

# Appendix F

Fauna Assessment (Harewood 2018)



# Fauna Assessment



## Lot 102 Farrall Road Midvale

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*Version 1*

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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 Bill:** *Biodiversity Conservation Bill (2015)*. 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.

**DBCA:** Department of Biodiversity, Conservation and Attractions (formerly DBCA, 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 DotEE), Australian Government.

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

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

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

**DMP:** Department of Mines and Petroleum (formerly DoIR), WA Government.

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

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

**DotE:** Department of the Environment (now DotEE), Australian Government.

**DotEE:** Department of the Environment and Energy (formerly SEWPaC, DWEHA, DEH & DotE), Australian Government.

**DoIR:** Department of Industry and Resources (now DMP), 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.

**LSP:** Local Structure Plan

**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 DotEE), 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*, WA Government.

## SUMMARY

This report details the results of a fauna assessment of Lot 102 Farrall Road, Midvale (subject site). The subject site has a total area of approximately 8.3 ha most of which is cleared of native vegetation. Lot 102 contains Bush Forever Site 309 (Farrall Road Bushland – Stratton) (Figure 1 & 2).

Peet Stratton Pty Ltd propose to develop the site for urban uses as part of the wider Movida residential development (Estate). The LSP inclusive of the wider Estate and Lot 102 was approved by the WAPC on 15 September 2016. A range of investigations, including this fauna survey, have been undertaken in order to fully understand the suite of environmental values across the area.

The scope of works was to conduct a level 1 fauna survey as defined by the Environmental Protection Authority (EPA 2004). Because some listed threatened species (i.e. several species of black cockatoo) are known to occur in the general area, the scope of the survey work was expanded to include targeted assessment of the site's significance to these particular species. The assessment has included a literature review and two day time surveys.

The majority of the subject site is cleared or parkland cleared and is now comprised of a closed forb/grassland of pasture weeds with widely scattered trees and shrubs. A sparse to open woodland of banksia and in some areas coastal blackbutt over forb/grassland of pasture weeds occurs within the central section of the subject site. A small area of marri is present in the far northern section of the subject site. Bush Forever Site 309, located in the south west corner contains a woodland/low forest of paperbark over sedgeland and is subject to seasonal inundation/waterlogging (Figure 3).

Overall fauna habitat values at the site have been severely compromised by the total or partial clearing of native vegetation. Most areas lack any natural attributes and are now only utilised by generally common and widespread fauna species with non-specific requirements which allow them to persist in highly disturbed habitats. Bush Forever Site 309 has retained its value as fauna habitat.

Despite the area's history of disturbance, the site does however still provide suitable habitat for a range of species, some of which are of conservation significance.

The habitat tree assessment identified a total of 15 trees with a DBH of  $\geq 50$ cms within the subject site. Twelve of the trees were not observed to contain hollows of any size. Three trees contained one or more possible hollows considered by the Author not to be suitable for black cockatoos to use for nesting purposes. No trees were identified as containing hollows or potential hollows suitable for black cockatoos to use for nesting purposes.

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

Foraging debris left by black cockatoos was observed at several locations within the subject site during both site surveys. This foraging activity was attributed to Carnaby's black-cockatoo



and/or the forest red-tailed black cockatoo species based on the plant species and in the case of marri, chew marks left on the fruit body.

Quality foraging habitat is represented by the areas of marri which make up only about 0.2 ha of the subject site. It is difficult to estimate the total extent of other foraging habitat present as it is comprised of scattered individual trees or small groves of trees (mainly banksia) but would not total more than 1.0 ha. The small number of banksia and jarrah trees present also shows signs of significant decline with many dead specimens being observed.

No existing roosting trees (trees used at night by black cockatoos to rest) were positively identified during the survey period.

Based on available vegetation mapping it is estimated that there is approximately 10,950 ha of native vegetation within 10 km the subject site (~33% of total area) much of which is likely to contain black cockatoo habitat of some type. Almost 40% (~4,280 ha) of this vegetation occurs within national parks or reserves.

Opportunistic fauna observations are listed in Appendix B. A total of 33 native fauna species were observed (or positively identified from foraging evidence, scats, tracks, skeletons or calls) within or near the subject site during the two day time surveys. Five introduced species were also confirmed as being present.

Evidence of two listed threatened black cockatoo species was observed (Carnaby's black-cockatoo – small flock (4) and foraging evidence (chewed banksia cones, marri and coastal blackbutt fruits) and the forest red-tailed black cockatoo (chewed sheoak and coastal blackbutt fruits)). No evidence of any migratory or DBCA priority fauna species using the area was found.

With respect to native vertebrate fauna, 10 mammals (includes eight bat species), 97 bird, 16 reptile, nine frog species have previously been recorded in the general area, some of which have the potential to occur in or utilise sections of the subject site at times.

Of the 133 native animals that are listed as potentially occurring in the area, four are considered to be endangered/vulnerable or in need of special protection under State and/or Federal law, these being the three species of black cockatoo and the peregrine falcon. In addition, one DBCA priority species (quenda) may also utilise sections of the subject site where suitable habitat exists.

Taking into account the currently proposed development plan which includes the retention of the Bush Forever site and other main areas of bushland, no substantial impacts on vertebrate fauna are anticipated as a consequence of development at the site. In cases where some impact is anticipated, the degree of the impact is only expected to be low and relates to the loss of small areas of habitat, but as most species are common and widespread no overall change in their conservation status is anticipated, despite a possible localised reduction in habitat extent.

It is also considered unlikely that impacts on black cockatoos that may occur as a result of the development proceeding as currently proposed would result in a “significant impact” as defined by the Federal DotEE (DotEE 2013) and therefore no constraints on development in regard to this matter are, at this stage, anticipated.

## 1. INTRODUCTION

This report details the results of a fauna assessment of Lot 102 Farrall Road, Midvale (subject site). The subject site is situated about 18 kilometres east of the Perth central business district in south west Western Australia and is centred at approximately 31.876718 °S and 116.034255 °E (Figure 1).

The subject site has a total area of approximately 8.3 ha most of which is cleared of native vegetation. Lot 102 contains Bush Forever Site 309 (*Farrall Road Bushland – Stratton*) (Figure 2).

## 2. DEVELOPMENT PROPOSAL

Peet Stratton Pty Ltd propose to develop the site for urban uses as part of the wider Movida residential development (Estate). The LSP inclusive of the wider Estate and Lot 102 was approved by the WAPC on 15 September 2016.

A range of investigations, including this fauna survey, have been undertaken in order to fully understand the suite of environmental values across the area. The findings of this fauna survey and other investigations will be used to inform and support the development, with the primary aim of minimising potential environmental impacts as much as reasonable and practicable.

It is also anticipated that the information presented will be used by regulatory authorities to assess the potential impact of the proposal on fauna and fauna habitats as part of any required approval process.

## 3. SCOPE OF WORKS

The scope of works was to conduct a level 1 fauna survey as defined by the EPA (EPA 2016). Because some listed threatened species (i.e. several species of black cockatoo) are known to occur in the general area, the scope of the survey work was expanded to include a targeted assessment of the site's significance to these species.

The fauna assessment has therefore included:

1. Level 1 Fauna Survey (in accordance with EPA (2016) guidelines);
2. Black Cockatoo Habitat Assessment ("habitat trees" = DBH >50cm, existing and potential nest hollows, foraging and roosting habitat); and

3. Report summarising methods, results and discussion on likely constraints on development within the subject site.

This survey report has been prepared for use in the EPA's (Environmental Protection Authority's) Environmental Impact Assessment (EIA) process (if required) and is considered suitable for this purpose.

The scope of work has been restricted to a general fauna survey (Level 1 assessment) and a targeted black cockatoo habitat survey (Level 2 assessment). It is anticipated that this level of survey will provide sufficient information to allow decisions on potential impacts and management to be made.

A significant amount of detailed fauna survey work has been done in the general vicinity of the project area previously (see Section 4.1.2). Information from these studies provides a very good indication of what species, in particular species of conservation significance, are present or are likely to be present within or near the subject site. It is considered unlikely that additional detailed Level 2 surveys within the subject site would provide information that would alter any decision making processes required to allow an informed assessment of the impact of the proposal to be made.

Note: For the purposes of this report the term black cockatoo is in reference to Baudin's black-cockatoo *Calyptorhynchus baudinii*, Carnaby's black-cockatoo *Calyptorhynchus latirostris* and the forest red-tailed black-cockatoo *Calyptorhynchus banksii naso*.

## 4. METHODS

### 4.1 POTENTIAL FAUNA INVENTORY - LITERATURE REVIEW

#### 4.1.1 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 2018b); and
- Protected Matters Search Tool (DotEE 2018).

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.

#### **4.1.2 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 a list of fauna species of conservation significance most likely to occur in the general area.

Those reports referred to included, but were not limited to:

- ATA (1994). A Report of a Fauna Survey of Perth Airport. Report 93/78. Unpublished report for the Federal Airports Corporation.
- ATA Environmental (2006). Vertebrate Fauna Assessment Brookdale Redevelopment Area. Unpublished report for the Armadale Redevelopment Authority.
- Dell, J. (pers.comm) (1994). Results of Western Australia Museum Surveys, December 1986 to April 1990.
- ENV Australia (2005). Southern River Precinct 3 - Environmental Review. Unpublished report for the City of Gosnells.
- Harvey, M. S., Dell, J. How, R. A., & Waldock, J. M. (1987). Ground Fauna of Bushland Remnants on the Ridge Hill Shelf and Pinjarra Plain Landforms, Perth. Report to the Australian Heritage Commission. NEP Grant N95/49. 56 pp.
- How, R.A (1995). Objection Assessment of Fauna Values for Perth Airport. Unpublished report for the Australian Heritage Commission.
- How, R.A, Harvey, M.S., Dell J., & Waldock, J.M. (1996). Ground Fauna of Urban Bushland Remnants in Perth. Report to the Australian Heritage Commission. NEP Grant N93/04. 103 pp.
- Turpin, J. and Bamford, M. (2009). Keane Road Strategic Link Armadale, Fauna Assessment. Unpublished report for EnviroWorks Consulting.

As with the databases searches some reports refer to species that would not occur in the subject site 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.

#### 4.1.3 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.
- Bush, B., Maryan, B., Browne-Cooper, R. & Robinson, D. (2010). Field Guide to Reptiles and Frogs of the Perth Region. 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.
- 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. (2017). 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.

#### **4.1.4 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 DoEE;
- *Wildlife Conservation Act 1950 (WC Act)*. Administered by the Western Australian DBCA (Govt. of WA 2018);
- 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 2018a).

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 species listed under JAMBA are also protected under Schedule 5 of the *WC Act*.)

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

The conservation status of all vertebrate fauna species listed as occurring or possibly occurring in the vicinity of the subject site 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.

A number of other species not listed in official lists can also be considered of local or regional conservation significance. These include species that have a restricted range, those that occur in breeding colonies and those at the limit of their range.

While not classified as rare, threatened or vulnerable under any State or Commonwealth legislation, a number of birds have been listed as species of significance on the Swan Coastal portion of the Perth Metropolitan Region (Bush Forever - Government of Western Australia 1998 and 2000). The bird species are often referred to as “Bush Forever Decreaser Species”.

The three categories used for birds within the Bush Forever documents are:

- Habitat specialists with reduced distribution on the Swan Coastal Plain (code Bh)
- Wide ranging Species with reduced populations on the Swan Coastal Plain. (code Bp)
- Extinct in the Perth region (code Be)

The presence of Bush Forever species should be taken into some consideration when determining the fauna values of an area. Bush Forever decreaser species are indicated as such within the species list held in Appendix B.

#### **4.1.5 Invertebrate Fauna of Conservation Significance**

It can be difficult to identify significant invertebrate species (e.g. short range endemics (SREs) as there are uncertainties in determining the range-restrictions of many species due to lack of surveys, lack of taxonomic resolutions within target taxa and problems in identifying certain life stages. Where invertebrates are collected during surveys, a high percentage are likely to be unknown, or for known species there can be limited knowledge or information on their distribution (Harvey 2002).

For this project, the assessment for conservation significant invertebrates has been limited to those listed by the DBCA and *EPBC Act* database searches (which rely on distribution records and known habitat preferences). No assessment of the potential for SREs to be present has been made.



#### 4.1.6 Likelihood of Occurrence – Vertebrate 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 subject site itself. The rankings and criteria used were:

- Would Not Occur: There is no suitable habitat for the species in the subject site 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 subject site. 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 Perth section of the Swan Coastal Plain and nearby Darling Range. Populations do however persist outside of this area.
- Unlikely to Occur: The subject site 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 subject site itself would not support individuals or a population the species.
- Possibly Occurs: The subject site 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 subject site. 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 subject site 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.

#### **4.1.7 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's 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.

### **4.2 SITE SURVEYS**

A daytime reconnaissance survey of the site was carried out on the 15 October 2014 and on the 14 July 2016. All survey work was carried out by Greg Harewood (Zoologist).

#### **4.2.1 Fauna Habitat Assessment**

The vegetation communities identified during the botanical survey of the site carried out by Emerge Associates (Emerge Associates 2015) have been used as the basis for a classification of areas into broad fauna habitat types. This information has been supplemented with observations made during the fauna assessment. The main aim of the habitat assessment was to determine if it was likely that any species of conservation significance would be utilising the areas that maybe impacted on as a consequence of development at the site. The habitat information obtained was also used to aid in finalising the overall potential fauna list.

As part of the desktop 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 field survey the habitats within the subject site were assessed and specific elements identified, if present, to determine the likelihood of listed threatened species utilising the area and its significance to them.

#### **4.2.2 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 DotEE (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.

#### **4.2.2.1 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 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 then 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 considered potentially suitable for occupation by a 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 black cockatoo nest hollow”.*

#### **4.2.2.2 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.

A review of available literature was also carried out to determine the location/extent of any known/likely black cockatoo foraging habitat areas in the vicinity of the subject site.

#### **4.2.2.3 Black Cockatoo Roosting Habitat**

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

Data from the great cocky count (2018) coordinated by Birdlife Australia has also been reviewed to determine the location/extent of any known/likely black cockatoo roosting habitat areas in the vicinity of the subject site.

#### **4.2.3 Opportunistic Fauna Observations**

Opportunistic observations of fauna species were made during the field survey. Methods involved traversing a series of transects across the subject site during the day while searching microhabitats such as logs, rocks, leaf litter and observations of bird species with binoculars. Secondary evidence of a species presence such as tracks, scats, skeletal remains, foraging evidence or calls were also noted if observed/heard.

## **5. 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 within the subject site 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.

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 a 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.

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

## **6. RESULTS**

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

A list of fauna species considered most likely to occur in the subject site has compiled from information obtained during the desktop study and is presented in Appendix B. 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 species listing as are the DBCA NatureMap database search results. The raw database search results from NatureMap (DBCA 2018b) and the Protected Matters Search Tool (DotEE 2018) are contained within Appendix C.

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, as identified during the habitat assessment, is present within the subject site, though compiling an accurate list has limitations (see Section 5 above) and therefore as discussed the listing is likely to be an overestimation of the fauna species actually present onsite at any one time.





### **6.2 SITE SURVEYS**


#### **6.2.1 Fauna Habitat Assessment**

Descriptions and examples images of the main fauna habitats present within the subject site are provided in Table 1. The extent and location of the identified units is shown in Figure 3.



**Table 1: Main Fauna Habitats within the Subject Site**

Code	Fauna Habitat Description	Example Image
BaBm	Sparse to open woodland of <i>Banksia</i> and Coastal Blackbutt over open shrubland to shrubland over low sparse shrubland over forb and sedgeland and forb/grassland of pasture weeds.	
Bima	Low open woodland to woodland of <i>Banksia</i> over patchy shrubland to tall open shrubland or low open shrubland and sparse to open native perennial herbs.	
Cc	Woodland to open forest of Marri over shrubland (or shrub layer absent) over closed forb/grassland of pasture weeds.	
Mp	Woodland to low open forest of Paperbark with emergent Marri over sparse shrubland of over sedgeland to closed sedgeland and open forbland.  Subject to seasonal inundation/waterlogging.	

