera Trap	Rabbit	<i>Oryctolagus cuniculus</i>	1
17-05-2020	GH 69	Camera Trap	Western Grey Kangaroo	<i>Macropus fuliginosus</i>	1
18-05-2020	GH 01	Camera Trap	Splendid Fairy-wren	<i>Malurus splendens</i>	3
18-05-2020	GH 68	Camera Trap	South-western Brush-tailed	<i>Phascogale tapoatafa</i>	1
18-05-2020	GH 69	Camera Trap	Red Fox	<i>Vulpes vulpes</i>	1
18-05-2020	GH 69	Camera Trap	Western Grey Kangaroo	<i>Macropus fuliginosus</i>	1
19-05-2020	GH 03	Camera Trap	Emu	<i>Dromaius novaehollandiae</i>	1
19-05-2020	GH 03	Camera Trap	Western Grey Kangaroo	<i>Macropus fuliginosus</i>	1
19-05-2020	GH 07	Camera Trap	Western Grey Kangaroo	<i>Macropus fuliginosus</i>	2
19-05-2020	GH 68	Camera Trap	Western Grey Kangaroo	<i>Macropus fuliginosus</i>	1
20-05-2020	GH 02	Camera Trap	Western Grey Kangaroo	<i>Macropus fuliginosus</i>	1
20-05-2020	GH 07	Camera Trap	Western Grey Kangaroo	<i>Macropus fuliginosus</i>	1
20-05-2020	GH 22	Camera Trap	Common Brushtail Possum	<i>Trichosurus vulpecula</i>	1
20-05-2020	GH 68	Camera Trap	Western Grey Kangaroo	<i>Macropus fuliginosus</i>	1
20-05-2020	GH 69	Camera Trap	South-western Brush-tailed	<i>Phascogale tapoatafa</i>	1
21-05-2020	GH 02	Camera Trap	Western Grey Kangaroo	<i>Macropus fuliginosus</i>	1
21-05-2020	GH 05	Camera Trap	Western Grey Kangaroo	<i>Macropus fuliginosus</i>	1
21-05-2020	GH 07	Camera Trap	Splendid Fairy-wren	<i>Malurus splendens</i>	2
21-05-2020	GH 68	Camera Trap	Rabbit	<i>Oryctolagus cuniculus</i>	1
21-05-2020	GH 68	Camera Trap	Western Grey Kangaroo	<i>Macropus fuliginosus</i>	1
21-05-2020	GH 69	Camera Trap	Western Grey Kangaroo	<i>Macropus fuliginosus</i>	2



Date	Trap Site	Trap Type	Common Name	Species	Abundance
22-05-2020	GH 02	Camera Trap	Brush Bronzewing	<i>phaps elegans</i>	1
22-05-2020	GH 06	Camera Trap	Western Grey Kangaroo	<i>Macropus fuliginosus</i>	2
22-05-2020	GH 68	Camera Trap	Western Grey Kangaroo	<i>Macropus fuliginosus</i>	2
22-05-2020	GH 69	Camera Trap	Western Grey Kangaroo	<i>Macropus fuliginosus</i>	1
23-05-2020	GH 02	Camera Trap	Western Grey Kangaroo	<i>Macropus fuliginosus</i>	1
23-05-2020	GH 68	Camera Trap	Western Grey Kangaroo	<i>Macropus fuliginosus</i>	2

