

Targeted Fauna Assessment at the Minninup Pool Project Development Investigation Area



Prepared for the Shire of Collie
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Executive Summary

This report details the results of a targeted fauna assessment the Minninup Pool Project Development Investigation Area (part of reserve 34343 - the subject site) on behalf of the Shire of Collie (the Shire). The Shire is considering the development of a nature-based hub at Minninup Pool, and have commissioned an assessment of the fauna (and flora) values of the subject site to determine the compatibility of the site for development.

The scope of works was to carry out a survey for threatened fauna or habitat within and immediately adjacent to the proposed development area. To comply with this requirement a Level 1 fauna survey as defined by the EPA (EPA 2016) has been carried out. In accordance with these guidelines the assessment has therefore included a literature review and a field reconnaissance survey. Because some listed threatened species (e.g. several species of black cockatoo and the western ringtail possum) 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 (and others) as well.

Daytime field survey work including camera trap deployment/retrieval and bat call recording were carried out on various days/nights between September 2018 to January 2019. A nocturnal survey of the subject site was carried out on the 7 January 2019. All field survey work was carried out by Greg Harewood (Zoologist).

The majority (~53ha/76%) of the vegetation present is comprised of a jarrah dominated open forest to woodland with variations occurring with respect to the composition and abundance of associated species such as marri, blackbutt, sheoak and banksia.

Almost all of the area appears to have been subject to an intense fire in the recent past (~2-3 years) and is currently in a state of regeneration. This fire is likely to have had an impact on the distribution and abundance of fauna species inhabiting the area though it can be assumed that it will recover its values over time. Despite the impacts the fire fauna habits appear to be in good to very good condition and would therefore have the capacity to support a wide range of the predicted fauna species.

The vast majority of the trees with the subject site are relatively small jarrah trees which do not have hollows or if present only small/medium size hollows. During the site survey only 13 trees with large hollows or apparent large hollows possibly suitable for black cockatoos too use for nesting purposes were observed. One of the hollows showed some evidence of use (minor chew marks) possibly made by nesting cockatoos.

Over 18 flora species were recorded within the subject site that are known to be used as a direct food source (i.e. seeds or flowers) by one or more species of black cockatoo. Almost the entire site can be regarded as containing foraging habitat given the presence

of the above-mentioned plant species, though the density and distribution of species varies from area to area and therefore the exact extent and quality is difficult to quantify. In some areas the favoured foraging species are absent or represented by only a small number of specimens (e.g. low shrubland areas and some areas dominated by *melaleuca*).

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

No evidence of western ringtail possums utilising the subject site was found during the day or site surveys. Habitat with the subject site appears suitable in some areas though a significant proportion is now marginal/patchy in quality due to the impacts of the intense fire that appears to have burnt much of the area sometime in the last 2-3 years. Currently the best quality habitat is confirmed to area containing relatively dense midstorey vegetation in unburnt areas, most of which borders the Collie River.

With respect to native vertebrate fauna, 23 mammal (including nine bat species), 130 bird, 39 reptile, 12 frog and five fish species have previously been recorded in the wider area, some of which have the potential to occur in or utilise sections of the subject site at times. Eighteen species of introduced animals could also frequent the area.

Of the 211 native vertebrate animals that are listed as potentially occurring, seven are considered to be Endangered/Vulnerable or in need of special protection under State and/or Federal law. In addition, nine DBCA priority species are also listed as potentially occurring. One invertebrate species of conservation significance is also listed as a potential species.

A total of 43 native fauna species were observed (or positively identified from foraging evidence, scats, tracks, skeletons or calls) within the subject site during the survey period. Seven introduced species (mosquito fish, mallard, muscovy duck, dog, red fox, rabbit and black rat) were also recorded.

Four fauna species of conservation significance were recorded these being the forest red-tailed black cockatoo (Vulnerable), the western brush wallaby (Priority 4), the western false pipistrelle (Priority 4) and Carter's Freshwater Mussel (*Westralunio carteri*).

The habitat assessment and other observations made during the field reconnaissance survey suggests that some other fauna species of conservation significance are also likely to persist in the general area. Subject to suitable habitat being present (i.e. quality and extent) it is therefore considered possible that some are likely to reside or at least frequent the subject site at times despite not having been observed/recorded.

The potential impacts on fauna species of conservation significance and/or their habitat will therefore need to be taken into consideration during the course of ongoing planning so as to minimise the potential for impacts. Future planning should also aim to reduce potential impacts so as to simplify any statutory approval processes that maybe required. To this end a series of management objectives and recommended actions are provided for consideration during ongoing development planning.

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Statement of Limitations

Reliance on Data

In the preparation of this report, Ecoedge has relied on 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. Unless stated otherwise in the report, Ecoedge 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 are based in whole or in part on the data, those conclusions are contingent upon the accuracy and completeness of the data. Ecoedge will not be liable in relation to incorrect conclusions should any data, information or condition be incorrect or have been concealed, withheld, unavailable, misrepresented or otherwise not fully disclosed to Ecoedge.