Code	Fauna Habitat Description	Example Image
Parkland Cleared	Sparse native trees over closed forb/grassland of pasture weeds.	

The remnant vegetation making up Bush Forever Site 309 has the best value as fauna habitat with most other areas within the subject site being degraded and lacking native groundcover/shrubs and microhabitats such as hollow logs, presumably a consequence of partial clearing, historical livestock grazing, logging and frequent fires. This has seen the biodiversity values of these areas of the subject site diminish from their original natural state. Most areas have diminished natural attributes and are now only utilised by generally common and widespread fauna species with non-specific requirements which allow them to persist in highly disturbed habitats.

Despite the area's history of disturbance the site does however still provide suitable habitat for a range of species, some of which are of conservation significance.

## 6.2.2 Black Cockatoo Habitat Assessment

### 6.2.2.1 Black Cockatoo Breeding Habitat

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:

- Marri – *Corymbia calophylla*;
- Flooded Gum – *Eucalyptus rudis*;
- Jarrah – *Eucalyptus marginata*; and
- Coastal Blackbutt – *Eucalyptus tottiana*.

A summary of the potential black cockatoo breeding trees (using DotEE 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 2 below and their location shown in Figure 4.



**Table 2: Summary of potential cockatoo breeding habitat trees (DBH  $\geq$ 50cm)**

Total Number of Habitat Trees	Number of Trees with <u>No Hollows Observed</u>	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			
				Marri	Flooded Gum	Jarrah	Coastal Blackbutt
15	12	3	0	5	2	2	6

The assessment identified a total of 15 trees with a DBH of  $\geq$ 50cms within the subject site. Twelve of the trees were not observed to contain hollows of any size. Three trees contained one or more possible hollows considered by the Author not to be suitable for black cockatoos to use for nesting purposes. No trees were identified as containing hollows or potential hollows suitable for black cockatoos to use for nesting purposes.

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

While there appears to be a paucity of recent breeding data for the general area this could simply be a consequence of a lack of survey work or a lack of publicly available data. DBCA data from 2010 (DoP 2011) shows a breeding site within a few kilometres east of the subject site in the darling range area (exact location not specified), but its current status is unknown.

Based on available vegetation mapping it is estimated that there is approximately 10,950 ha of native vegetation within 10 km the subject site (~33% of total area) much of which is likely to contain some potential breeding habitat. Almost 40% (~4,280 ha) of this vegetation occurs within national parks or reserves.

Given the apparent lack of actual nesting trees and the presence of a relatively small number of “potential” breeding habitat trees, any proposed development within the subject site is unlikely to have significant direct or indirect impact on breeding black cockatoos and is also unlikely to significantly impact on the total potential “breeding habitat” resources available in the wider area.

#### **6.2.2.2 Black Cockatoo Foraging Habitat**

Following is a list of the main flora species recorded within the subject site during the flora (Emerge Associates 2015) that are known to be used as a direct food source (i.e. seeds or flowers) by one or more species of black cockatoo:

- Marri – *Corymbia calophylla*;

- Jarrah – *Eucalyptus marginata*;
- Coastal Blackbutt – *Eucalyptus tottiana*;
- Flooded Gum – *Eucalyptus rudis*;
- *Banksia* species - *B. attenuata*, *B. dallanneyi*, *B. ilicifolia* and *B. menziesii*;
- Sheoak – *Allocasuarina fraseriana* and *A. humilis*;
- Balga – *Xanthorrhoea preissii* and *X. brunonis*; and
- Unnamed Sedge - *Mesomelaena pseudostygia*.


It should be noted that some of the above-mentioned species (e.g. flooded gum, sedge, and balga bush) are only foraged upon to a small degree compared to more favoured plant species (e.g. marri).




Quality foraging habitat is represented by the areas of marri which make up only about 0.2 ha of the subject site. It is difficult to estimate the total extent of other foraging habitat present as it is comprised of scattered individual trees or small groves of trees (mainly *banksia*) but would not total more than 1.0 ha. The small number of *banksia* and jarrah trees present also shows signs of significant decline with many dead specimens being observed.

Foraging debris left by black cockatoos was observed at several locations within the subject site during both site surveys. This foraging activity was attributed to Carnaby's black-cockatoo and/or the forest red-tailed black cockatoo species based on the plant species and in the case of marri, chew marks left on the fruit body.

Example images are provided in Table 3.

**Table 3: Black Cockatoo Foraging Evidence Examples**

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

Description	Example Image
<p><i>Banksia</i> cone – foraging activity attributed to the Carnaby's black cockatoo.</p>	
<p>Sheoak and Blackbutt Fruits – foraging activity attributed to the forest red-tailed black cockatoo.</p>	
<p>Coastal Blackbutt Fruits – foraging activity attributed to the forest red-tailed black cockatoo or Carnaby's black cockatoo.</p>	

Based on available vegetation mapping it is estimated that there is approximately 10,950 ha of native vegetation within 10 km the subject site (~33% of total area) much of which is likely to contain foraging habitat of some type. Almost 40% (~4,280 ha) of this vegetation occurs within national parks or reserves.

The results suggest that the potential removal of some of the vegetation from the subject site is unlikely to have a significant impact on the availability of foraging resources for black cockatoos in the general area.

### 6.2.2.3 Black Cockatoo Roosting Habitat

No evidence of roosting activity within the subject set was recorded during the survey period.

A review of the 2018 Great Cocky Count database shows no documented roost sites within the subject site, the closest active roost (2018) being about 9.5 km west. This site was in use by 300 red-tailed black cockatoos during the Great Cocky Count conducted in April 2018 (Peck *et al.* 2018). Another 12 documented roost sites (but not necessarily in current use) occur within 10 km of the subject site.

The results suggest that the potential removal of some of the vegetation from the subject site is unlikely to have a significant impact on the availability of roosting habitat for black cockatoos in the general area.

### 6.2.3 Opportunistic Fauna Observations

Opportunistic fauna observations are listed in Appendix B. A total of 33 native fauna species were observed (or positively identified from foraging evidence, scats, tracks, skeletons or calls) within or near the subject site during the two day time surveys. Five introduced species were also confirmed as being present.

Evidence of two listed threatened black cockatoo species was observed (Carnaby's black-cockatoo – small flock (4) and foraging evidence (chewed *banksia* cones, marri and coastal blackbutt fruits) and the forest red-tailed black cockatoo (chewed sheoak and coastal blackbutt fruits)). No evidence of any migratory or DBCA priority fauna species using the area was found.

## 6.3 FAUNA INVENTORY – SUMMARY

### 6.3.1 Vertebrate Fauna

Table 4 summarises the number of vertebrate fauna species potentially occurring within or utilising at times the subject site, based on results from the desktop study and observations made during the field assessment. A complete list of vertebrate fauna possibly inhabiting or frequenting the subject site is located in Appendix B.

Not all species listed as potentially occurring within the subject site 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 B. Some species have been excluded from this list based largely on the lack of suitable habitat within the subject site and in the general area or known local extinction, even if suitable habitat is present.

**Table 4: Summary of Potential Vertebrate Fauna Species (as listed in Appendix B)**

Group	Total number of potential species	Potential number of specially protected species	Potential number of migratory species	Potential number of priority species	Number of species observed during field surveys
Amphibians	9	0	0	0	3
Reptiles	16	0	0	0	4
Birds	103 <sup>6</sup>	4	0	0	28 <sup>2</sup>
Non-Volant Mammals	8 <sup>6</sup>	0	0	1	3 <sup>3</sup>
Volant Mammals (Bats)	8	0	0	0	0
<b>Total</b>	<b>144<sup>11</sup></b>	<b>4</b>	<b>0</b>	<b>1</b>	<b>38<sup>5</sup></b>

Superscript = number of introduced species included in total.

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 subject 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.

As most of the subject site is cleared the majority represents unsuitable habitat for many of the potential species listed. Most, if present, would be confined to the small areas of remnant native bushland and even in these areas only a subset of the species listed are likely to be present at any one time.

### 6.3.2 Vertebrate Fauna of Conservation Significance

A review of the *EPBC Act* threatened fauna list, DBCA's Threatened Fauna Database and Priority List, unpublished reports and scientific publications identified a number of specially protected, priority or migratory vertebrate fauna species as potentially occurring in the general vicinity of the subject site. Of these species, most that have no potential whatsoever to utilise the subject site for any purpose have been omitted from the potential list (Appendix B), principally due to lack of suitable habitat (including extent and/or quality) or known local extinction.

In summary, two vertebrate fauna species of conservation significance were positively identified as utilising the subject site for some purpose during the survey period, these being:

- *Calyptorhynchus latirostris* Carnaby's Black-Cockatoo – S1 (WC Act), Endangered (EPBC Act)  
A small flock of Carnaby's black-cockatoo was observed during the field survey flying overhead and foraging evidence attributed to this species was also found (chewed banksia cones marri and coastal blackbutt fruits). Larger trees ( $\geq 50$ cm DBH) can be considered potential breeding habitat though the probability of any ever being used for this purpose can be considered to be very low. Foraging habitat present but limited in extent. No evidence of roosting found.
- *Calyptorhynchus banksii naso* Forest Red-tailed Black Cockatoo – S3 (WC Act), Vulnerable (EPBC Act)  
Foraging evidence attributed to this species was found (chewed blackbutt and sheoak fruits). The small areas of remnant native vegetation containing marri, jarrah and coastal blackbutt (in addition to some scattered individual trees) within the subject site represents foraging habitat for this species. No actual nest sites were found however larger native endemic trees ( $\geq 50$ cm DBH) can be considered potential breeding habitat. No evidence of roosting seen.

Based on the habitats present and current documented distributions it is considered possible that several additional species may use the subject site for some purpose at times, though, as no evidence of any using the study site at the time of the field survey was found, the status of some in the area remains uncertain.

These species are:

- *Calyptorhynchus baudinii* Baudin's Black-Cockatoo – S2 (WC Act), Endangered (EPBC Act)  
This species is only rarely recorded in this section of the coastal plain but it may occur on occasions. Larger trees ( $\geq 50$ cm DBH) can be considered potential breeding habitat though the probability of any ever being used for this purpose can be considered to be very low. Foraging habitat present but limited in extent. No evidence of roosting found.
- *Falco peregrinus* Peregrine Falcon – S7 (WC Act)  
Uncommon but study site may form part of larger home range. No potential nest sites observed.
- *Isodon fusciventer* Quenda – P4 (DBCA Priority Species)  
The bush forever site represents ideal habitat for this species if it persists in the area.



Habitat for some of these species on-site, while considered possibly suitable, may be marginal in extent/quality and species listed may only visit the area for short periods, or as rare/uncommon vagrants/transients.

A number of other species of conservation significance, while possibly present in the wider area (e.g. forested areas of the nearby Darling Range), are not listed as potential species due to known localised extinction (and no subsequent recruitment from adjoining areas), lack of suitable habitat and/or the presence of feral predators.

Twenty eight bird species that potentially frequent or occur in the subject site are noted as Bush Forever Decreaser Species in the Perth Metropolitan Region (four were sighted/identified as having used the subject site during the survey). Decreaser species are a significant issue in biodiversity conservation in the Perth section of the coastal plain as there have been marked reductions in range and population levels of many sedentary bird species as a consequence of disturbance and land clearing (Dell & Hyder-Griffiths 2002).

### **6.3.3 Invertebrate Fauna of Conservation Significance**

Four species of conservation significant invertebrate species appeared in the DBCA or EPBC Act database searches (DBCA 2018b, DotEE 2018), these being an the Guildford springtail (*Australotomurus morbidus*), the inornate trapdoor spider (*Euoplos inornatus*), the graceful sun moth (*Synemon gratiosa*) and Carter's freshwater mussel (*Westralunio carteri*).

None of these species is considered likely to persist within the subject site due to a total absence of suitable habitat and/or because the site is outside of their currently documented range.

## **7. FAUNA VALUES**

### **7.1 CONSERVATION SIGNIFICANCE OF THE SUBJECT SITE**

The conservation significance of the subject site has been determined by applying site specific criteria such as:

- Fauna species and/or habitat present that is poorly represented in the general vicinity of the subject site;
- Fauna habitat within the subject site supporting species of conservation or other significance; and
- Fauna habitat in better condition than other similar locations in the general vicinity of the subject site.

Natural areas within the south west of Western Australia have been significantly altered since European settlement in the 1830's and a variety of environmental factors, in particular habitat fragmentation and fire, will continue to threaten many species of fauna with local extinction. As the local development of land progresses the significance of any remnant vegetation increases.

The regional and local conservation significance of one of the larger areas of remnant vegetation within the subject site has already been recognised in the past and given Bush Forever status (Bush Forever Site 309 – see Figure 2).

The majority of the rest of the subject site is cleared or partly cleared and as a consequence the diversity of fauna species has been significantly reduced from its original natural levels. Altered fire regimes and the presence of introduced predators is also likely to have had a significant effect on species diversity in the smaller bush remnants that remain in the largely cleared areas. Because of these factors most of the subject site (excluding BFS 309) has very little conservation significance to fauna in general.

## **7.2 VALUE OF THE SUBJECT SITE AS AN ECOLOGICAL LINKAGE/WILDLIFE CORRIDOR**

Linkage with adjacent bushland areas is a natural attribute of high priority in the assessment of any sites significance. Within Bush Forever Volume 1 document (Figure 6 - Government of Western Australia 2000a), the subject site is not shown to be part of or contributing to any specifically identified "Greenway" corridor/ecological linkage, a consequence of the fact that the vast majority of the site has been totally cleared of native vegetation as have surrounding areas.

# **8. POTENTIAL IMPACTS AND DEVELOPMENT CONSIDERATIONS**

## **8.1 POTENTIAL IMPACTS OF DEVELOPMENT**

In general the most significant potential impacts to fauna of any development include:

- Loss of vegetation/fauna habitat that may be used for foraging, breeding, roosting, or dispersal (includes loss of hollow bearing trees);
- Fragmentation of vegetation/fauna habitat which may restrict the movement of some fauna species;
- Modifications to surface hydrology, siltation of creek lines;



- Changes to fire regimes;
- Pollution (e.g. oil spills);
- Noise/Light/Dust;
- Spread of plant pathogens (e.g. dieback) and weeds;
- Potential increase in the number of predatory introduced species (e.g. cats);
- Death or injury of fauna during clearing and construction; and
- An increase in fauna road kills subsequent to development.

Based on the current development plan which will see the retention of the bush forever site and some of the larger groves of bushland in other sections of the subject site the possible impacts on specific species of conservation significance previously recorded in the general area is provided in the table below.

**Table 5: Likelihood of Occurrence and Possible Impacts – Fauna Species of Conservation Significance** (continues on following pages).