## Birds Recorded Opportunistically

Common Name	Species
Australian Magpie	<i>Cracticus tibicen</i>
Australian Raven	<i>Corvus coronoides</i>
Australian Ringneck	<i>Platycercus zonarius</i>
Black-faced Cuckoo-shrike	<i>Coracina novaehollandiae</i>
Black-faced Woodswallow	<i>Artamus cinereus</i>
Broad-tailed Thornbill	<i>Acanthiza apicalis</i>
Brush Bronzewing	<i>Phaps elegans</i>
Carnaby's Black-Cockatoo	<i>Calyptorhynchus latirostris</i>
Common Bronzewing	<i>Phaps chalcoptera</i>
Emu	<i>Dromaius novaehollandiae</i>
Galah	<i>Cacatua roseicapilla</i>
Grey Butcherbird	<i>Cracticus torquatus</i>
Grey Fantail	<i>Rhipidura fuliginosa</i>
Grey Shrike-thrush	<i>Colluricincla harmonica</i>
Laughing Kookaburra	<i>Dacelo novaeguineae</i>
Painted Button-quail	<i>Turnix varia</i>
Red Wattlebird	<i>Anthochaera carunculata</i>
Red-capped Parrot	<i>Platycercus spurius</i>
Regent Parrot	<i>Polytelis anthopeplus</i>
Scarlet Robin	<i>Petroica multicolor</i>
Silvereye	<i>Zosterops lateralis</i>
Singing Honeyeater	<i>Gavicalis virescens</i>
Splendid Fairy-wren	<i>Malurus splendens</i>
Spotted Nightjar	<i>Eurostopodus argus</i>
Striated Pardalote	<i>Pardalotus striatus</i>
Tree Martin	<i>Hirundo nigricans</i>
Weebill	<i>Smicrornis brevirostris</i>
Welcome Swallow	<i>Hirundo neoxena</i>
Western Gerygone	<i>Gerygone fusca</i>
Western Whistler	<i>Pachycephala occidentalis</i>
Western Yellow Robin	<i>Eopsaltria australis</i>
Whistling Kite	<i>Haliastur sphenurus</i>
Willie Wagtail	<i>Rhipidura leucophrys</i>
Yellow-rumped Thornbill	<i>Acanthiza chrysorrhoa</i>

# **APPENDIX F**

## **HABITAT TREE DETAILS**

**Habitat Trees**

Datum = GDA94

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

Waypoint Number	Zone	mE	mN	Location	Tree Species	DBH (cm)	Tree Height (m)	Number of Hollows	Estimate Hollow Entrance Size	Occupancy	Chew Marks	Potential Cockatoo Nest Hollow	Comments
wpt001	50H	373677	6366715	Lot 1002 Proposed Pit	Limestone Marlock	>50	15-20	0					
wpt002	50H	373681	6366720	Lot 1002 Proposed Pit	Limestone Marlock	>50	15-20	0					
wpt003	50H	373656	6366743	Lot 1002 Proposed Pit	Tuart	>50	20+	0					
wpt004	50H	373662	6366749	Lot 1002 Proposed Pit	Tuart	>50	20+	0					
wpt005	50H	373641	6366758	Lot 1002 Proposed Pit	Tuart	>50	15-20	0					
wpt006	50H	373703	6366696	Lot 1002 Proposed Pit	Limestone Marlock	>50	15-20	0					
wpt007	50H	373711	6366695	Lot 1002 Proposed Pit	Limestone Marlock	>50	15-20	0					
wpt008	50H	373718	6366715	Lot 1002 Proposed Pit	Limestone Marlock	>50	15-20	0					