Report for Benefit of Client

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

1 Introduction

1.1 Background

This report details the results of a targeted fauna assessment the Minninup Pool Project Development Investigation Area (part of reserve 34343 - the subject site) on behalf of the Shire of Collie (the Shire) (**Figure 1**). The subject site has a total area of approximately 72.5 ha and contains predominantly bushland and river foreshore in various levels of condition, from degraded to good condition.

Following an Economic Development Task Force Report, tourism was identified as a key industry sector for Collie, and one of the initiatives was to develop a nature-based hub at Minninup Pool, linking with the Munda Biddi Trail and the Bibbulmun Track and featuring accommodation and activity options.

Accordingly, the Shire has commissioned an assessment of the fauna (and flora) within the subject site to determine the compatibility of the site for development of a nature hub; in particular a nature based camping ground and visitor day use area. This report details the results of the field survey.

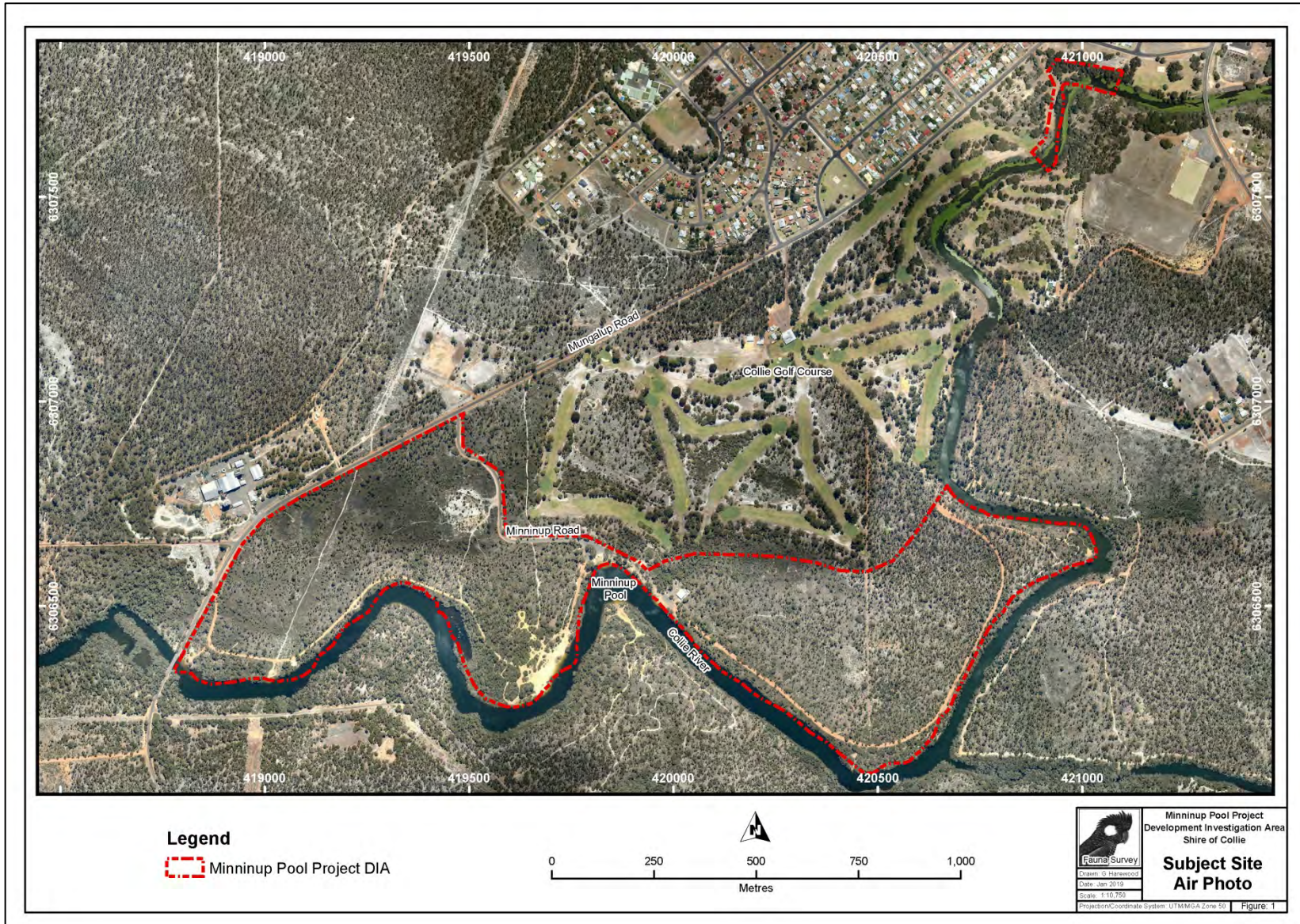


Figure 1. Minnipup Pool Project Development Investigation Area.

1.2 Scope of Works

The scope of works (with respect to fauna) was defined by the Shire as:

- Survey for threatened fauna or habitat within and immediately adjacent to the proposed development area.