Common Name	Genus & Species	Conservation Status (See Appendix A for codes)	Habitat Present	Likelihood of Occurrence	Possible Impacts
Guildford Springtail	<i>Australotomurus morbidus</i>	P3	No - Banksia heath absent.	Would Not Occur	No impact.
Graceful Sunmoth	<i>Synemon gratiosa</i>	P4	No - Required plant species absent.	Would Not Occur	No impact.
Inornate Trapdoor Spider	<i>Euoplos inornatus</i>	P3	No – Suitable habitat absent.	Would Not Occur	No impact.
Carter's Freshwater Mussel	<i>Westralunio carteri</i>	S3, VU	No – Suitable habitat absent.	Would Not Occur	No impact.
Pouched Lamprey	<i>Geotria australis</i>	P3	No – Suitable habitat absent.	Would Not Occur	No impact.
Western Swamp Tortoise	<i>Pseudemydura umbrina</i>	S1, CR	No – Suitable habitat absent.	Would Not Occur	No impact.
Darling Range Heath Ctenotus	<i>Ctenotus delli</i>	P4	No – Suitable habitat absent.	Would Not Occur	No impact.
Black-striped Snake	<i>Neelaps calonotos</i>	P3	No – Habitat too degraded.	Would Not Occur	No impact.
Malleefowl	<i>Leipoa ocellata</i>	S3, VU	No - species regionally extinct.	Would Not Occur.	No Impact.
Migratory Shorebirds/Wetland Species	Various	S3, VU	No - Species regionally extinct.	Would Not Occur.	No Impact.
Australasian Bittern	<i>Botaurus poiciloptilus</i>	S2, EN	No/Marginal – extent of wetland habitats too small	Unlikely to Occur.	No impact anticipated
Black Bittern	<i>Ixobrychus flavicollis</i>	P2	No/Marginal – extent of wetland habitats too small	Unlikely to Occur.	No impact anticipated

Common Name	Genus & Species	Conservation Status (See Appendix A for codes)	Habitat Present	Likelihood of Occurrence	Possible Impacts
Little Bittern	<i>Ixobrychus minutus</i>	P4	No/Marginal – extent of wetland habitats too small	Unlikely to Occur.	No impact anticipated
Painted Snipe	<i>Rostratula benghalensis</i>	S2, Mig, EN	No – Wetland habitats unsuitable	Would Not Occur.	No impact.
Blue-billed Duck	<i>Oxyura australis</i>	P4	No - Wetland habitats unsuitable	Would Not Occur.	No impact.
Glossy Ibis	<i>Plegadis falcinellus</i>	S5, Mig	No/Marginal – Wetland habitats unsuitable	Unlikely to Occur.	No impact anticipated
Osprey	<i>Pandion haliaetus</i>	S5, Mig	No – Suitable habitat absent.	Would Not Occur	No impact.
Peregrine Falcon	<i>Falco peregrinus</i>	S7	Yes – Air space over all habitats	Possible but only rarely.	Loss/modification of very small areas of natural habitat. No significant impact likely.
Muir's Corella	<i>Cacatua pastinator pastinator</i>	S6	No - species regionally extinct.	Would Not Occur.	No Impact.
Carnaby's Black Cockatoo	<i>Calyptorhynchus latirostris</i>	S2, EN	Yes – Eucalypt/Banksia Woodlands	Known to occur.	Loss/modification of small areas of natural habitat.
Baudin's Black Cockatoo	<i>Calyptorhynchus baudinii</i>	S2, EN	Yes – Eucalypt/Banksia Woodlands	Possible.	Loss/modification of small areas of natural habitat.
Forest Red-tailed Black Cockatoo	<i>Calyptorhynchus banksii naso</i>	S3, VU	Yes – Eucalypt/Sheoak Woodlands	Known to occur.	Loss/modification of small areas of natural habitat.
Fork-tailed Swift	<i>Apus pacificus</i>	S5, Mig	Yes – Air space over all habitats	Unlikely to Occur, Flyover only on very rare occasions.	No impact.
Grey Wagtail	<i>Motacilla cinerea</i>	S5, Mig	No – Never recorded in Perth metro area.	Would Not Occur.	No impact
Chuditch	<i>Dasyurus geoffroii</i>	S3, VU	No – Habitat too fragmented, rarely recorded on coastal plain.	Would Not Occur.	No impact.
South-western Brush-tailed Phascogale	<i>Phascogale tapoatafa wambenger</i>	S6	No – Habitat too fragmented.	Would Not Occur.	No impact.
Western Ringtail Possum	<i>Pseudocheirus occidentalis</i>	S1, VU	No - species regionally extinct.	Would Not Occur.	No Impact.
Quenda	<i>Isodon fusciventer</i>	P4	Yes -Dense wetland vegetation.	Possible	No Impact – area of habitat to be retained.
Bilby	<i>Macrotis lagotis</i>	S1, VU	No - species regionally extinct.	Would Not Occur.	No Impact.
Woylie	<i>Bettongia penicillata ogilbyi</i>	S1, EN	No - species regionally extinct.	Would Not Occur.	No Impact.
Western Brush Wallaby	<i>Notamacropus irma</i>	P4	No – Habitat too fragmented.	Would Not Occur.	No impact.
Western False Pipistrelle	<i>Falsistrellus mackenziei</i>	P4	Yes/Marginal – Rarely recorded this far north	Unlikely to Occur.	No impact anticipated

Common Name	Genus & Species	Conservation Status (See Appendix A for codes)	Habitat Present	Likelihood of Occurrence	Possible Impacts
Water Rat	<i>Hydromys chrysogaster</i>	P4	No – Suitable habitat absent.	Would Not Occur	No impact.

## 8.2 CONSIDERATIONS FOR PLANNING AND DEVELOPMENT

With respect to vertebrate fauna in general, no substantial impacts are anticipated as a consequence of development at the site. In cases where some impact is anticipated, the degree of the impact is only expected to be low and relates to the loss of small areas of habitat, but as most species are common and widespread no overall change in their conservation status is anticipated, despite a possible localised reduction in habitat extent. There are substantial areas of similar habitat in nearby areas including some national parks/reserves and most if, not all fauna species likely to utilise the subject site will persist in these locations despite development of the site.

The assessment does indicate that any considerations required during ongoing development planning may possibly be limited to the presence of habitat used or potentially used by some threatened fauna species in particular those listed under the *EPBC Act*, namely the three species of black cockatoo. The extent of blackcockatoo habita is however very small and a substantial proportion of the best quality areas (i.e. area of marri woodland which represent foraging habitat) are to be retained.

With this in mind it is considered unlikely that impacts on black cockatoos that may occur as a result of development would result in a “significant impact” as defined by the Federal DotEE (DotEE 2013).

The subject site is also not located in a documented cockatoo breeding area, and while some trees present are classified as “potential breeding habitat” using DotEE criteria (Commonwealth of Australia 2012) the probability of any one tree actually developing hollows that would then be used by black cockatoos for breeding can be considered to be extremely low. The area is also unlikely to be considered of specific importance for the recovery of black cockatoos in the long term. For example the population growth of the Carnaby’s black-cockatoo is primarily limited by factors associated with breeding, and consequently priority areas for the recovery of the species are currently focused on known breeding sites (Cale 2003).

It is understood the proposal has been referred to the DotEE and is currently being assess (EPBC ref: 2017-8066).

## 9. CONCLUSION

The fauna assessment within the subject site was undertaken for the purposes of categorising the fauna assemblages and identifying fauna habitats present. A targeted assessment of black cockatoo habitat within the area was also carried out.

With respect to native vertebrate fauna, 10 mammals (includes eight bat species), 97 bird, 16 reptile, nine frog species have previously been recorded in the general area, some of which have the potential to occur in or utilise sections of the subject site at times.

Of the 133 native animals that are listed as potentially occurring in the area, four are considered to be endangered/vulnerable or in need of special protection under State and/or Federal law, these being the three species of black cockatoo and the peregrine falcon. In addition, one DBCA priority species (quenda) may also utilise sections of the subject site where suitable habitat exists.

Taking into account the currently proposed development plan which includes the retention of the Bush Forever site and other main areas of bushland, no substantial impacts on vertebrate fauna are anticipated as a consequence of development at the site. In cases where some impact is anticipated, the degree of the impact is only expected to be low and relates to the loss of small areas of habitat, but as most species are common and widespread no overall change in their conservation status is anticipated, despite a possible localised reduction in habitat extent.

It is also considered unlikely that impacts on black cockatoos that may occur as a result of the development proceeding as currently proposed would result in a “significant impact” as defined by the Federal DoEE (DoEE 2013) and therefore no constraints on development in regard to this matter are, at this stage, anticipated.

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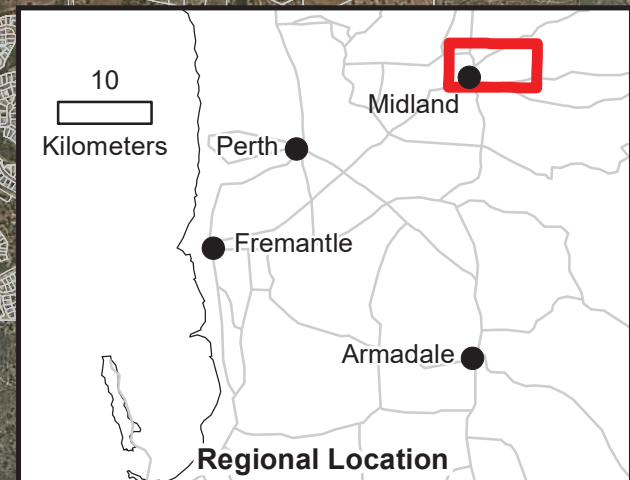
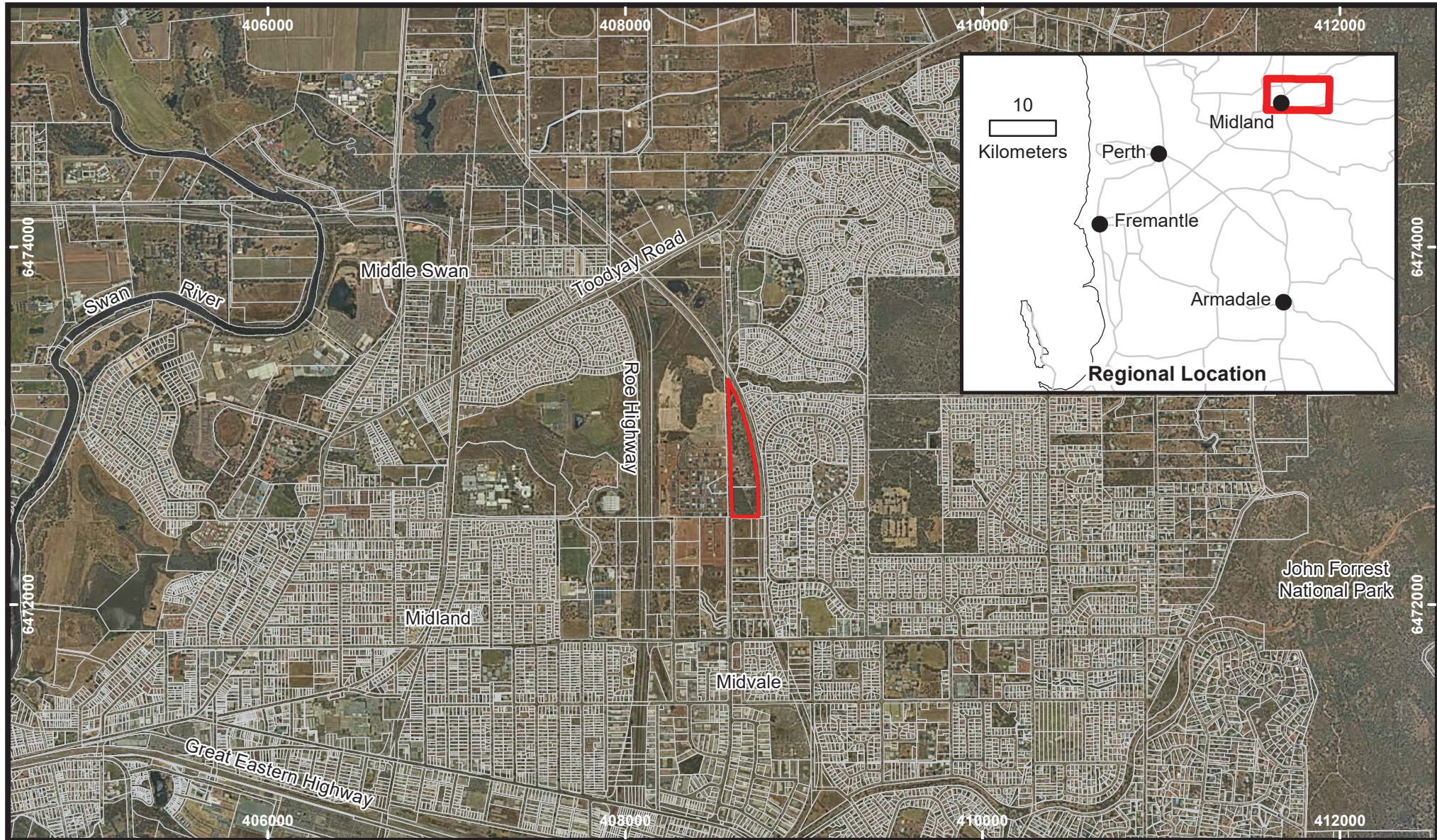


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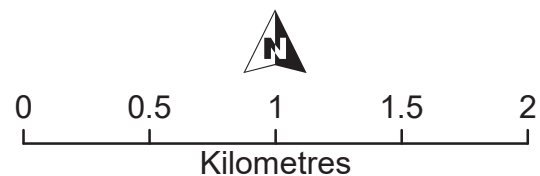
# FIGURES





## Legend

 Subject Site



Drawn: G Harewood

Date: Dec 2018

Scale: 1:30,000

Projection/Coordinate System: UTM/MGA Zone 50

Figure: 1

Lot 102 Farrall Road  
Midvale

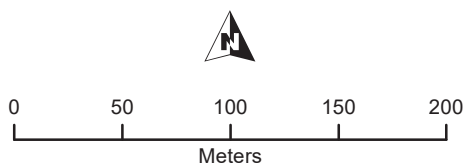
**Subject Site  
and  
Surrounds**





## Legend

Subject Site



Drawn: G Harewood

Date: Dec 2018

Scale: 1:3,500

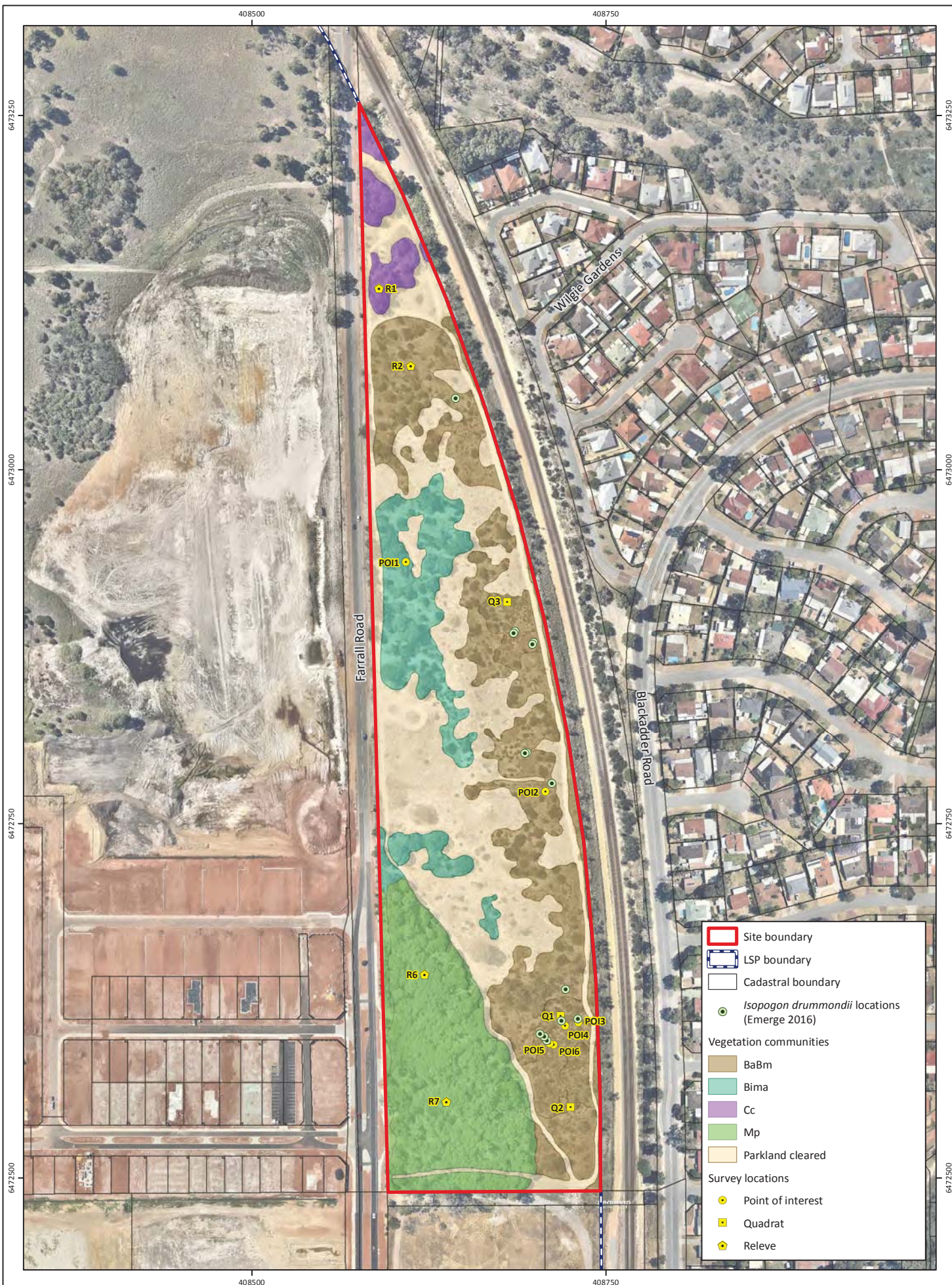
Projection/Coordinate System: UTM/MGA Zone 50