wpt009	50H	373766	6366700	Lot 1002 Proposed Pit	Limestone Marlock	>50	15-20	0					
wpt010	50H	373779	6366691	Lot 1002 Proposed Pit	Limestone Marlock	>50	15-20	0					
wpt011	50H	373781	6366709	Lot 1002 Proposed Pit	Limestone Marlock	>50	15-20	0					
wpt012	50H	373759	6366728	Lot 1002 Proposed Pit	Tuart	>50	15-20	0					
wpt013	50H	373743	6366748	Lot 1002 Proposed Pit	Tuart	>50	15-20	0					
wpt014	50H	373751	6366742	Lot 1002 Proposed Pit	Tuart	>50	15-20	0					
wpt015	50H	373742	6366736	Lot 1002 Proposed Pit	Tuart	>50	15-20	0					
wpt016	50H	373715	6366762	Lot 1002 Proposed Pit	Tuart	>50	15-20	0					
wpt017	50H	373708	6366775	Lot 1002 Proposed Pit	Tuart	>50	15-20	0					
wpt018	50H	373698	6366792	Lot 1002 Proposed Pit	Tuart	>50	15-20	0					
wpt019	50H	373686	6366814	Lot 1002 Proposed Pit	Limestone Marlock	>50	15-20	0					
wpt020	50H	373687	6366819	Lot 1002 Proposed Pit	Tuart	>50	15-20	0					
wpt021	50H	373677	6366851	Lot 1002 Proposed Pit	Limestone Marlock	>50	15-20	0					
wpt022	50H	373639	6366884	Lot 1002 Proposed Pit	Tuart	>50	15-20	0					
wpt023	50H	373627	6366867	Lot 1002 Proposed Pit	Limestone Marlock	>50	15-20	0					
wpt024	50H	373592	6366881	Lot 1002 Proposed Pit	Tuart	>50	15-20	0					
wpt025	50H	373602	6366912	Lot 1002 Proposed Pit	Tuart	>50	15-20	0					
wpt026	50H	373603	6366923	Lot 1002 Proposed Pit	Tuart	>50	15-20	0					
wpt027	50H	373612	6366944	Lot 1002 Proposed Pit	Tuart	>50	15-20	0					
wpt028	50H	373573	6366941	Lot 1002 Proposed Pit	Tuart	>50	15-20	1	Small	No Signs	No Signs	No	
wpt029	50H	373567	6366946	Lot 1002 Proposed Pit	Tuart	>50	15-20	0					
wpt030	50H	373553	6366972	Lot 1002 Proposed Pit	Tuart	>50	15-20	0					
wpt031	50H	373562	6367002	Lot 1002 Proposed Pit	Tuart	>50	15-20	0					
wpt032	50H	373592	6367055	Lot 1002 Proposed Pit	Tuart	>50	15-20	0					
wpt033	50H	373561	6367096	Lot 1002 Proposed Pit	Dead Tuart	>50	15-20	2+	Small	No Signs	No Signs	No	
wpt034	50H	373591	6367105	Lot 1002 Proposed Pit	Tuart	>50	15-20	0					
wpt035	50H	373602	6367115	Lot 1002 Proposed Pit	Tuart	>50	15-20	0					
wpt036	50H	373586	6367137	Lot 1002 Proposed Pit	Tuart	>50	15-20	0					
wpt037	50H	373569	6367161	Lot 1002 Proposed Pit	Tuart	>50	15-20	0					
wpt038	50H	373601	6367167	Lot 1002 Proposed Pit	Dead Tuart	>50	15-20	2+	Small & Medium	No Signs	No Signs	No	
wpt039	50H	373570	6367182	Lot 1002 Proposed Pit	Tuart	>50	15-20	0					
wpt040	50H	373560	6367190	Lot 1002 Proposed Pit	Tuart	>50	15-20	0					