To comply with this requirement a level 1 fauna survey as defined by the EPA (EPA 2016) has been carried out. Because the general area is known to be utilised by black cockatoos (Baudin's black cockatoo *Calyptorhynchus baudinii*, Carnaby's black cockatoo *Calyptorhynchus latirostris* and the forest red-tailed black cockatoo *Calyptorhynchus banksii naso*) and possibly western ringtail possums (*Pseudocheirus occidentalis*), the survey work has specifically targeted these species and/or their habitat. A range of more generalised survey work aimed at detecting the presence of other species of conservation significance has also been undertaken. The fauna assessment has therefore included:

1. Level 1 fauna assessment (in accordance with EPA (2016) guidelines);
2. Targeted searches for black cockatoo habitat/site use (existing and potential nest hollows, foraging and roosting habitat);
3. Targeted searches for western ringtail possum habitat/site use (dreys scats and individuals) including a nocturnal survey;
4. Identification of any other potentially occurring significant fauna species and their habitat; and
5. Report summarising methods and results.

2 Methods

2.1 Potential Fauna Inventory – Literature Review

2.1.1 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 2019); and
- Protected Matters Search Tool (DotEE 2019).

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.

2.1.2 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:

- Bancroft, W. and Bamford, M. (2006). Fauna Survey of the Muja South Extension Project. Unpublished report for Griffin Coal.
- Bancroft, W.J., Metcalf, B.M. and Bamford, M.J (2006). Fauna survey of Griffin Coal's Ewington II and Buckingham sites, January 2006. Unpublished report prepared for Kellogg Brown and Root (KBR) Pty Ltd on behalf of Griffin Coal Mining Company Pty Ltd.
- Bancroft, W. J. and Bamford, M. J. (2007). Fauna survey of Griffin Coal's Buckingham site, September 2006. Unpublished report to Griffin Coal Mining Co Pty Limited.
- Bancroft, W.J. Metcalf, B.M. and Bamford, M.J (2007). Fauna values of Griffin Coal's proposed Ewington conveyor alignment. Unpublished report prepared for The Griffin Group.
- Bancroft, W.J. and Bamford, M.J (2008). Inspection of Griffin Coal's proposed Ewington powerline clearing zones for Black-Cockatoo nesting activity, August 2008. Unpublished report prepared for The Griffin Group.
- Coffey Environments (2008). Fauna Relocation Program at Ewington Mine Site, Collie. Unpublished letter report prepared for The Griffin Coal Mining Company Pty Ltd by Coffey Environments. May 2008.
- Ecologia (1991). Ewington Consultative Environmental Review: Fauna Survey. Prepared for Halpern Glick Maunsell on behalf of Griffin Coal Mining Company. January 1991.

- GHD (2008). Collie Shotts Industrial Park, Spring Flora, Fauna and Wetland Assessment. Unpublished report for LandCorp.
- GHD (2009). Level 1 Fauna Assessment - Collie Urea Project. Unpublished report for Perdaman Industries.
- Griffin Coal (2008). Ewington Mining Operations Environmental Management Programme - Fauna Management Plan.
- Halpern Glick Maunsell (1994). Notice of Intent for: Ewington II Open-Cut Mine. Prepared on behalf of the Griffin Coal Mining Company Pty Ltd. July 1994.
- Halpern Glick Maunsell (2002). South West Project Strategic Environmental Review. Unpublished report for Griffin Energy.
- Harewood, G. (2010). Fauna Survey (Level 2) - Buckingham Way - Collie - Residential Development. Unpublished report for Strategen.
- Harewood, G. (2013a). Fauna Assessment - Coalfields Highway Realignment (15.9 SLK to 26.3 SLK) Allanson. Unpublished report for RPS/MRWA.
- Harewood, G. (2013b). Fauna Assessment of Collie Motorplex - Proposed Clearing Areas, Cardiff. Unpublished report for RPS.
- Harewood, G. (2016). Fauna Assessment - Reserve 15783 Venn Street. Shire of Collie. Unpublished report for Ecoedge.
- Maunsell (2003). Bluewater's Power Station Flora and Fauna Survey. Unpublished report for Griffin Energy.
- Maunsell (2004). Ewington I Open-Cut Mine: Environmental Management Programme. Prepared for Griffin Coal Mining Company, May 2004.
- Tonga, J. (2008). Ewington Mine Micro Bat Survey. Unpublished report prepared for Griffin Coal Mining Company by Natsync Environmental. May 2008.
- Western Wildlife (2011). Pit 5, Premier Coal Limited, Collie: Level 1 Fauna Survey & Targeted Chuditch Survey 2011. Unpublished report for Premier Coal Limited.
- Western Wildlife (2012). Chicken Creek 5 North Baseline Fauna and Habitat Survey, Premier Coal Limited, Collie: Level 1 Fauna Survey 2012. Unpublished report for Premier Coal Limited.

- Western Wildlife (2015). Pit 3 North Cross-boundary Mining Area: Level 1 Desktop Fauna Survey 2015. Unpublished report for Premier Coal Limited.

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. 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.