Lot 102 Farrall Road  
Midvale

**Subject Site  
Air Photo**

Figure: 2





**Figure 3: Plant Communities**

**Project:** EPA Section 38 Referral  
Lot 102 Farrall Road Midvale

**Client:** Peet Stratton Pty Ltd

**Plan Number:** EP16-009(14)--F59  
**Drawn:** KNM  
**Date:** 31/05/2017  
**Checked:** RAO  
**Approved:** TAA  
**Date:** 07/06/2017



**Scale:** 1:3,500@A4  
GDA 1994 MGA Zone 50

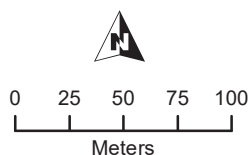
**emerge**  
ASSOCIATES





## Legend

- Subject Site
- Tree >50cm DBH, no hollows seen
- Tree >50cm DBH, one or more hollows seen. None suitable for black cokatoo



Drawn: G Harewood  
Date: Dec 2018  
Scale: 1:3,500

Projection/Coordinate System: UTM/MGA Zone 50

Lot 102 Farrall Road  
Midvale

**Habitat Trees  
(DBH >50cm)**

Figure: 4



# **APPENDIX A**

## **CONSERVATION CATEGORIES**

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

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

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

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



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

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

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

Category	Code	Description
Schedule 1  Critically Endangered species	CR	Threatened species considered to be facing an extremely high risk of extinction in the wild.
Schedule 2  Endangered species	EN	Threatened species considered to be facing a very high risk of extinction in the wild.
Schedule 3  Vulnerable species	VU	Threatened species considered to be facing a high risk of extinction in the wild.
Schedule 4  Presumed extinct species	EX	Species which have been adequately searched for and there is no reasonable doubt that the last individual has died.
Schedule 5  Migratory birds protected under an international agreement	IA	Birds that are subject to an agreement between the government of Australia and the governments of Japan (JAMBA), China (CAMBA) and The Republic of Korea (ROKAMBA), and the Bonn Convention, relating to the protection of migratory birds.
Schedule 6  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  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  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  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  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  Rare, Near Threatened and other species in need of monitoring.	P4	<p>(a) Rare: Species that are considered to have been adequately surveyed, or for which sufficient knowledge is available, and that are considered not currently threatened or in need of special protection, but could be if present circumstances change. These species are usually represented on conservation lands.</p> <p>(b) Near Threatened: Species that are considered to have been adequately surveyed and that are close to qualifying for Vulnerable, but are not listed as Conservation Dependent.</p> <p>(c) Species that have been removed from the list of threatened species during the past five years for reasons other than taxonomy.</p>

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

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

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

Categories are summarized below.

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

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

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

# **APPENDIX B**

## **FAUNA OBSERVED OR POTENTIALLY PRESENT**

# Fauna Observed or Potentially Present

Lot 102 - Farrall Road, Midvale W.A.

Compiled by Greg Harewood - December 2018  
Recorded (Sighted/Heard/Signs/Captured) = X  
Approximate centroid = 31.87672°S 116.03426°E

A = Harewood, G. (2014). Fauna Assessment - Miscellaneous Lots Farrall Road/Orchard Avenue, Midvale. Unpublished report for Emerge Associates.  
B = Turpin, J. and Bamford, M. (2009). Keane Road Strategic Link Armadale, Fauna Assessment. Unpublished report for the EnviroWorks Consulting.  
C = ATA Environmental (2006). Vertebrate Fauna Assessment Brookdale Redevelopment Area. Unpublished report for the Armadale Redevelopment Authority.  
D = ENV Australia (2005). Southern River Precinct 3 - Environmental Review. Unpublished report for the City of Gosnells.  
E = ATA (1994). A Report of a Fauna Survey of Perth Airport. Report 93/78. Unpublished report for the Federal Airports Corporation.  
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F = DBCA (2018). NatureMap Database search. "By Circle" 116° 02' 03" E, 31° 52' 36" S - Study area (plus 10 km buffer). 12 December 2018.

Class Family Species	Common Name	Conservation Status	A	B	C	D	E	F
<b>Amphibia</b>								
<b>Myobatrachidae</b>								
Ground or Burrowing Frogs								
<i>Crinia georgiana</i>	Quacking Frog	LC			X			X
<i>Crinia glauerti</i>	Clicking Frog	LC	X		X	X	X	X
<i>Crinia insignifera</i>	Squelching Froglet	LC	X	X	X	X	X	X
<i>Geocrinia leai</i>	Ticking Frog	LC						X
<i>Heleioporus eyrei</i>	Moaning Frog	LC			X	X	X	X
<i>Limnodynastes dorsalis</i>	Western Banjo Frog	LC		X	X	X	X	X
<i>Pseudophryne guentheri</i>	Crawling Toadlet	LC					X	X

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

Class Family Species	Common Name	Conservation Status	A	B	C	D	E	F
<b>Hylidae</b> Tree or Water-Holding Frogs								
<i>Litoria adelaidensis</i>	Slender Tree Frog	LC		X	X	X	X	X
<i>Litoria moorei</i>	Motorbike Frog	LC	X		X	X		X
<b>Reptilia</b>								
<b>Gekkonidae</b> Geckoes								
<i>Christinus marmoratus</i>	Marbled Gecko				X			X
<b>Pygopodidae</b> Legless Lizards								
<i>Lialis burtonis</i>	Burton's Legless Lizard				X	X	X	X
<b>Agamidae</b> Dragon Lizards								
<i>Pogona minor</i>	Western Bearded Dragon					X	X	X
<b>Varanidae</b> Monitor's or Goanna's								
<i>Varanus gouldii</i>	Gould's Sand Monitor			X	X	X	X	X

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

Class Family Species	Common Name	Conservation Status	A	B	C	D	E	F
<b>Scincidae</b> Skinks								
<i>Acritoscincus trilineatus</i>	Southwestern Cool Skink		X		X	X	X	
<i>Cryptoblepharus buehneri</i>	Fence Skink		X		X	X	X	X
<i>Ctenotus fallens</i>	West Coast Ctenotus		X				X	X
<i>Egernia kingii</i>	King's Skink							X
<i>Hemiergis quadrilineata</i>	Two-toed Mulch Skink						X	X
<i>Lerista elegans</i>	West Coast Four-toed Lerista				X	X	X	X
<i>Menetia greyii</i>	Dwarf Skink				X	X	X	X
<i>Morethia lineocellata</i>	West Coast Pale-flecked Morethia				X			X
<i>Morethia obscura</i>	Shrubland Pale-flecked Morethia				X			X
<i>Tiliqua rugosa</i>	Bobtail		X	X	X	X	X	X
<b>Elapidae</b> Elapid Snakes								
<i>Notechis scutatus</i>	Tiger Snake				X	X		X
<i>Pseudonaja affinis</i>	Dugite				X	X	X	X

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



Class Family Species	Common Name	Conservation Status	A	B	C	D	E	F
<b>Aves</b>								
<b>Phasianidae</b> Quails, Pheasants								
<i>Coturnix pectoralis</i>	Stubble Quail	LC				X		
<i>Coturnix ypsilophora</i>	Brown Quail	LC			X			
<b>Anatidae</b> Geese, Swans, Ducks								
<i>Anas gracilis</i>	Grey Teal	LC	X		X	X	X	X
<i>Anas superciliosa</i>	Pacific Black Duck	LC	X	X	X	X	X	X
<i>Chenonetta jubata</i>	Australian Wood Duck	LC	X	X	X	X	X	X
<i>Tadorna tadornoides</i>	Australian Shelduck	LC	X	X	X	X	X	X
<b>Ardeidae</b> Herons, Egrets, Bitterns								
<i>Ardea alba</i>	Great Egret	CA JA					X	
<i>Ardea garzetta</i>	Little Egret	LC						
<i>Ardea ibis</i>	Cattle Egret	CA JA						X
<i>Ardea novaehollandiae</i>	White-faced Heron	LC	X		X	X	X	X
<i>Ardea pacifica</i>	White-necked Heron	LC	X		X	X		X

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

Class Family Species	Common Name	Conservation Status	A	B	C	D	E	F
<b>Threskiornithidae</b> Ibises, Spoonbills								
<i>Platalea flavipes</i>	Yellow-billed Spoonbill	LC	X			X	X	X
<i>Threskiornis molucca</i>	Australian White Ibis	LC	X		X	X	X	
<i>Threskiornis spinicollis</i>	Straw-necked Ibis	LC	X	X		X	X	X
<b>Accipitridae</b> Kites, Goshawks, Eagles, Harriers								
<i>Accipiter cirrocephalus</i>	Collared Sparrowhawk	Bp LC					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
<i>Aquila morphnoides</i>	Little Eagle	Bp LC					X	
<i>Circus approximans</i>	Swamp Harrier	LC						X
<i>Circus assimilis</i>	Spotted Harrier	LC						X
<i>Elanus caeruleus</i>	Black-shouldered Kite	LC				X	X	X
<i>Haliastur sphenurus</i>	Whistling Kite	Bp LC			X			X
<i>Hamirostra isura</i>	Square-tailed Kite	Bp LC						X

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Class Family Species	Common Name	Conservation Status	A	B	C	D	E	F
<b>Falconidae</b> Falcons								
<i>Falco berigora</i>	Brown Falcon	Bp LC			X		X	X
<i>Falco cenchroides</i>	Australian Kestrel	LC		X	X	X	X	X
<i>Falco longipennis</i>	Australian Hobby	LC						X
<i>Falco peregrinus</i>	Peregrine Falcon	S7 Bp LC						X
<b>Rallidae</b> Rails, Crakes, Swampheens, Coots								
<i>Gallinula tenebrosa</i>	Dusky Moorhen	Bh LC	X				X	X
<i>Gallinula ventralis</i>	Black-tailed Native-hen	LC						
<i>Gallirallus philippensis</i>	Buff-banded Rail	LC						X
<i>Porphyrio porphyrio</i>	Purple Swamphean	LC	X				X	X
<i>Porzana fluminea</i>	Australian Spotted Crake	LC						X
<i>Porzana pusilla</i>	Baillon's Crake	LC						X
<i>Porzana tabuensis</i>	Spotless Crake	LC						X

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Class Family Species	Common Name	Conservation Status	A	B	C	D	E	F
<b>Columbidae</b> Pigeons, Doves								
<i>Columba livia</i>	Domestic Pigeon	Introduced				X		X
<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
<i>Streptopelia chinensis</i>	Spotted Turtle-Dove	Introduced			X	X	X	X
<i>Streptopelia senegalensis</i>	Laughing Turtle-Dove	Introduced	X	X	X	X	X	X

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Class Family Species	Common Name	Conservation Status	A	B	C	D	E	F
<b>Psittacidae</b> Parrots								
<i>Cacatua roseicapilla</i>	Galah	LC		X	X	X	X	X
<i>Cacatua sanguinea</i>	Little Corella	Introduced				X		X
<i>Calyptorhynchus banksii naso</i>	Forest Red-tailed Black-Cockatoo	S3 VU Bp	X		X	X		X
<i>Calyptorhynchus baudinii</i>	Baudin's Black-Cockatoo	S2 EN Bp EN A3cde						X
<i>Calyptorhynchus latirostris</i>	Carnaby's Black-Cockatoo	S2 EN Bp EN A2bcde	X		X	X	X	X
<i>Glossopsitta porphyrocephala</i>	Purple-crowned Lorikeet	LC						
<i>Neophema elegans</i>	Elegant Parrot	LC			X		X	X
<i>Platycercus spurius</i>	Red-capped Parrot	LC		X	X	X	X	X
<i>Platycercus zonarius semitorquatus</i>	Australian Ringneck Parrot	LC		X	X	X	X	
<i>Polytelis anthopeplus</i>	Regent Parrot	LC			X			X
<i>Trichoglossus haematodus</i>	Rainbow Lorikeet	Introduced	X	X	X	X		X
<b>Cuculidae</b> Parasitic Cuckoos								
<i>Cacomantis flabelliformis</i>	Fan-tailed Cuckoo	LC			X			X
<i>Chrysococcyx basalis</i>	Horsfield's Bronze Cuckoo	LC	X	X	X	X	X	X
<i>Chrysococcyx lucidus</i>	Shining Bronze Cuckoo	LC		X	X	X	X	X
<i>Cuculus pallidus</i>	Pallid Cuckoo	LC		X			X	

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Class Family Species	Common Name	Conservation Status	A	B	C	D	E	F
<b>Strigidae</b> Hawk Owls								
<i>Ninox novaeseelandiae</i>	Boobook Owl	LC			X			
<b>Tytonidae</b> Barn Owls								
<i>Tyto alba</i>	Barn Owl	LC			X			X
<b>Podargidae</b> Frogmouths								
<i>Podargus strigoides</i>	Tawny Frogmouth	LC			X			X
<b>Caprimulgidae</b> Nightjars								
<i>Eurostopodus argus</i>	Spotted Nightjar	LC						X
<b>Aegothelidae</b> Owlet-nightjars								
<i>Aegotheles cristatus</i>	Australian Owlet-nightjar	LC						X
<b>Halcyonidae</b> Tree Kingfishers								
<i>Dacelo novaeguineae</i>	Laughing Kookaburra	Introduced			X	X	X	X
<i>Todiramphus sanctus</i>	Sacred Kingfisher	LC			X	X	X	X
<b>Meropidae</b> Bee-eaters								
<i>Merops ornatus</i>	Rainbow Bee-eater	JA LC			X	X	X	X

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Class Family Species	Common Name	Conservation Status	A	B	C	D	E	F
<b>Maluridae</b>								
Fairy Wrens, GrassWrens								
<i>Malurus splendens</i>	Splendid Fairy-wren	Bh LC		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
<i>Acanthiza chrysorrhoa</i>	Yellow-rumped Thornbill	Bh LC		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
<i>Sericornis frontalis</i>	White-browed Scrubwren	Bh LC		X	X	X		X
<i>Smicrornis brevirostris</i>	Weebill	Bh LC	X	X	X			X
<b>Pardalotidae</b>								
Pardalotes								
<i>Pardalotus punctatus</i>	Spotted Pardalote	LC					X	X
<i>Pardalotus striatus</i>	Striated Pardalote	LC	X		X	X	X	X

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Class Family Species	Common Name	Conservation Status	A	B	C	D	E	F
<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
<i>Anthochaera lunulata</i>	Western Little Wattlebird	Bp LC		X	X	X	X	X
<i>Epthianura albiglans</i>	White-fronted Chat	LC					X	X
<i>Lichenostomus virescens</i>	Singing Honeyeater	LC	X	X	X	X	X	
<i>Lichmera indistincta</i>	Brown Honeyeater	LC	X	X	X	X	X	X
<i>Manorina flavigula</i>	Yellow-throated Miner	LC						X
<i>Phylidonyris melanops</i>	Tawny-crowned Honeyeater	Bp LC		X			X	
<i>Phylidonyris nigra</i>	White-cheeked Honeyeater	Bp LC		X		X	X	
<i>Phylidonyris novaehollandiae</i>	New Holland Honeyeater	Bp LC		X		X	X	X
<b>Petroicidae</b> Australian Robins								
<i>Petroica multicolor</i>	Scarlet Robin	Bh LC			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
<i>Pachycephala pectoralis</i>	Golden Whistler	Bh LC		X			X	
<i>Pachycephala rufiventris</i>	Rufous Whistler	LC	X	X	X	X	X	X