Waypoint Number	Zone	mE	mN	Location	Tree Species	DBH (cm)	Tree Height (m)	Number of Hollows	Estimate Hollow Entrance Size	Occupancy	Chew Marks	Potential Cockatoo Nest Hollow	Comments
wpt041	50H	373623	6367224	Lot 1002 Proposed Pit	Tuart	>50	15-20	0					
wpt042	50H	373669	6367248	Lot 1002 Proposed Pit	Dead Tuart	>50	15-20	2+	Small	No Signs	No Signs	No	
wpt043	50H	373729	6367281	Lot 1002 Proposed Pit	Dead Tuart	>50	15-20	2+	Small	No Signs	No Signs	No	
wpt044	50H	373731	6367303	Lot 1002 Proposed Pit	Dead Tuart	>50	15-20	2+	Small	No Signs	No Signs	No	
wpt045	50H	373752	6367318	Lot 1002 Proposed Pit	Tuart	>50	15-20	0					
wpt046	50H	373718	6367234	Lot 1002 Proposed Pit	Tuart	>50	15-20	0					
wpt047	50H	373714	6367196	Lot 1002 Proposed Pit	Limestone Marlock	>50	10-15	0					
wpt048	50H	373690	6367207	Lot 1002 Proposed Pit	Limestone Marlock	>50	10-15	0					
wpt049	50H	373728	6367083	Lot 1002 Proposed Pit	Tuart	>50	15-20	1	Medium	No Signs	No Signs	No	
wpt050	50H	373671	6367093	Lot 1002 Proposed Pit	Tuart	>50	15-20	0					
wpt051	50H	373740	6366936	Lot 1002 Proposed Pit	Tuart	>50	15-20	0					
wpt052	50H	373774	6366876	Lot 1002 Proposed Pit	Tuart	>50	15-20	0					
wpt053	50H	373711	6366370	Lot 1002 Proposed Access Track	Tuart	>50	20+	0					
wpt054	50H	373734	6366358	Lot 1002 Proposed Access Track	Tuart	>50	15-20	0					
wpt055	50H	373745	6366330	Lot 1002 Proposed Access Track	Tuart	>50	15-20	2+	Small & Medium	No Signs	No Signs	No	
wpt056	50H	373771	6366308	Lot 1002 Proposed Access Track	Tuart	>50	20+	0					
wpt057	50H	373780	6366300	Lot 1002 Proposed Access Track	Tuart	>50	20+	0					
wpt058	50H	373781	6366292	Lot 1002 Proposed Access Track	Tuart	>50	15-20	0					
wpt059	50H	373801	6366290	Lot 1002 Proposed Access Track	Tuart	>50	15-20	0					
wpt060	50H	373795	6366298	Lot 1002 Proposed Access Track	Tuart	>50	15-20	0					
wpt061	50H	373789	6366305	Lot 1002 Proposed Access Track	Dead Tuart	>50	15-20	0					
wpt062	50H	373955	6366213	Preston Beach Road North	Tuart	>50	15-20	0					
wpt063	50H	374798	6365883	Preston Beach Road North	Tuart	>50	15-20	0					
wpt064	50H	374805	6365861	Preston Beach Road North	Tuart	>50	15-20	1	Small & Medium	No Signs	No Signs	No	
wpt065	50H	374808	6365872	Preston Beach Road North	Dead Tuart	>50	15-20	0					
wpt066	50H	374816	6365364	Preston Beach Road North	Tuart	>50	15-20	0					
wpt067	50H	374836	6365250	Preston Beach Road North	Limestone Marlock	>50	10-15	0					
wpt068	50H	374835	6365251	Preston Beach Road North	Limestone Marlock	>50	10-15	0					
wpt069	50H	375052	6364566	Preston Beach Road North	Tuart	>50	15-20	0					
wpt070	50H	375056	6364548	Preston Beach Road North	Tuart	>50	15-20	0					
wpt071	50H	375062	6364502	Preston Beach Road North	Tuart	>50	15-20	0					
wpt072	50H	375064	6364493	Preston Beach Road North	Tuart	>50	15-20	0					
wpt073	50H	375065	6364489	Preston Beach Road North	Jarrah	>50	15-20	0					
wpt074	50H	375090	6364162	Preston Beach Road North	Tuart	>50	15-20	0					
wpt075	50H	375093	6363963	Preston Beach Road North	Dead Tuart	>50	15-20	2+	Small, Medium & Large	No Signs	No Signs	No	Large hollow too low for cockatoos
wpt076	50H	375090	6363895	Preston Beach Road North	Dead Tuart	>50	15-20	2+	Small	No Signs	No Signs	No	
wpt077	50H	375091	6363881	Preston Beach Road North	Tuart	>50	20+	0					
wpt078	50H	375093	6363768	Preston Beach Road North	Tuart	>50	20+	1	Medium	No Signs	Galahs	No	Evidence of Galah nesting activity
wpt079	50H	375089	6363777	Preston Beach Road North	Tuart	>50	20+	0					
wpt080	50H	375093	6363726	Preston Beach Road North	Tuart	>50	20+	0					
wpt081	50H	375235	6363602	Preston Beach Road North	Tuart	>50	15-20	0					
wpt082	50H	375689	6362635	Preston Beach Road North	Dead Tuart	>50	15-20	2+	Small	No Signs	No Signs	No	
wpt083	50H	375824	6362018	Preston Beach Road North	Dead Tuart	>50	10-15	1	Large (Cockatoo)	No Signs	No Signs	Yes	Possible large side entry hollow

Waypoint Number	Zone	mE	mN	Location	Tree Species	DBH (cm)	Tree Height (m)	Number of Hollows	Estimate Hollow Entrance Size	Occupancy	Chew Marks	Potential Cockatoo Nest Hollow	Comments
wpt084	50H	375811	6362024	Preston Beach Road North	Tuart	>50	15-20	0					
wpt085	50H	375953	6361745	Preston Beach Road North	Tuart	>50	15-20	0					
wpt086	50H	375911	6361842	Preston Beach Road North	Tuart	>50	15-20	0					
wpt087	50H	376000	6361556	Preston Beach Road North	Tuart	>50	15-20	0					

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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.

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