2.1.3 Existing Publications

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

- Anstis, M. (2013). Tadpoles and Frogs of Australia. New Holland Publishers, Sydney.
- Barrett, G., Silcocks, A., Barry, S., Cunningham, R. and Poulter, R. (2003). The New Atlas of Australian Birds. Royal Australasian Ornithologists Union, Victoria.
- Bush, B., Maryan, B., Browne-Cooper, R. & Robinson, D. (2007). Reptiles and Frogs in the Bush: Southwestern Australia. UWA Press, Nedlands.
- Churchill, S. (2008). Australian Bats. Second Edition, Allen & Unwin.
- Cogger, H.G. (2014). Reptiles and Amphibians of Australia. 7th Edition. CSIRO Publishing.
- Johnstone, R.E. and Storr, G.M. (1998). Handbook of Western Australian Birds: Volume 1 – Non-passerines (Emu to Dollarbird). Western Australian Museum, Perth Western Australia.
- Johnstone, R.E. and Storr, G.M. (2004). Handbook of Western Australian Birds: Volume 2 – Passerines (Blue-winged Pitta to Goldfinch). Western Australian Museum, Perth Western Australia.
- Menkhorst, P. and Knight, F. (2011). A Field Guide to the Mammals of Australia. Oxford University Press, Melbourne.
- 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.

2.1.4 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 DotEE;
- *Wildlife Conservation Act 1950* (WC Act). Administered by the Western Australian DBCA (Govt. of WA 2018). Note: The Wildlife Conservation (Specially Protected Fauna) Notice 2018 has been transitioned under regulations 170, 171 and 172 of the Biodiversity Conservation Regulations 2018 to be the lists of Threatened, Extinct and Specially Protected species under Part 2 of the *Biodiversity Conservation Act 2016* (BC Act).
- Red List produced by the SSC of the World Conservation Union (also known as the IUCN Red List - the acronym derived from its former name of the International Union for Conservation of Nature and Natural Resources). The Red List has no legislative power in Australia but is used as a framework for State and Commonwealth categories and criteria; and
- DBCA Priority Fauna list. A non-statutory list maintained by the DBCA for management purposes (DBCA 2018).

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 BC Act).

Some 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**.

2.1.5 Taxonomy and Nomenclature

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

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

2.1.6 Likelihood of Occurrence – Fauna of Conservation Significance

Fauna of conservation significance identified during the literature review as previously being recorded in the general area were assessed and ranked for their likelihood of occurrence within the 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 central jarrah forest. 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.

2.2 Site Surveys

Daytime field survey work including camera trap deployment/retrieval and bat call recording were carried out on various days/nights between September 2018 to January 2019. A nocturnal survey of the subject site was carried out on the 7 January 2019. All field survey work was carried out by Greg Harewood (Zoologist).

2.2.1 Fauna Habitat Assessment

The vegetation communities mapped by Ecoedge (Ecoedge 2019) during the flora and vegetation survey have been used to classify the area into broad habitat types. This information has been supplemented by observations made during the field assessment.

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

2.2.2 Black Cockatoo Habitat Assessment

Habitat used by black cockatoos can be placed into one of three categories, these being:

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

To determine the quality and extent of habitat suitable for black cockatoos within the subject site the following was carried out.

The location of trees with large hollows or potential large hollows suitable or possibly suitable for black cockatoos to use for nesting were searched for while carrying out a number of traverses on foot over the subject site.

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".

Identified hollows were examined using binoculars for evidence of actual use by black cockatoos (e.g. chewing around hollow entrance, scarring and scratch marks on trunks and branches). Trees with possible nest hollows were also scratched and raked with a large stick/pole in attempt to flush any sitting birds from hollows and calls of chicks were also listened for.

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.

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

2.2.3 Western Ringtail Possum Assessment

Concurrent with other day surveys, searches were carried out for dreys, hollows, scats and individual WRPs and involved a series of close spaced traverses on foot across the subject site.

A single night time survey was also carried out. This involved driving along road/tracks slowly several times with two rear seated passengers each using a hand-held spot light to search for WRPs by way of their eye shine on either side of the road. Some areas were also examined on foot using a head torch as a light source.

2.2.4 Camera Traps

Ten motion sensing, infrared “camera traps” (Acorn model LTI 5210A) were placed within subject site on the 21 September 2018. These were retrieved in 26 October 2018 (35 days of deployment). The camera traps were set to take three consecutive pictures when triggered, with a 10 second time lapse before any subsequent trigger event. The location of each camera trap is shown in Figure 2.

A total of 350 “camera trap days” were achieved and 2,531 pictures taken, though it should be noted that on some cameras a high percentage of photos taken were caused by moving vegetation. All pictures were examined and fauna species, where possible, identified. Only one image of each species taken on any one day was documented as a record.

2.2.5 Acoustic Bat Recordings

Two nights of acoustic bat call recordings were undertaken using a Wildlife Acoustics SM2+ Bat Detector. The recordings were commenced at sunset and continued until sunrise the following day. Recording were taken on the on the 26 and 27 October 2018. The recording locations are shown in **Figure 2**.