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Class Family Species	Common Name	Conservation Status	A	B	C	D	E	F
<b>Dicruridae</b> Monarchs, Magpie Lark, Flycatchers, Fantails, Drongo								
<i>Grallina cyanoleuca</i>	Magpie-lark	LC	X	X	X	X	X	X
<i>Rhipidura fuliginosa</i>	Grey Fantail	LC		X	X	X	X	
<i>Rhipidura leucophrys</i>	Willie Wagtail	LC	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
<i>Lalage tricolor</i>	White-winged Triller	LC			X	X	X	X
<b>Artamidae</b> Woodswallows, Butcherbirds, Currawongs								
<i>Artamus cinereus</i>	Black-faced Woodswallow	Bp LC				X	X	X
<i>Artamus cyanopterus</i>	Dusky Woodswallow	Bp LC					X	X
<b>Cracticidae</b> Currawongs, Magpies & Butcherbirds								
<i>Cracticus tibicen</i>	Australian Magpie	LC	X	X	X	X	X	X
<i>Cracticus torquatus</i>	Grey Butcherbird	LC		X	X	X	X	X
<b>Corvidae</b> Ravens, Crows								
<i>Corvus coronoides</i>	Australian Raven	LC	X	X	X	X	X	X

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Class Family Species	Common Name	Conservation Status	A	B	C	D	E	F
<b>Motacillidae</b> Old World Pipits, Wagtails								
<i>Anthus australis</i>	Australian Pipit	LC		X	X		X	X
<b>Dicaeidae</b> Flowerpeckers								
<i>Dicaeum hirundinaceum</i>	Mistletoebird	LC			X		X	X
<b>Hirundinidae</b> Swallows, Martins								
<i>Hirundo ariel</i>	Fairy Martin	LC					X	
<i>Hirundo neoxena</i>	Welcome Swallow	LC			X	X	X	X
<i>Hirundo nigricans</i>	Tree Martin	LC		X	X	X	X	
<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
<b>Mammalia</b>								
<b>Peramelidae</b> Bandicoots								
<i>Isoodon fusciventer</i>	Quenda	P4 LC		X	X	X	X	X

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Class Family Species	Common Name	Conservation Status	A	B	C	D	E	F
<b>Phalangeridae</b> Brush-tail Possums, Cuscuses								
<i>Trichosurus vulpecula</i>	Common Brushtail Possum	LC			X			X
<b>Molossidae</b> Freetail Bats								
<i>Austronomus australis</i>	White-striped Freetail-bat	LC						
<i>Ozimops kitcheneri</i>	Southern Freetail-bat	LC						
<b>Vespertilionidae</b> Ordinary Bats								
<i>Chalinolobus gouldii</i>	Gould's Wattled Bat	LC			X			X
<i>Chalinolobus morio</i>	Chocolate Wattled Bat	LC						X
<i>Nyctophilus geoffroyi</i>	Lesser Long-eared Bat	LC			X			X
<i>Nyctophilus gouldi</i>	Gould's Long-eared Bat	LC						
<i>Nyctophilus major</i>	Western Long-eared Bat	LC						
<i>Vespadelus regulus</i>	Southern Forest Bat	LC						X
<b>Muridae</b> Rats, Mice								
<i>Mus musculus</i>	House Mouse	Introduced	X		X	X	X	X
<i>Rattus rattus</i>	Black Rat	Introduced	X		X		X	X

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Class Family Species	Common Name	Conservation Status	A	B	C	D	E	F
<b>Canidae</b> Dogs, Foxes								
<i>Canis lupus familiaris</i>	Dog	Introduced		X	X			
<i>Vulpes vulpes</i>	Red Fox	Introduced		X	X	X	X	X
<b>Felidae</b> Cats								
<i>Felis catus</i>	Cat	Introduced		X	X	X		X
<b>Leporidae</b> Rabbits, Hares								
<i>Oryctolagus cuniculus</i>	Rabbit	Introduced	X	X	X	X	X	X

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# **APPENDIX C**

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

# NatureMap - Lot 102

Created By Greg Harewood on 12/12/2018

**Kingdom** Animalia  
**Current Names Only** Yes  
**Core Datasets Only** Yes  
**Method** 'By Circle'  
**Centre** 116° 02' 03" E, 31° 52' 36" S  
**Buffer** 10km  
**Group By** Species Group

Species Group	Species	Records
Amphibian	15	896
Bird	236	37175
Fish	23	36
Invertebrate	197	1156
Mammal	33	610
Reptile	72	873
<b>TOTAL</b>	<b>576</b>	<b>40746</b>

Name ID	Species Name	Naturalised	Conservation Code	<sup>1</sup> Endemic To Query Area
<b>Amphibian</b>				
1.	25398 <i>Crinia georgiana</i> (Quacking Frog)			
2.	25399 <i>Crinia glauerti</i> (Clicking Frog)			
3.	25400 <i>Crinia insignifera</i> (Squelching Froglet)			
4.	25401 <i>Crinia pseudinsignifera</i> (Bleating Froglet)			
5.	25404 <i>Geocrinia leai</i> (Ticking Frog)			
6.	25408 <i>Heleioporus albopunctatus</i> (Western Spotted Frog)			
7.	25409 <i>Heleioporus barycragus</i> (Hooting Frog)			
8.	25410 <i>Heleioporus eyrei</i> (Moaning Frog)			
9.	25412 <i>Heleioporus psammophilus</i> (Sand Frog)			
10.	25415 <i>Limnodynastes dorsalis</i> (Western Banjo Frog)			
11.	25378 <i>Litoria adelaidensis</i> (Slender Tree Frog)			
12.	25388 <i>Litoria moorei</i> (Motorbike Frog)			
13.	25420 <i>Myobatrachus gouldii</i> (Turtle Frog)			
14.	25426 <i>Neobatrachus pelobatoides</i> (Humming Frog)			
15.	25433 <i>Pseudophryne guentheri</i> (Crawling Toadlet)			
<b>Bird</b>				
16.	24260 <i>Acanthiza apicalis</i> (Broad-tailed Thornbill, Inland Thornbill)			
17.	24261 <i>Acanthiza chrysorrhoa</i> (Yellow-rumped Thornbill)			
18.	24262 <i>Acanthiza inornata</i> (Western Thornbill)			
19.	24560 <i>Acanthorhynchus superciliosus</i> (Western Spinebill)			
20.	25535 <i>Accipiter cirrocephalus</i> (Collared Sparrowhawk)			
21.	24281 <i>Accipiter cirrocephalus</i> subsp. <i>cirrocephalus</i> (Collared Sparrowhawk)			
22.	25536 <i>Accipiter fasciatus</i> (Brown Goshawk)			
23.	24283 <i>Accipiter fasciatus</i> subsp. <i>didimus</i> (Brown Goshawk)			
24.	24282 <i>Accipiter fasciatus</i> subsp. <i>fasciatus</i> (Brown Goshawk)			
25.	25751 <i>Acridotheres tristis</i> (Common Myna)	Y		
26.	25755 <i>Acrocephalus australis</i> (Australian Reed Warbler)			
27.	41323 <i>Actitis hypoleucos</i> (Common Sandpiper)		IA	
28.	25544 <i>Aegotheles cristatus</i> (Australian Owllet-nightjar)			
29.	24310 <i>Anas castanea</i> (Chestnut Teal)			
30.	24311 <i>Anas clypeata</i> (Northern Shoveler)			Y
31.	24312 <i>Anas gracilis</i> (Grey Teal)			
32.	24313 <i>Anas platyrhynchos</i> (Mallard)			
33.	<i>Anas platyrhynchos</i> subsp. <i>domesticus</i>			
34.	24315 <i>Anas rhynchotis</i> (Australasian Shoveler)			
35.	24316 <i>Anas superciliosa</i> (Pacific Black Duck)			
36.	47414 <i>Anhinga novaehollandiae</i> (Australasian Darter)			
37.	24506 <i>Anous tenuirostris</i> subsp. <i>melanops</i> (Australian Lesser Noddy)		T	
38.	<i>Anser anser</i>			
39.	24561 <i>Anthochaera carunculata</i> (Red Wattlebird)			



	Name ID	Species Name	Naturalised	Conservation Code	<sup>1</sup> Endemic To Query Area
40.	24562	<i>Anthochaera lunulata</i> (Western Little Wattlebird)			
41.	25670	<i>Anthus australis</i> (Australian Pipit)			
42.	25554	<i>Apus pacificus</i> (Fork-tailed Swift, Pacific Swift)		IA	
43.	24285	<i>Aquila audax</i> (Wedge-tailed Eagle)			
44.	25558	<i>Ardea ibis</i> (Cattle Egret)			
45.	25559	<i>Ardea intermedia</i> (Intermediate Egret)			
46.	41324	<i>Ardea modesta</i> (great egret, white egret)			
47.	24340	<i>Ardea novaehollandiae</i> (White-faced Heron)			
48.	24341	<i>Ardea pacifica</i> (White-necked Heron)			
49.	25566	<i>Artamus cinereus</i> (Black-faced Woodswallow)			
50.	24353	<i>Artamus cyanopterus</i> (Dusky Woodswallow)			
51.	24356	<i>Artamus personatus</i> (Masked Woodswallow)			
52.	24318	<i>Aythya australis</i> (Hardhead)			
53.		<i>Barnardius zonarius</i>			
54.	24319	<i>Biziura lobata</i> (Musk Duck)			
55.	24345	<i>Botaurus poiciloptilus</i> (Australasian Bittern)		T	
56.	24359	<i>Burhinus grallarius</i> (Bush Stone-curlew)			
57.	25713	<i>Cacatua galerita</i> (Sulphur-crested Cockatoo)			
58.	24721	<i>Cacatua galerita</i> subsp. <i>galerita</i> (Sulphur-crested Cockatoo)	Y		
59.	24722	<i>Cacatua leadbeateri</i> (Major Mitchell's Cockatoo)			
60.	25714	<i>Cacatua pastinator</i> (Western Long-billed Corella)			
61.	24723	<i>Cacatua pastinator</i> subsp. <i>butleri</i> (Butler's Corella)			
62.	24724	<i>Cacatua pastinator</i> subsp. <i>pastinator</i> (Muir's Corella, Muir's Corella (Western Corella SW WA))		S	
63.	25715	<i>Cacatua roseicapilla</i> (Galah)			
64.	25716	<i>Cacatua sanguinea</i> (Little Corella)			
65.	24727	<i>Cacatua sanguinea</i> subsp. <i>westralensis</i> (Little Corella)			
66.		<i>Cacatua sulphurea</i> subsp. <i>galerita</i>			Y
67.	24729	<i>Cacatua tenuirostris</i> (Eastern Long-billed Corella)	Y		
68.	25598	<i>Cacomantis flabelliformis</i> (Fan-tailed Cuckoo)			
69.	42307	<i>Cacomantis pallidus</i> (Pallid Cuckoo)			
70.	25717	<i>Calyptorhynchus banksii</i> (Red-tailed Black-Cockatoo)			
71.	24731	<i>Calyptorhynchus banksii</i> subsp. <i>naso</i> (Forest Red-tailed Black Cockatoo)		T	
72.	24733	<i>Calyptorhynchus baudinii</i> (Baudin's Cockatoo, White-tailed Long-billed Black Cockatoo)		T	
73.	24734	<i>Calyptorhynchus latirostris</i> (Carnaby's Cockatoo, White-tailed Short-billed Black Cockatoo)		T	
74.	48400	<i>Calyptorhynchus</i> sp. (white-tailed black cockatoo)		T	
75.	25625	<i>Carduelis carduelis</i> (Goldfinch, European Goldfinch)	Y		
76.	24480	<i>Carduelis carduelis</i> subsp. <i>britannica</i> (Goldfinch)	Y		
77.	24377	<i>Charadrius ruficapillus</i> (Red-capped Plover)			
78.	24321	<i>Chenonetta jubata</i> (Australian Wood Duck, Wood Duck)			
79.	47909	<i>Cheramoeca leucosterna</i> (White-backed Swallow)			
80.		<i>Chroicocephalus novaehollandiae</i>			
81.	24431	<i>Chrysococcyx basalis</i> (Horsfield's Bronze Cuckoo)			
82.	25601	<i>Chrysococcyx lucidus</i> (Shining Bronze Cuckoo)			
83.	24432	<i>Chrysococcyx lucidus</i> subsp. <i>plagosus</i> (Shining Bronze Cuckoo)			
84.	24288	<i>Circus approximans</i> (Swamp Harrier)			
85.	24289	<i>Circus assimilis</i> (Spotted Harrier)			
86.	24774	<i>Cladorhynchus leucocephalus</i> (Banded Stilt)			
87.	25675	<i>Colluricincla harmonica</i> (Grey Shrike-thrush)			
88.	24399	<i>Columba livia</i> (Domestic Pigeon)	Y		
89.	24361	<i>Coracina maxima</i> (Ground Cuckoo-shrike)			
90.	25568	<i>Coracina novaehollandiae</i> (Black-faced Cuckoo-shrike)			
91.	24416	<i>Corvus bennetti</i> (Little Crow)			
92.	25592	<i>Corvus coronoides</i> (Australian Raven)			
93.	24420	<i>Cracticus nigrogularis</i> (Pied Butcherbird)			
94.	25595	<i>Cracticus tibicen</i> (Australian Magpie)			
95.	24422	<i>Cracticus tibicen</i> subsp. <i>dorsalis</i> (White-backed Magpie)			
96.	25596	<i>Cracticus torquatus</i> (Grey Butcherbird)			
97.		<i>Cyanorhamphus auriceps</i>			Y
98.	24322	<i>Cygnus atratus</i> (Black Swan)			
99.	24323	<i>Cygnus olor</i> (Mute Swan)	Y		
100.	30901	<i>Dacelo novaeguineae</i> (Laughing Kookaburra)	Y		
101.	30902	<i>Dacelo novaeguineae</i> subsp. <i>novaeguineae</i> (Laughing Kookaburra)	Y		
102.	25673	<i>Daphoenositta chrysoptera</i> (Varied Sittella)			
103.	24606	<i>Daphoenositta chrysoptera</i> subsp. <i>pileata</i> (Varied Sittella, Black-capped Sittella)			
104.	24325	<i>Dendrocygna eytoni</i> (Plumed Whistling Duck)			
105.	25607	<i>Dicaeum hirundinaceum</i> (Mistletoebird)			
106.	24470	<i>Dromaius novaehollandiae</i> (Emu)			