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

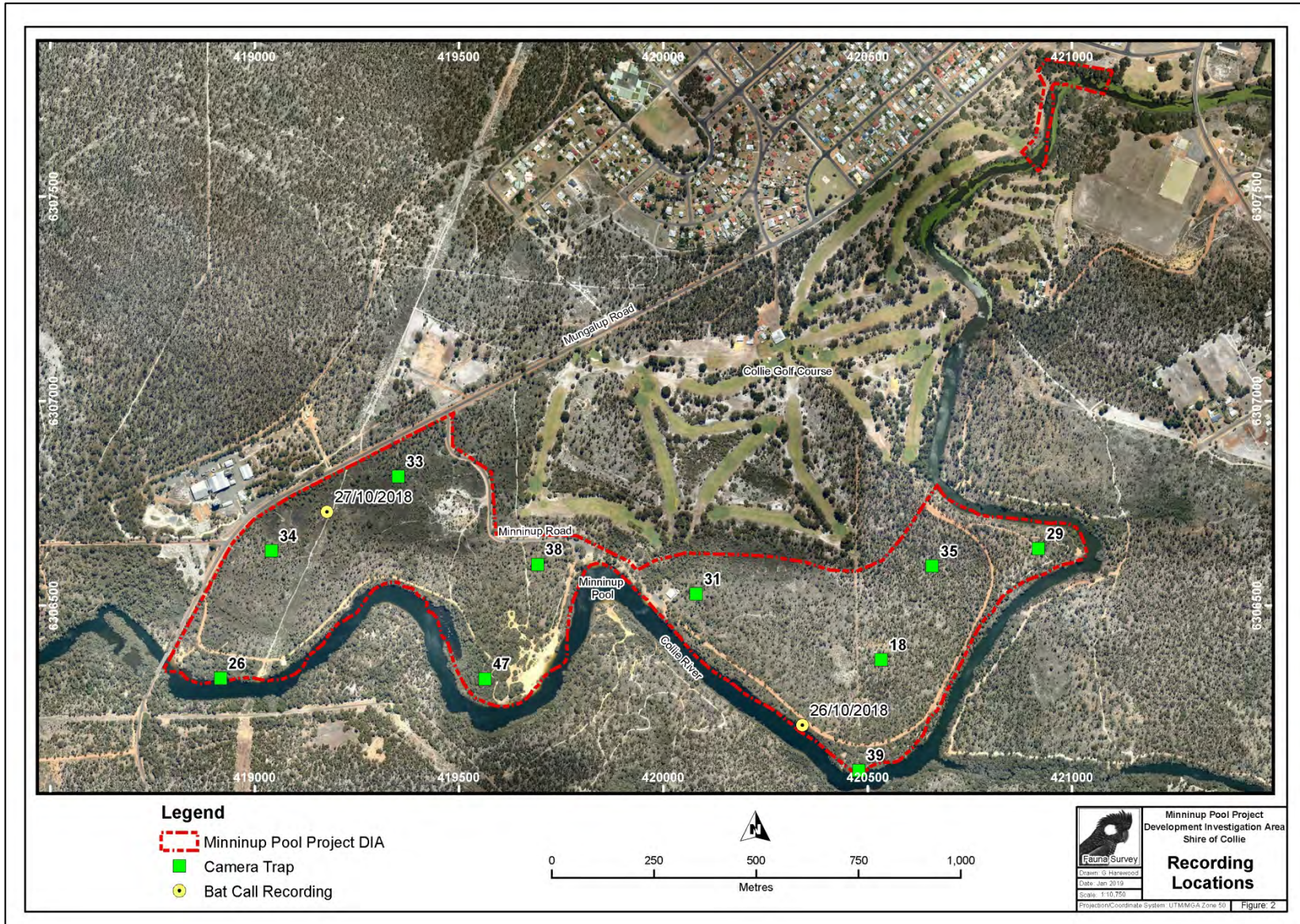


Figure 2. Camera trap and bat call recording site locations.

2.2.6 Other Fauna Species of Conservation Significance

Evidence of the presence or likely presence of other fauna species of conservation significance (or suitable habitat) was searched for and recorded concurrent with other site surveys. The aim was to obtain sufficient information to make a definitive comment on the likely significance of the subject site to other fauna species of conservation significance.

Methods involved searching microhabitats such as logs, rocks, leaf litter and observations with binoculars. Secondary evidence of a species presence such as tracks, scats, skeletal remains, foraging evidence or calls were also noted if observed/heard.

Opportunistic observations of all fauna species were made during field survey work and recorded where positive species identifications were made.

3 Survey Limitations

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

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

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

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

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

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

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

4 Results

4.1 Potential Fauna Inventory – Literature Review

A list of vertebrate fauna species considered most likely to occur in the subject site has been compiled from information obtained during the literature review 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 listing as are the DBCA NatureMap database search results (with species considered unlikely to occur being omitted). The raw database search results from NatureMap (DBCA 2019) and the Protected Matters Search Tool (DotEE 2019) 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 4** above) and therefore as discussed, the listing is very likely to be an overestimation of the fauna species actually present onsite at any one time.

With respect to native vertebrate fauna, 23 mammal (including nine bat species), 130 bird, 39 reptile, 12 frog and five fish species have previously been recorded in the wider area, some of which have the potential to occur in or utilise sections of the subject site at times. Eighteen species of introduced animals could also frequent the area.

Of the 211 native vertebrate animals that are listed as potentially occurring, seven are considered to be Endangered/Vulnerable or in need of special protection under State and/or Federal law. In addition, nine DBCA priority species are also listed as potentially occurring. One invertebrate species of conservation significance is also listed as a potential species. These particular species are discussed in further detail in the following sections of the report.

4.2 Site Survey

4.2.1 Fauna Habitat Assessment

Example images and brief descriptions of the fauna habitats present within the subject site (based on vegetation types mapped by Ecoedge 2019) are provided below. The extent of each identified unit is shown in **Figure 3**. More detailed description of the vegetation units can be found within the flora report (Ecoedge 2019).

The majority (~53ha/76%) of the vegetation present is comprised of a jarrah dominated open forest to woodland with variations occurring with respect to the composition and abundance of associated species such as marri, blackbutt, sheoak and banksia.

Almost all of the area appears to have been subject to an intense fire in the recent past (2-3 years) and is currently in a state of regeneration. This fire is likely to have had an impact on the distribution and abundance of fauna species inhabiting the area though it can be assumed that it will recover its values over time. Despite the impacts the fire fauna habitats appear to be in good to very good condition and would therefore have the capacity to support a wide range of the predicted fauna species.

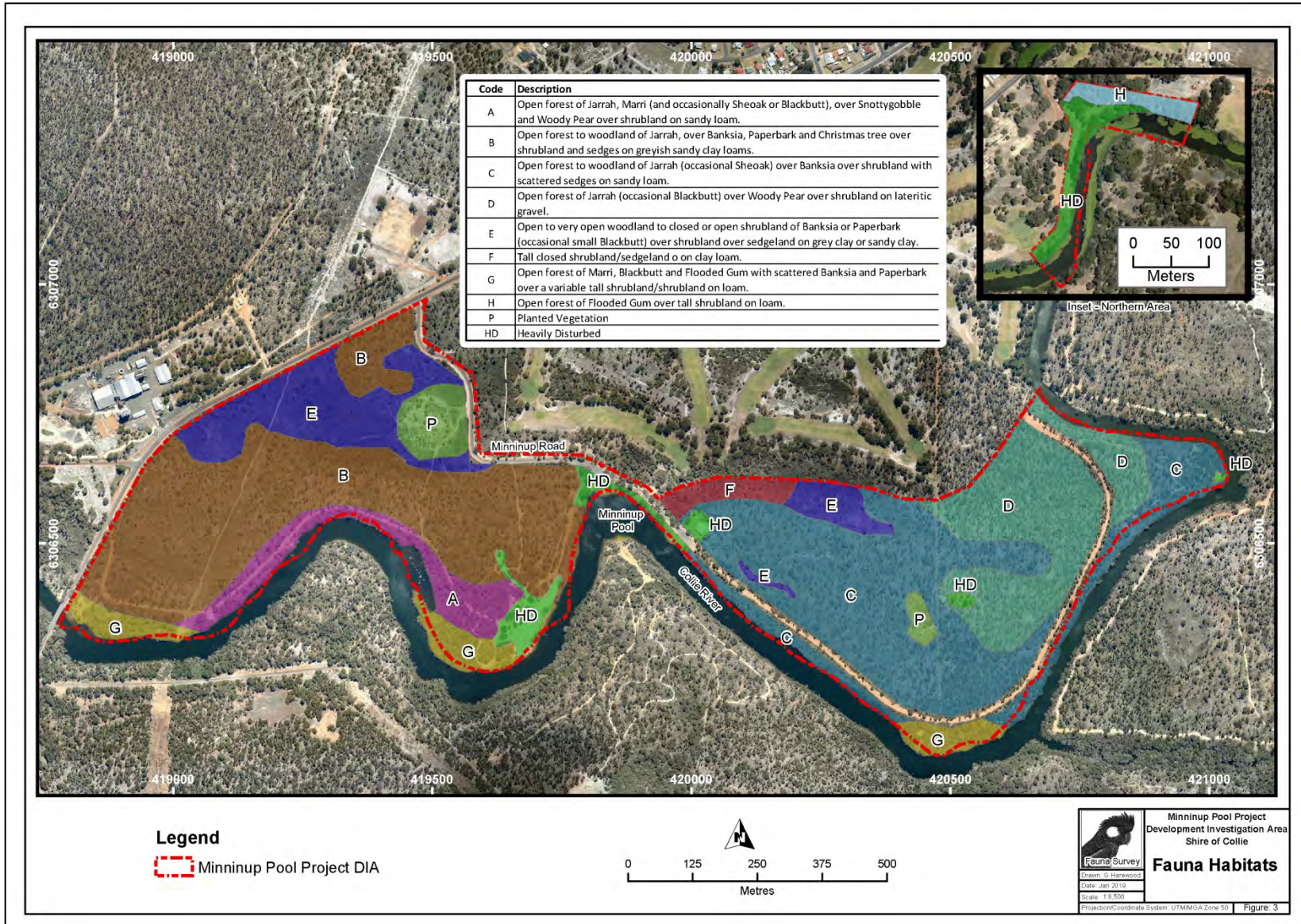













Figure 3. Fauna habitat types mapped during the field survey.