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107.	<i>Egretta garzetta</i>			
108.	<i>Egretta novaehollandiae</i>			
109.	<i>Elanus axillaris</i>			
110.	24290 <i>Elanus caeruleus</i> subsp. <i>axillaris</i> (Australian Black-shouldered Kite)			
111.	47937 <i>Eileyornis melanops</i> (Black-fronted Dotterel)			
112.	<i>Eolophus roseicapillus</i>			
113.	25692 <i>Eopsaltria australis</i> (Yellow Robin)			
114.	24652 <i>Eopsaltria georgiana</i> (White-breasted Robin)			
115.	24567 <i>Epthianura albifrons</i> (White-fronted Chat)			
116.	24379 <i>Erythronyctes cinctus</i> (Red-kneed Dotterel)			
117.	24368 <i>Eurostopodus argus</i> (Spotted Nightjar)			
118.	25621 <i>Falco berigora</i> (Brown Falcon)			
119.	24471 <i>Falco berigora</i> subsp. <i>berigora</i> (Brown Falcon)			
120.	25622 <i>Falco cenchroides</i> (Australian Kestrel, Nankeen Kestrel)			
121.	24472 <i>Falco cenchroides</i> subsp. <i>cenchrus</i> (Australian Kestrel, Nankeen Kestrel)			
122.	25623 <i>Falco longipennis</i> (Australian Hobby)			
123.	24474 <i>Falco longipennis</i> subsp. <i>longipennis</i> (Australian Hobby)			
124.	25624 <i>Falco peregrinus</i> (Peregrine Falcon)		S	
125.	25727 <i>Fulica atra</i> (Eurasian Coot)			
126.	24761 <i>Fulica atra</i> subsp. <i>australis</i> (Eurasian Coot)			
127.	25729 <i>Gallinula tenebrosa</i> (Dusky Moorhen)			
128.	24763 <i>Gallinula tenebrosa</i> subsp. <i>tenebrosa</i> (Dusky Moorhen)			
129.	25730 <i>Gallirallus philippensis</i> (Buff-banded Rail)			
130.	24401 <i>Geopelia cuneata</i> (Diamond Dove)			
131.	25530 <i>Gerygone fusca</i> (Western Gerygone)			
132.	47962 <i>Glyciphila melanops</i> (Tawny-crowned Honeyeater)			
133.	<i>Gracula religiosa</i>			
134.	24443 <i>Grallina cyanoleuca</i> (Magpie-lark)			
135.	24293 <i>Haliaeetus leucogaster</i> (White-bellied Sea-Eagle)			
136.	24295 <i>Haliastur sphenurus</i> (Whistling Kite)			
137.	24689 <i>Halobaena caerulea</i> (Blue Petrel)			
138.	24296 <i>Hamirostra isura</i> (Square-tailed Kite)			
139.	47965 <i>Hieraaetus morphnoides</i> (Little Eagle)			
140.	25734 <i>Himantopus himantopus</i> (Black-winged Stilt)			
141.	24491 <i>Hirundo neoxena</i> (Welcome Swallow)			
142.	48587 <i>Hydroprogne caspia</i> (Caspian Tern)		IA	
143.	24347 <i>Ixobrychus flavicollis</i> subsp. <i>australis</i> (Black Bittern (southwest subpop.), Australian Black Bittern)		P2	
144.	24367 <i>Lalage tricolor</i> (White-winged Triller)			
145.	24511 <i>Larus novaehollandiae</i> subsp. <i>novaehollandiae</i> (Silver Gull)			
146.	25659 <i>Lichenostomus leucotis</i> (White-eared Honeyeater)			
147.	25661 <i>Lichmera indistincta</i> (Brown Honeyeater)			
148.	24582 <i>Lichmera indistincta</i> subsp. <i>indistincta</i> (Brown Honeyeater)			
149.	<i>Lophochroa leadbeateri</i>			
150.	<i>Lophocincla isura</i>			
151.	24326 <i>Malacorhynchus membranaceus</i> (Pink-eared Duck)			
152.	25650 <i>Malurus elegans</i> (Red-winged Fairy-wren)			
153.	25651 <i>Malurus lamberti</i> (Variegated Fairy-wren)			
154.	25652 <i>Malurus leucopterus</i> (White-winged Fairy-wren)			
155.	24551 <i>Malurus pulcherrimus</i> (Blue-breasted Fairy-wren)			
156.	25654 <i>Malurus splendens</i> (Splendid Fairy-wren)			
157.	24552 <i>Malurus splendens</i> subsp. <i>splendens</i> (Splendid Fairy-wren)			
158.	24583 <i>Manorina flavigula</i> (Yellow-throated Miner)			
159.	25758 <i>Megalurus gramineus</i> (Little Grassbird)			
160.	47997 <i>Melanodryas cucullata</i> (Hooded Robin)			
161.	25663 <i>Melithreptus brevirostris</i> (Brown-headed Honeyeater)			
162.	24587 <i>Melithreptus chloropsis</i> (Western White-naped Honeyeater)			
163.	24598 <i>Merops ornatus</i> (Rainbow Bee-eater)			
164.	<i>Microcarbo melanoleucos</i>			
165.	25693 <i>Microeca fascians</i> (Jacky Winter)			
166.	25542 <i>Milvus migrans</i> (Black Kite)			
167.	25610 <i>Myiagra inquieta</i> (Restless Flycatcher)			
168.	25686 <i>Neochmia temporalis</i> (Red-browed Finch)	Y		
169.	24738 <i>Neophema elegans</i> (Elegant Parrot)			
170.	<i>Neophema pulchella</i>			
171.	25747 <i>Ninox connivens</i> (Barking Owl)			
172.	25564 <i>Nycticorax caledonicus</i> (Rufous Night Heron)			
173.	24742 <i>Nymphicus hollandicus</i> (Cockatiel)			
174.	24407 <i>Ocyphaps lophotes</i> (Crested Pigeon)			
175.	24328 <i>Oxyura australis</i> (Blue-billed Duck)		P4	

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176.	25680 <i>Pachycephala rufiventris</i> (Rufous Whistler)			
177.	24624 <i>Pachycephala rufiventris</i> subsp. <i>rufiventris</i> (Rufous Whistler)			
178.	24693 <i>Pachyptila desolata</i> (Antarctic Prion)			
179.	48591 <i>Pandion cristatus</i> (Osprey, Eastern Osprey)		IA	
180.	25681 <i>Pardalotus punctatus</i> (Spotted Pardalote)			
181.	24625 <i>Pardalotus punctatus</i> subsp. <i>punctatus</i> (Spotted Pardalote)			
182.	24626 <i>Pardalotus punctatus</i> subsp. <i>xanthopyge</i> (Yellow-rumped Pardalote)			
183.	25682 <i>Pardalotus striatus</i> (Striated Pardalote)			
184.	24630 <i>Pardalotus striatus</i> subsp. <i>westraliensis</i> (Striated Pardalote)			
185.	25687 <i>Passer domesticus</i> (House Sparrow)	Y		
186.	24648 <i>Pelecanus conspicillatus</i> (Australian Pelican)			
187.	48060 <i>Petrochelidon ariel</i> (Fairy Martin)			
188.	48061 <i>Petrochelidon nigricans</i> (Tree Martin)			
189.	48066 <i>Petroica boodang</i> (Scarlet Robin)			
190.	24659 <i>Petroica goodenovii</i> (Red-capped Robin)			
191.	25697 <i>Phalacrocorax carbo</i> (Great Cormorant)			
192.	25698 <i>Phalacrocorax melanoleucos</i> (Little Pied Cormorant)			
193.	24667 <i>Phalacrocorax sulcirostris</i> (Little Black Cormorant)			
194.	25699 <i>Phalacrocorax varius</i> (Pied Cormorant)			
195.	24409 <i>Phaps chalcoptera</i> (Common Bronzewing)			
196.	25587 <i>Phaps elegans</i> (Brush Bronzewing)			
197.	48071 <i>Phylidonyris niger</i> (White-cheeked Honeyeater)			
198.	24596 <i>Phylidonyris novaehollandiae</i> (New Holland Honeyeater)			
199.	24841 <i>Platalea flavipes</i> (Yellow-billed Spoonbill)			
200.	25720 <i>Platycercus icterotis</i> (Western Rosella)			
201.	24747 <i>Platycercus spurius</i> (Red-capped Parrot)			
202.	25721 <i>Platycercus zonarius</i> (Australian Ringneck, Ring-necked Parrot)			
203.	24750 <i>Platycercus zonarius</i> subsp. <i>semitorquatus</i> (Twenty-eight Parrot)			
204.	24843 <i>Plegadis falcinellus</i> (Glossy Ibis)		IA	
205.	25703 <i>Podargus strigoides</i> (Tawny Frogmouth)			
206.	24679 <i>Podargus strigoides</i> subsp. <i>brachypterus</i> (Tawny Frogmouth)			
207.	25704 <i>Podiceps cristatus</i> (Great Crested Grebe)			
208.	24680 <i>Podiceps cristatus</i> subsp. <i>australis</i> (Great Crested Grebe)			
209.	24681 <i>Poliiocephalus poliocephalus</i> (Hoary-headed Grebe)			
210.	25722 <i>Polytelis anthopeplus</i> (Regent Parrot)			
211.	24683 <i>Pomatostomus superciliosus</i> (White-browed Babbler)			
212.	25731 <i>Porphyrio porphyrio</i> (Purple Swamphen)			
213.	24767 <i>Porphyrio porphyrio</i> subsp. <i>bellus</i> (Purple Swamphen)			
214.	24769 <i>Porzana fluminea</i> (Australian Spotted Crane)			
215.	25732 <i>Porzana pusilla</i> (Baillon's Crane)			
216.	24770 <i>Porzana pusilla</i> subsp. <i>palustris</i> (Baillon's Crane)			
217.	24771 <i>Porzana tabuensis</i> (Spotless Crane)			
218.	<i>Purpureicephalus spurius</i>			
219.	24776 <i>Recurvirostra novaehollandiae</i> (Red-necked Avocet)			
220.	48096 <i>Rhipidura albiscapa</i> (Grey Fantail)			
221.	25614 <i>Rhipidura leucophrys</i> (Willie Wagtail)			
222.	24454 <i>Rhipidura leucophrys</i> subsp. <i>leucophrys</i> (Willie Wagtail)			
223.	25534 <i>Sericornis frontalis</i> (White-browed Scrubwren)			
224.	30948 <i>Smicrornis brevirostris</i> (Weebill)			
225.	24645 <i>Stagonopleura oculata</i> (Red-eared Firetail)			
226.	24525 <i>Sterna fuscata</i> subsp. <i>nubilosa</i> (Sooty Tern)			
227.	24329 <i>Stictonetta naevosa</i> (Freckled Duck)			
228.	25597 <i>Strepera versicolor</i> (Grey Currawong)			
229.	25589 <i>Streptopelia chinensis</i> (Spotted Turtle-Dove)	Y		
230.	30951 <i>Streptopelia chinensis</i> subsp. <i>tigrina</i> (Spotted Turtle-Dove)	Y		
231.	25590 <i>Streptopelia senegalensis</i> (Laughing Turtle-Dove)	Y		
232.	25705 <i>Tachybaptus novaehollandiae</i> (Australasian Grebe, Black-throated Grebe)			
233.	24682 <i>Tachybaptus novaehollandiae</i> subsp. <i>novaehollandiae</i> (Australasian Grebe, Black-throated Grebe)			
234.	24331 <i>Tadorna tadornoides</i> (Australian Shelduck, Mountain Duck)			
235.	48597 <i>Thalasseus bergii</i> (Crested Tern)		IA	
236.	24845 <i>Threskiornis spinicollis</i> (Straw-necked Ibis)			
237.	25549 <i>Todiramphus sanctus</i> (Sacred Kingfisher)			
238.	24309 <i>Todiramphus sanctus</i> subsp. <i>sanctus</i> (Sacred Kingfisher)			
239.	48141 <i>Tribonyx ventralis</i> (Black-tailed Native-hen)			
240.	<i>Trichoglossus chlorolepidotus</i>			
241.	25723 <i>Trichoglossus haematodus</i> (Rainbow Lorikeet)			
242.	24755 <i>Trichoglossus haematodus</i> subsp. <i>moluccanus</i> (Rainbow Lorikeet)	Y		
243.	24754 <i>Trichoglossus haematodus</i> subsp. <i>rubitorquis</i> (Red-collared Lorikeet)			
244.	24806 <i>Tringa glareola</i> (Wood Sandpiper)		IA	

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245.	24808	<i>Tringa nebularia</i> (Common Greenshank, greenshank)		IA	
246.	48147	<i>Turnix varius</i> (Painted Button-quail)			
247.	24851	<i>Turnix velox</i> (Little Button-quail)			
248.	25762	<i>Tyto alba</i> (Barn Owl)			
249.	24852	<i>Tyto alba</i> subsp. <i>delicatula</i> (Barn Owl)			
250.	25577	<i>Vanellus miles</i> (Masked Lapwing)			
251.	25765	<i>Zosterops lateralis</i> (Grey-breasted White-eye, Silvereye)			

## Fish

252.		<i>Acanthaluteres brownii</i>			
253.		<i>Acentrogobius bifrenatus</i>			
254.		<i>Aldrichetta forsteri</i>			
255.		<i>Amniataba caudavittata</i>			
256.		<i>Atherinosoma wallacei</i>			
257.		<i>Carassius auratus</i>			
258.		<i>Carcharhinus leucas</i>			
259.		<i>Cnidoglanis macrocephalus</i>			
260.		<i>Engraulis australis</i>			
261.		<i>Favonigobius</i> sp.			
262.	34028	<i>Galaxias occidentalis</i> (Western Minnow)			
263.	34030	<i>Geotria australis</i> (Pouched Lamprey)		P1	
264.		<i>Gerres subfasciatus</i>			
265.		<i>Gonorynchus greyi</i>			
266.		<i>Monacanthus chinensis</i>			
267.		<i>Mugil cephalus</i>			
268.		<i>Nannoperca vittata</i>			
269.		<i>Neatypus obliquus</i>			
270.		<i>Platycephalus indicus</i>			
271.		<i>Rhabdosargus sarba</i>			
272.		<i>Scobinichthys granulatus</i>			
273.		<i>Tridentiger trigonocephalus</i>			
274.		<i>Urocampus carinirostris</i>			

## Invertebrate

275.		<i>Acariformes</i> sp.			
276.		<i>Acroaspis olorina</i>			Y
277.		<i>Aganippe cupulifex</i>			Y
278.		<i>Aganippe raphiduca</i>			
279.		<i>Akamptogonus novarae</i>			
280.		<i>Allothreua maculata</i>			
281.		<i>Ambicodamus kochi</i>			
282.		<i>Amblyomma albolimbatum</i>			
283.		<i>Amblyomma fimbriatum</i>			
284.		<i>Amblyomma triguttatum</i>			
285.		<i>Amphisopodidae</i> sp.			
286.		<i>Aname mainae</i>			
287.		<i>Aname tepperi</i>			
288.		<i>Ancylidae</i> sp.			
289.		<i>Arachnura higginsi</i>			
290.		<i>Araneus cyphoxis</i>			
291.		<i>Araneus eburniventris</i>			
292.		<i>Araneus ginninderranus</i>			
293.		<i>Araneus senicaudatus</i>			
294.		<i>Argiope protensa</i>			
295.		<i>Argiope trifasciata</i>			
296.		<i>Artoria flavimana</i>			
297.		<i>Artoria impedita</i>			
298.		<i>Artoria linnaei</i>			
299.		<i>Artoriopsis expolita</i>			
300.		<i>Asadipus kunderang</i>			
301.		<i>Austracantha minax</i>			
302.		<i>Australomimetes aurioculatus</i>			
303.		<i>Australomimetes ovidi</i>			
304.	48574	<i>Australotomurus morbidus</i> (cemetery springtail, Guildford springtail)		P3	
305.	33972	<i>Austromerope poultoni</i> (earwigfly (southwest), scorpionfly)			
306.		<i>Backobourkia brounii</i>			
307.		<i>Backobourkia heroine</i>			
308.		<i>Badumna insignis</i>			
309.		<i>Baetidae</i> sp.			
310.		<i>Baiami volucripes</i>			
311.		<i>Ballarra longipalpus</i>			