Table 1. Example Images of the Fauna Habitats within the Subject Site.

Code	Fauna Habitat Description	Example Image
A	<p>Open forest of Jarrah, Marri (and occasionally Sheoak or Blackbutt), over Snottygobble and Woody Pear over shrubland on sandy loam.</p> <p>Total Area = ~3.6 ha (~5.2%)</p>	
B	<p>Open forest to woodland of Jarrah, over Banksia, Paperbark and Christmas tree over shrubland and sedges on greyish sandy clay loams.</p> <p>Total Area = ~20.8 ha (~29.7%)</p>	
C	<p>Open forest to woodland of Jarrah (occasional Sheoak) over Banksia over shrubland with scattered sedges on sandy loam.</p> <p>Total Area = ~19.0 ha (~27.2%)</p>	

Code	Fauna Habitat Description	Example Image
D	<p>Open forest of Jarrah (occasional Blackbutt) over Woody Pear over shrubland on lateritic gravel.</p> <p>Total Area = ~9.8 ha (~14.0%)</p>	
E	<p>Open to very open woodland to closed or open shrubland of Banksia or Paperbark (occasional small Blackbutt) over shrubland over sedgeland on grey clay or sandy clay.</p> <p>Total Area = ~7.4 ha (~10.5%)</p>	
F	<p>Tall closed shrubland/sedgeland on clay loam.</p> <p>Total Area = ~1.1 ha (~1.6%)</p>	

Code	Fauna Habitat Description	Example Image
G	<p>Open forest of Marri, Blackbutt and Flooded Gum with over Banksia and Paperbark over a variable tall shrubland/shrubland on loam.</p> <p>Total Area = ~3.3 ha (~4.7%)</p>	
H	<p>Open forest of Flooded Gum over tall shrubland over sedges and weeds on loam.</p> <p>Total Area = ~0.4 ha (~0.6%)</p>	
P	<p>Planted vegetation</p> <p>Total Area = ~2.1 ha (~2.9%)</p>	

Code	Fauna Habitat Description	Example Image
HD	<p>Heavily disturbed.</p> <p>Total Area = ~2.5 ha (~3.6%)</p>	
Collie River	<p>Perennial freshwater river.</p> <p>Area not calculated.</p>	

4.2.2 Black Cockatoo Habitat Assessment

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

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

The vast majority of the trees with the subject site are relatively small jarrah trees which do not have hollows or if present only small/medium size hollows. During the site survey only 13 trees with large hollows or apparent large hollows possibly suitable for black cockatoos too use for nesting purposes were observed. One of the hollows showed some evidence of use (minor chew marks) possibly made by nesting cockatoos.

The location of the habitat trees recorded are shown in **Figure 4**. Additional details on each tree can be found in **Appendix D**.

Over 18 flora species were recorded within the subject site that are known to be used as a direct food source (i.e. seeds or flowers) by one or more species of black cockatoo. Almost the entire site can be regarded as containing foraging habitat given the presence of the above-mentioned plant species, though the density and distribution of species varies from area to area and therefore the exact extent and quality is difficult to quantify. In some areas the favoured foraging species are absent or represented by only a small number of specimens (e.g. low shrubland areas and some areas dominated by melaleuca).

Foraging debris left by black cockatoos observed within the subject site was relatively sparse which can in part be attributed to the fact that many of the larger trees are in a state of regeneration after the previously mentioned fire and have not produced flowers/seeds in recent times.

Foraging evidence attributed to the forest red-tailed black cockatoo was the only signs of feeding recorded, this being in the form of chewed jarrah fruits at a small number of locations.

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

4.2.3 Western Ringtail Possum Assessment

No evidence of western ringtail possums utilising the subject site was found during the day or site surveys. Western ringtail possums are known to occur in the general vicinity of Collie but records appear to be widespread and limited in numbers. This could be a consequence of the species being uncommon or simply a lack of surveys/reporting.

Habitat within the subject site appears suitable in some areas though a significant proportion is now marginal/patchy in quality due to the impacts of the intense fire that appears to have burnt much of the area sometime in the last 2-3 years.

Currently the best quality habitat is confirmed to area containing relatively dense midstorey vegetation in unburnt areas, most of which borders the Collie River (e.g. Vegetation Unit G).