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312.	<i>Bigenditia zuytdorp</i>			
313.	<i>Brentidae</i> sp.			
314.	<i>Caenidae</i> sp.			
315.	<i>Carabidae</i> sp.			
316.	<i>Ceinidae</i> sp.			
317.	<i>Celaenia excavata</i>			
318.	<i>Ceratopogonidae</i> sp.			
319.	<i>Cercophonius granulosus</i>			
320.	<i>Cercophonius squama</i>			
321.	<i>Cercophonius sulcatus</i>			
322.	<i>Ceryerda cursitans</i>			
323.	<i>Cethegus fugax</i>			
324.	33939 <i>Cherax cainii</i> (Marron)			
325.	<i>Cherax destructor</i>			
326.	<i>Cherax quinquecarinatus</i>			
327.	<i>Chironominae</i> sp.			
328.	<i>Clynotis severus</i>			
329.	<i>Corduliidae</i> sp.			
330.	<i>Corixidae</i> sp.			
331.	<i>Cormocephalus aurantiipes</i>			
332.	<i>Cormocephalus rubriceps</i>			
333.	<i>Cormocephalus strigosus</i>			
334.	<i>Cormocephalus turneri</i>			
335.	<i>Culicidae</i> sp.			
336.	<i>Curculionidae</i> sp.			
337.	<i>Cyclosa trilobata</i>			
338.	<i>Cyrtophora parnasia</i>			
339.	<i>Dasyurochirus tapoatafa</i>			Y
340.	<i>Dingosa serrata</i>			
341.	<i>Dinocambala ingens</i>			
342.	<i>Dolichopodidae</i> sp.			
343.	<i>Dugesidae</i> sp.			
344.	<i>Dytiscidae</i> sp.			
345.	<i>Eodelena lapidicola</i>			
346.	<i>Erigone prominens</i>			
347.	<i>Eriophora biapicata</i>			
348.	<i>Eriophora pustulosa</i>			
349.	<i>Eucyrtops lator</i>			
350.	48579 <i>Euoplos inornatus</i> (inornate trapdoor spider (northern Jarrah Forest))		P3	
351.	<i>Eupograptus kottae</i>			
352.	<i>Gea theridioides</i>			
353.	<i>Glossiphoniidae</i> sp.			
354.	<i>Gomphidae</i> sp.			
355.	<i>Gripopterygidae</i> sp.			
356.	<i>Gyrinidae</i> sp.			
357.	<i>Hemicloea</i> sp.			Y
358.	<i>Hemicloea sublimbata</i>			
359.	<i>Hemicorduliidae</i> sp.			
360.	<i>Heurodes turrinus</i>			
361.	<i>Hoggicosa storri</i>			
362.	<i>Hogna crispipes</i>			
363.	<i>Hogna kuyani</i>			
364.	<i>Holasteron perth</i>			
365.	<i>Holconia westralia</i>			
366.	<i>Holocnemus pluchei</i>			
367.	<i>Hydrophilidae</i> sp.			
368.	<i>Hydroptilidae</i> sp.			
369.	<i>Hypoblemum</i> sp.			Y
370.	<i>Idiommata blackwalli</i>			
371.	<i>Isometroides vescus</i>			
372.	<i>Isopeda leishmanni</i>			
373.	<i>Isopeda magna</i>			
374.	<i>Isopedella cana</i>			
375.	<i>Isopedella tindalei</i>			
376.	<i>Ixodes fecialis</i>			
377.	<i>Karaops ellenae</i>			
378.	<i>Lampona brevipes</i>			
379.	<i>Lampona cylindrata</i>			
380.	<i>Lampona yanchep</i>			
381.	<i>Lamponella ainslie</i>			

Name ID	Species Name	Naturalised	Conservation Code	<sup>1</sup> Endemic To Query Area
382.	<i>Latrodectus hasselti</i>			
383.	<i>Latrodectus hasseltii</i>			
384.	<i>Leptoceridae sp.</i>			
385.	<i>Leptophlebiidae sp.</i>			
386.	<i>Libellulidae sp.</i>			
387.	<i>Lycosa ariadnae</i>			
388.	<i>Lycosa godeffroyi</i>			
389.	<i>Lymnaeidae sp.</i>			
390.	<i>Maratus pavonis</i>			
391.	<i>Masasteron mas</i>			
392.	<i>Megapodagrionidae sp.</i>			
393.	<i>Missulena granulosa</i>			
394.	<i>Missulena hoggi</i>			
395.	<i>Missulena occatoria</i>			
396.	<i>Mituliodon tarantulinus</i>			
397.	<i>Myandra bicincta</i>			
398.	<i>Nematoda sp.</i>			
399.	<i>Nephila edulis</i>			
400.	<i>Nicodamus mainae</i>			
401.	<i>Notiasemus glauerti</i>			
402.	<i>Notsodipus muckera</i>			
403.	<i>Novakiella trituberculosa</i>			
404.	<i>Nunciella aspera</i>			
405.	<i>Occiperipatooides gilesii</i>			
406.	<i>Ocrisoma leucocomis</i>			
407.	<i>Oecobius navus</i>			
408.	<i>Oligochaeta sp.</i>			
409.	<i>Ommatoiulus moreleti</i>			
410.	<i>Ommatoiulus moreletii</i>			
411.	<i>Oniscidae sp.</i>			
412.	<i>Opopaea sp.</i>			Y
413.	<i>Orphnaeus breviliabatus</i>			
414.	<i>Orthocladinae sp.</i>			
415.	<i>Ostearius melanopygius</i>			
416.	<i>Oxyopes gracilipes</i>			
417.	<i>Oxyopes punctatus</i>			
418.	<i>Paralampona marangaroo</i>			
419.	<i>Paramelidae sp.</i>			
420.	<i>Parastacidae sp.</i>			
421.	<i>Pediana occidentalis</i>			
422.	<i>Pentastemon securifer</i>			
423.	<i>Pholcus phalangoides</i>			
424.	<i>Phryganoporus candidus</i>			
425.	<i>Physidae sp.</i>			
426.	<i>Pinkfloydia harveii</i>			
427.	<i>Planorbidae sp.</i>			
428.	<i>Raveniella cirrata</i>			
429.	<i>Raveniella peckorum</i>			
430.	<i>Richardsonianidae sp.</i>			
431.	<i>Sandalodes joannae</i>			
432.	<i>Sandalodes superbus</i>			
433.	<i>Scirtidae sp.</i>			
434.	<i>Scolopendra laeta</i>			
435.	<i>Scytodes thoracica</i>			
436.	<i>Servaea melaina</i>			
437.	<i>Servaea spinibarbis</i>			
438.	<i>Simuliidae sp.</i>			
439.	<i>Smeringopus natalensis</i>			
440.	<i>Smeringopus natalensis?</i>			Y
441.	<i>Steatoda capensis</i>			
442.	<i>Steatoda grossa</i>			
443.	<i>Storena formosa</i>			
444.	<i>Storena sinuosa</i>			
445.	<i>Stratiomyidae sp.</i>			
446.	<i>Styloniscidae sp.</i>			
447.	<i>Supunna funerea</i>			
448.	<i>Supunna picta</i>			
449.	33992 <i>Synemon gratiosa</i> (Graceful Sunmoth)		P4	
450.	<i>Synothele durokoppin</i>			
451.	<i>Synothele michaelsoni</i>			

Name ID	Species Name	Naturalised	Conservation Code	<sup>1</sup> Endemic To Query Area
452.	<i>Synthemistidae</i> sp.			
453.	<i>Talitridae</i> sp.			
454.	<i>Tamopsis darlingtoniana</i>			
455.	<i>Tamopsis perthensis</i>			
456.	<i>Tanypodinae</i> sp.			
457.	<i>Tasmanicosa leuckartii</i>			
458.	<i>Tetragnatha demissa</i>			
459.	<i>Tetragnatha luteocincta</i>			Y
460.	<i>Tipulidae</i> sp.			
461.	<i>Trachycosmus sculptilis</i>			
462.	<i>Trachyspina mundaring</i>			
463.	<i>Trichocyclus nullarbor</i>			
464.	<i>Urodacus armatus</i>			
465.	<i>Urodacus novaehollandiae</i>			
466.	<i>Urodacus planimanus</i>			
467.	<i>Venator immansueta</i>			
468.	<i>Venatrix pullastra</i>			
469.	34113 <i>Westralunio carteri</i> (Carter's Freshwater Mussel)		T	
470.	<i>Withius piger</i>			
471.	unknown unknown			Y

## Mammal

472.	25449 <i>Antechinus flavipes</i> (Yellow-footed Antechinus)			
473.	24088 <i>Antechinus flavipes</i> subsp. <i>leucogaster</i> (Yellow-footed Antechinus, Mardo)			
474.	24162 <i>Bettongia penicillata</i> subsp. <i>ogilbyi</i> (Woylie, Brush-tailed Bettong)		T	
475.	25454 <i>Canis lupus</i> (Dog, Dingo)	Y		
476.	30883 <i>Canis lupus</i> subsp. <i>familiaris</i> (Dog)	Y		
477.	24086 <i>Cercartetus concinnus</i> (Western Pygmy-possum, Mundarda)			
478.	24186 <i>Chalinolobus gouldii</i> (Gould's Wattle Bat)			
479.	24187 <i>Chalinolobus morio</i> (Chocolate Wattle Bat)			
480.	24092 <i>Dasyurus geoffroyi</i> (Chuditch, Western Quoll)		T	
481.	24258 <i>Equus caballus</i> (Horse)	Y		
482.	24189 <i>Falsistrellus mackenziei</i> (Western False Pipistrelle, Western Falsistrelle)		P4	
483.	24041 <i>Felis catus</i> (Cat)	Y		
484.	24215 <i>Hydromys chrysogaster</i> (Water-rat, Rakali)		P4	
485.	48588 <i>Isoodon fusciventer</i> (Quenda, southwestern brown bandicoot)		P4	
486.	24132 <i>Macropus fuliginosus</i> (Western Grey Kangaroo)			
487.	24135 <i>Macropus robustus</i> subsp. <i>erubescens</i> (Euro, Biggada)			
488.	24168 <i>Macrotis lagotis</i> (Bilby, Dalgyte, Ninu)		T	
489.	48005 <i>Mormopterus kitcheneri</i> (South-western Free-tailed Bat)			
490.	24223 <i>Mus musculus</i> (House Mouse)	Y		
491.	48022 <i>Notamacropus irma</i> (Western Brush Wallaby)		P4	
492.	24194 <i>Nyctophilus geoffroyi</i> (Lesser Long-eared Bat)			
493.	24085 <i>Oryctolagus cuniculus</i> (Rabbit)	Y		
494.	34016 <i>Ovis aries</i> (Sheep)			
495.	48070 <i>Phascogale tapoatafa</i> subsp. <i>wambenger</i> (South-western Brush-tailed Phascogale, Wambenger)		S	
496.	24166 <i>Pseudocheirus occidentalis</i> (Western Ringtail Possum, ngwayir)		T	
497.	24243 <i>Rattus fuscipes</i> (Western Bush Rat)			
498.	24245 <i>Rattus rattus</i> (Black Rat)	Y		
499.	24207 <i>Tachyglossus aculeatus</i> (Short-beaked Echidna)			
500.	24167 <i>Tarsipes rostratus</i> (Honey Possum, Noolbenger)			
501.	25521 <i>Trichosurus vulpecula</i> (Common Brushtail Possum)			
502.	24158 <i>Trichosurus vulpecula</i> subsp. <i>vulpecula</i> (Common Brushtail Possum)			
503.	24206 <i>Vespadelus regulus</i> (Southern Forest Bat)			
504.	24040 <i>Vulpes vulpes</i> (Red Fox)	Y		

## Reptile

505.	42368 <i>Acritoscincus trilineatus</i> (Western Three-lined Skink)			
506.	25319 <i>Antaresia stimsoni</i> subsp. <i>orientalis</i> (Stimson's Python)			
507.	25241 <i>Antaresia stimsoni</i> subsp. <i>stimsoni</i> (Stimson's Python)			
508.	24990 <i>Aprasia pulchella</i> (Granite Worm-lizard)			
509.	24991 <i>Aprasia repens</i> (Sand-plain Worm-lizard)			
510.	42380 <i>Brachyuophis fasciatus</i> subsp. <i>fasciatus</i> (Narrow-banded Shovel-nosed Snake)			
511.	42381 <i>Brachyuophis semifasciatus</i> (Southern Shovel-nosed Snake)			
512.	43380 <i>Chelodina colliei</i> (South-western Snake-necked Turtle)			
513.	24980 <i>Christinus marmoratus</i> (Marbled Gecko)			
514.	25456 <i>Crenadactylus ocellatus</i> (Clawless Gecko)			
515.	24918 <i>Crenadactylus ocellatus</i> subsp. <i>ocellatus</i> (Clawless Gecko)			
516.	30893 <i>Cryptoblepharus buchananii</i>			
517.	30899 <i>Ctenophorus adelaidensis</i> (Southern Heath Dragon, Western Heath Dragon)			



	Name ID	Species Name	Naturalised	Conservation Code	<sup>1</sup> Endemic To Query Area
518.	24883	<i>Ctenophorus ornatus</i> (Ornate Crevice-Dragon)			
519.	25027	<i>Ctenotus australis</i>			
520.	25035	<i>Ctenotus delli</i> (Dell's skink, Darling Range southwest Ctenotus)		P4	
521.	25039	<i>Ctenotus fallens</i>			
522.	25040	<i>Ctenotus gemmula</i> (Jewelled South-west Ctenotus (Swan Coastal Plain subpop P3), skink)			
523.	25047	<i>Ctenotus impar</i>			
524.	25049	<i>Ctenotus labillardieri</i>			
525.	25766	<i>Delma fraseri</i> (Fraser's Legless Lizard)			
526.	24999	<i>Delma grayii</i>			
527.	25296	<i>Demansia psammophis</i> subsp. <i>reticulata</i> (Yellow-faced Whipsnake)			
528.	25469	<i>Diplodactylus granariensis</i>			
529.	24929	<i>Diplodactylus granariensis</i> subsp. <i>granariensis</i>			
530.	44654	<i>Diplodactylus lateroides</i> (Speckled Stone Gecko)			
531.	24939	<i>Diplodactylus polyophthalmus</i>			
532.	24940	<i>Diplodactylus pulcher</i>			
533.	25251	<i>Echiopsis curta</i> (Bardick)			
534.	25096	<i>Egernia kingii</i> (King's Skink)			
535.	25100	<i>Egernia napoleonis</i>			
536.	25250	<i>Elapognathus coronatus</i> (Crowned Snake)			
537.	24959	<i>Gehyra variegata</i>			
538.	25474	<i>Hemiergis initialis</i>			
539.	25115	<i>Hemiergis initialis</i> subsp. <i>initialis</i>			
540.	25119	<i>Hemiergis quadrilineata</i>			
541.	25131	<i>Lerista distinguenda</i>			
542.	25133	<i>Lerista elegans</i>			
543.	25148	<i>Lerista lineopunctulata</i>			
544.	25165	<i>Lerista praepedita</i>			
545.	25005	<i>Lialis burtonis</i>			
546.	25184	<i>Menetia greyii</i>			
547.	25240	<i>Morelia spilota</i> subsp. <i>imbricata</i> (Carpet Python)			
548.	25191	<i>Morethia lineoocellata</i>			
549.	25192	<i>Morethia obscura</i>			
550.	25248	<i>Neelaps bimaculatus</i> (Black-naped Snake)			
551.	25249	<i>Neelaps calonotos</i> (Black-striped Snake, black-striped burrowing snake)		P3	
552.	25252	<i>Notechis scutatus</i> (Tiger Snake)			
553.	25253	<i>Parasuta gouldii</i>			
554.	25255	<i>Parasuta nigriceps</i>			
555.	25007	<i>Pletholax gracilis</i> subsp. <i>gracilis</i> (Keeled Legless Lizard)			
556.	25510	<i>Pogona minor</i> (Dwarf Bearded Dragon)			
557.	24907	<i>Pogona minor</i> subsp. <i>minor</i> (Dwarf Bearded Dragon)			
558.	25261	<i>Pseudechis australis</i> (Mulga Snake)			
559.	25345	<i>Pseudemadura umbrina</i> (Western Swamp Tortoise, Western Swamp Turtle)		T	
560.	25511	<i>Pseudonaja affinis</i> (Dugite)			
561.	25259	<i>Pseudonaja affinis</i> subsp. <i>affinis</i> (Dugite)			
562.	42416	<i>Pseudonaja mengdeni</i> (Western Brown Snake)			
563.	25264	<i>Pseudonaja nuchalis</i> (Gwardar, Northern Brown Snake)			
564.	25008	<i>Pygopus lepidopodus</i> (Common Scaly Foot)			
565.	25266	<i>Simoselaps bertholdi</i> (Jan's Banded Snake)			
566.	25518	<i>Strophurus spinigerus</i>			
567.	24943	<i>Strophurus spinigerus</i> subsp. <i>inornatus</i>			
568.	24942	<i>Strophurus spinigerus</i> subsp. <i>spinigerus</i>			
569.	25203	<i>Tiliqua occipitalis</i> (Western Bluetongue)			
570.	25519	<i>Tiliqua rugosa</i>			
571.	25204	<i>Tiliqua rugosa</i> subsp. <i>aspera</i>			
572.	25207	<i>Tiliqua rugosa</i> subsp. <i>rugosa</i>			
573.	24983	<i>Underwoodisaurus milii</i> (Barking Gecko)			
574.	25218	<i>Varanus gouldii</i> (Bungarra or Sand Monitor)			
575.		<i>Varanus</i> sp.			
576.	25526	<i>Varanus tristis</i> (Racehorse Monitor)			

#### Conservation Codes

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

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





# EPBC Act Protected Matters Report

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

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

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

Report created: 12/12/18 14:03:37

## [Summary](#)

## [Details](#)

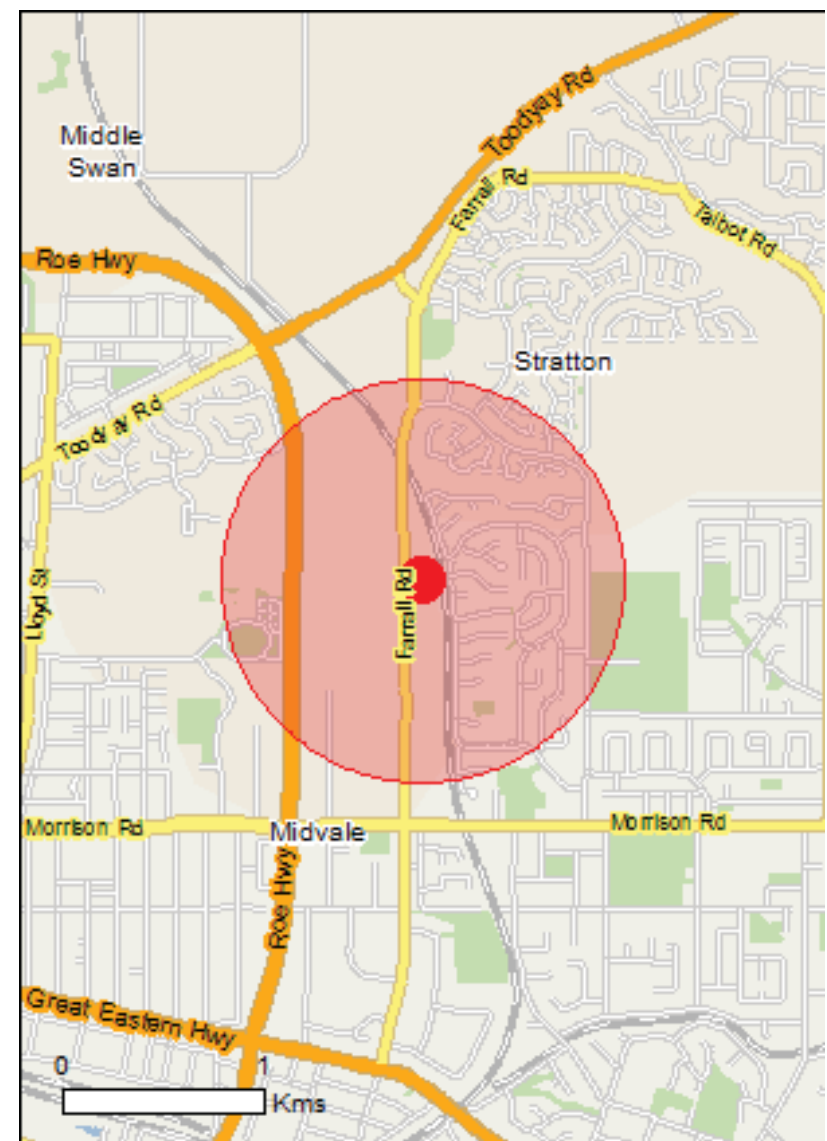
[Matters of NES](#)

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

[Extra Information](#)

## [Caveat](#)

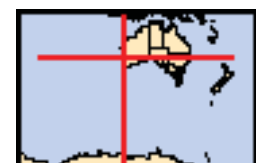
## [Acknowledgements](#)



This map may contain data which are  
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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>	None
<a href="#">Great Barrier Reef Marine Park:</a>	None
<a href="#">Commonwealth Marine Area:</a>	None
<a href="#">Listed Threatened Ecological Communities:</a>	3
<a href="#">Listed Threatened Species:</a>	16
<a href="#">Listed Migratory Species:</a>	9

## Other Matters Protected by the EPBC Act

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

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

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

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

## Extra Information

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

<a href="#">State and Territory Reserves:</a>	1
<a href="#">Regional Forest Agreements:</a>	1
<a href="#">Invasive Species:</a>	35
<a href="#">Nationally Important Wetlands:</a>	None
<a href="#">Key Ecological Features (Marine)</a>	None

# Details

## Matters of National Environmental Significance

Listed Threatened Ecological Communities

[ Resource Information ]

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

Name	Status	Type of Presence
<a href="#">Banksia Woodlands of the Swan Coastal Plain ecological community</a>	Endangered	Community likely to occur within area
<a href="#">Corymbia calophylla - Xanthorrhoea preissii woodlands and shrublands of the Swan Coastal Plain</a>	Endangered	Community known to occur within area
<a href="#">Shrublands and Woodlands of the eastern Swan Coastal Plain</a>	Endangered	Community known to occur within area

Listed Threatened Species

[ Resource Information ]

Name	Status	Type of Presence
Birds		
<a href="#">Calidris ferruginea</a> Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
<a href="#">Calyptorhynchus banksii naso</a> Forest Red-tailed Black-Cockatoo, 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	Roosting known to occur within area
<a href="#">Calyptorhynchus latirostris</a> Carnaby's Cockatoo, Short-billed Black-Cockatoo [59523]	Endangered	Species or species habitat known to occur within area
<a href="#">Leipoa ocellata</a> Malleefowl [934]	Vulnerable	Species or species habitat likely to occur within area
<a href="#">Numenius madagascariensis</a> Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area
<a href="#">Rostratula australis</a> Australian Painted-snipe, Australian Painted Snipe [77037]	Endangered	Species or species habitat may occur within area
Mammals		
<a href="#">Dasyurus geoffroii</a> Chuditch, Western Quoll [330]	Vulnerable	Species or species habitat likely to occur within area
Plants		
<a href="#">Andersonia gracilis</a> Slender Andersonia [14470]	Endangered	Species or species habitat likely to occur within area

Name	Status	Type of Presence
<a href="#">Diplolaena andrewsii</a> [6601]	Endangered	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="#">Eleocharis keigheryi</a> Keighery's Eleocharis [64893]	Vulnerable	Species or species habitat may occur within area
<a href="#">Eucalyptus x balanites</a> Cadda Road Mallee, Cadda Mallee [87816]	Endangered	Species or species habitat may occur within area
<a href="#">Synaphea sp. Fairbridge Farm (D. Papenfus 696)</a> Selena's Synaphea [82881]	Critically Endangered	Species or species habitat likely to occur within area
<a href="#">Thelymitra dedmaniarum</a> Cinnamon Sun Orchid [65105]	Endangered	Species or species habitat likely to occur within area
<a href="#">Thelymitra stellata</a> Star Sun-orchid [7060]	Endangered	Species or species habitat likely to occur within area

Listed Migratory Species		[ <a href="#">Resource Information</a> ]
* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.		
Name	Threatened	Type of Presence
Migratory Marine Birds		
<a href="#">Apus pacificus</a> Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Migratory Terrestrial Species		
<a href="#">Motacilla cinerea</a> Grey Wagtail [642]		Species or species habitat may occur within area
Migratory Wetlands Species		
<a href="#">Actitis hypoleucos</a> Common Sandpiper [59309]		Species or species habitat may occur within area
<a href="#">Calidris acuminata</a> Sharp-tailed Sandpiper [874]		Species or species habitat may occur within area
<a href="#">Calidris ferruginea</a> Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
<a href="#">Calidris melanotos</a> Pectoral Sandpiper [858]		Species or species habitat may occur within area
<a href="#">Numenius madagascariensis</a> Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area
<a href="#">Pandion haliaetus</a> Osprey [952]		Species or species habitat may occur within area
<a href="#">Tringa nebularia</a> Common Greenshank, Greenshank [832]		Species or species habitat likely to occur within area



Other Matters Protected by the EPBC Act

Listed Marine Species		[ Resource Information ]
* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.		
Name	Threatened	Type of Presence
Birds		
<a href="#">Actitis hypoleucos</a> Common Sandpiper [59309]		Species or species habitat may occur within area
<a href="#">Apus pacificus</a> Fork-tailed Swift [678]		Species or species habitat likely to occur within area
<a href="#">Ardea alba</a> Great Egret, White Egret [59541]		Species or species habitat known to occur within area
<a href="#">Ardea ibis</a> Cattle Egret [59542]		Species or species habitat may occur within area
<a href="#">Calidris acuminata</a> Sharp-tailed Sandpiper [874]		Species or species habitat may occur within area
<a href="#">Calidris ferruginea</a> Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
<a href="#">Calidris melanotos</a> Pectoral Sandpiper [858]		Species or species habitat may occur within area
<a href="#">Haliaeetus leucogaster</a> White-bellied Sea-Eagle [943]		Species or species habitat likely to occur within area
<a href="#">Merops ornatus</a> Rainbow Bee-eater [670]		Species or species habitat may occur within area
<a href="#">Motacilla cinerea</a> Grey Wagtail [642]		Species or species habitat may occur within area
<a href="#">Numenius madagascariensis</a> Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area
<a href="#">Pandion haliaetus</a> Osprey [952]		Species or species habitat may occur within area
<a href="#">Rostratula benghalensis (sensu lato)</a> Painted Snipe [889]	Endangered*	Species or species habitat may occur within area
<a href="#">Tringa nebularia</a> Common Greenshank, Greenshank [832]		Species or species habitat likely to occur within area

Extra Information

State and Territory Reserves	[ Resource Information ]
Name	State
Talbot Road	WA

Regional Forest Agreements	[ Resource Information ]
Note that all areas with completed RFAs have been included.	
Name	State
<a href="#">South West WA RFA</a>	Western Australia

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 Resouces Audit, 2001.	

Name	Status	Type of Presence
Birds		
Anas platyrhynchos Mallard [974]		Species or species habitat likely to occur within area
Carduelis carduelis European Goldfinch [403]		Species or species habitat likely to occur within area
Columba livia Rock Pigeon, Rock Dove, Domestic Pigeon [803]		Species or species habitat likely to occur within area
Passer domesticus House Sparrow [405]		Species or species habitat likely to occur within area
Passer montanus Eurasian Tree Sparrow [406]		Species or species habitat likely to occur within area
Streptopelia chinensis Spotted Turtle-Dove [780]		Species or species habitat likely to occur within area
Streptopelia senegalensis Laughing Turtle-dove, Laughing Dove [781]		Species or species habitat likely to occur within area
Sturnus vulgaris Common Starling [389]		Species or species habitat likely to occur within area
Mammals		
Bos taurus Domestic Cattle [16]		Species or species

Name	Status	Type of Presence
		habitat likely to occur within area
Canis lupus familiaris Domestic Dog [82654]		Species or species habitat likely to occur within area
Capra hircus Goat [2]		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
Funambulus pennantii Northern Palm Squirrel, Five-striped Palm Squirrel [129]		Species or species habitat likely to occur within area
Mus musculus House Mouse [120]		Species or species habitat likely to occur within area
Oryctolagus cuniculus Rabbit, European Rabbit [128]		Species or species habitat likely to occur within area
Rattus 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
Plants		
Anredera cordifolia Madeira Vine, Jalap, Lamb's-tail, Mignonette Vine, Anredera, Gulf Madeiravine, Heartleaf Madeiravine, Potato Vine [2643]		Species or species habitat likely to occur within area
Asparagus 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
Chrysanthemoides monilifera subsp. monilifera Boneseed [16905]		Species or species habitat likely to occur within area
Eichhornia crassipes Water Hyacinth, Water Orchid, Nile Lily [13466]		Species or species habitat likely to occur within area
Genista linifolia Flax-leaved Broom, Mediterranean Broom, Flax		Species or species

Name	Status	Type of Presence
Broom [2800]		habitat likely to occur within area
Genista sp. X Genista monspessulana Broom [67538]		Species or species habitat may occur within area
Lantana camara Lantana, Common Lantana, Kamara Lantana, Large-leaf Lantana, Pink Flowered Lantana, Red Flowered Lantana, Red-Flowered Sage, White Sage, Wild Sage [10892]		Species or species habitat likely to occur within area
Lycium ferocissimum African Boxthorn, Boxthorn [19235]		Species or species habitat likely to occur within area
Olea europaea Olive, Common Olive [9160]		Species or species habitat may occur within area
Pinus radiata Radiata Pine Monterey Pine, Insignis Pine, Wilding Pine [20780]		Species or species habitat may occur within area
Rubus fruticosus aggregate Blackberry, European Blackberry [68406]		Species or species habitat likely to occur within area
Sagittaria platyphylla Delta Arrowhead, Arrowhead, Slender Arrowhead [68483]		Species or species habitat likely to occur within area
Salvinia molesta Salvinia, Giant Salvinia, Aquarium Watermoss, Kariba Weed [13665]		Species or species habitat likely to occur within area



# Caveat

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

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

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

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

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

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

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

- migratory and
- marine

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

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

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

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

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

## Coordinates

-31.87672 116.03426

# 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 D**

## **BLACK COCKATOO HABITAT TREE DETAILS**

Habitat Trees

DBH >50cm

Datum - GDA94

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

Waypoint Number	Zone	mE	mN	Tree Species	Lot Number	Tree Height (m)	DBH (cm)	Number of Hollows	Estimated Hollow Entrance Size	Occupancy	Potential Cockatoo Nest Hollow	Comments
wpt010	50J	408586	6473011	Coastal Blackbutt	Lot 102	10-15	>50	1	Medium	No Signs	No	
wpt011	50J	408584	6473122	Marri	Lot 102	20+	>50	2+	Medium to Large	Bees/Ducks	No	Appears too low for cockatoos (<4m) and close to road - evidence of use by ducks
wpt012	50J	408592	6473131	Marri	Lot 102	15-20	>50	0				
wpt013	50J	408609	6473155	Marri	Lot 102	15-20	>50	0				
wpt014	50J	408595	6473190	Marri	Lot 102	15-20	>50	0				
wpt015	50J	408588	6473227	Jarrah	Lot 102	15-20	>50	1	Large	No Signs	No	Appears too low for cockatoos (<4m), too shallow and close to road
wpt016	50J	408586	6473230	Marri	Lot 102	15-20	>50	0				
wpt055	50J	408623	6473151	Coastal Blackbutt	Lot 102	10-15	>50	0				
wpt056	50J	408637	6473100	Coastal Blackbutt	Lot 102	10-15	>50	0				
wpt074	50J	408604	6472897	Coastal Blackbutt	Lot 102	10-15	>50	0				
wpt075	50J	408590	6472905	Coastal Blackbutt	Lot 102	10-15	>50	0				
wpt047	50J	408612	6472491	Flooded Gum	Lot 102 (BF)	15-20	>50	0				
wpt048	50J	408624	6472491	Flooded Gum	Lot 102 (BF)	15-20	>50	0				
wpt049	50J	408707	6472509	Jarrah	Lot 102 (BF)	20+	>50	0		No Signs	No	May have some very small hollows
wpt052	50J	408663	6472661	Coastal Blackbutt	Lot 102 (BF)	15-20	>50	0				

## **DISCLAIMER**

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

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

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

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

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