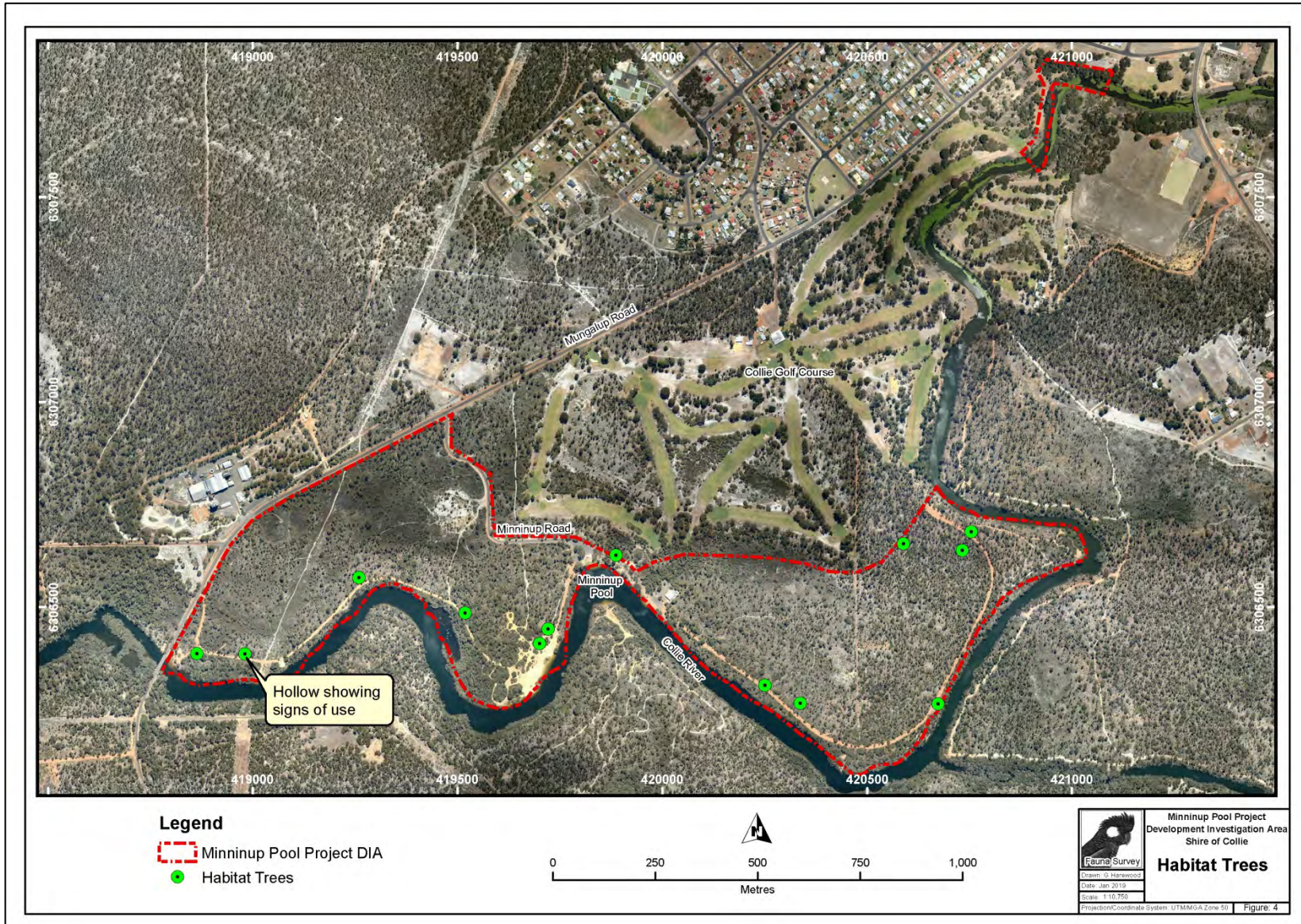


Figure 4. Locations of black cockatoo habitat trees mapped during the field survey.

4.2.4 Camera Traps

Camera trap results are provided within **Appendix E**. In total, 24 fauna species (native and introduced) were recorded. Of most interest was the recording of the Priority 4 (DBCA 2018) western brush wallaby (*Notamacropus irma*) at two locations.

Feral species recorded on cameras included a number of red fox (*Vulpes vulpes*) individuals, rabbits (*Oryctolagus cuniculus*), black rats (*Rattus rattus*) and the Mallard (*Anas platyrhynchos*). Domestic dogs (*Canis lupus*) were also recorded on several occasions.

4.2.5 Acoustic Bat Recordings

Five bat species were recorded during the survey, these being:

- Gould's Wattled Bat *Chalinolobus gouldii*;
- Chocolate Wattled Bat *Chalinolobus morio*;
- Western False Pipistrelle *Falsistrellus mackenziei*;
- South Western Freetail Bat *Ozimops kitcheneri*; and
- Southern Forest Bat *Vespadelus regulus*.

Of most significance was the recording of the Priority 4 (DBCA 2018) western false pipistrelle (*Falsistrellus mackenziei*). All the other species of bats recorded are relatively common, widespread species.

4.2.6 Other Fauna Species of Conservation Significance

Besides those species already mentioned as having been recorded (i.e. the forest red-tailed black cockatoo, western brush wallaby and the western false pipistrelle) one other fauna species of conservation significance was recorded during the survey period this being Carter's freshwater mussel (*Westralunio carteri*) with several individuals being observed in shallow water along the Collie River. The location of sighting/records of fauna species of conservation significance are shown in **Figure 5**.

The habitat assessment and other observations made during the field reconnaissance survey suggests that some other fauna species of conservation significance are also likely to persist in the general area. Subject to suitable habitat being present (i.e. quality and extent) it is therefore considered possible that some are likely to reside or at least frequent the subject site at times despite not having been observed/recorded. A summary of those species considered likely to be present is provided in **Table 2** (within **Section 5.3**).

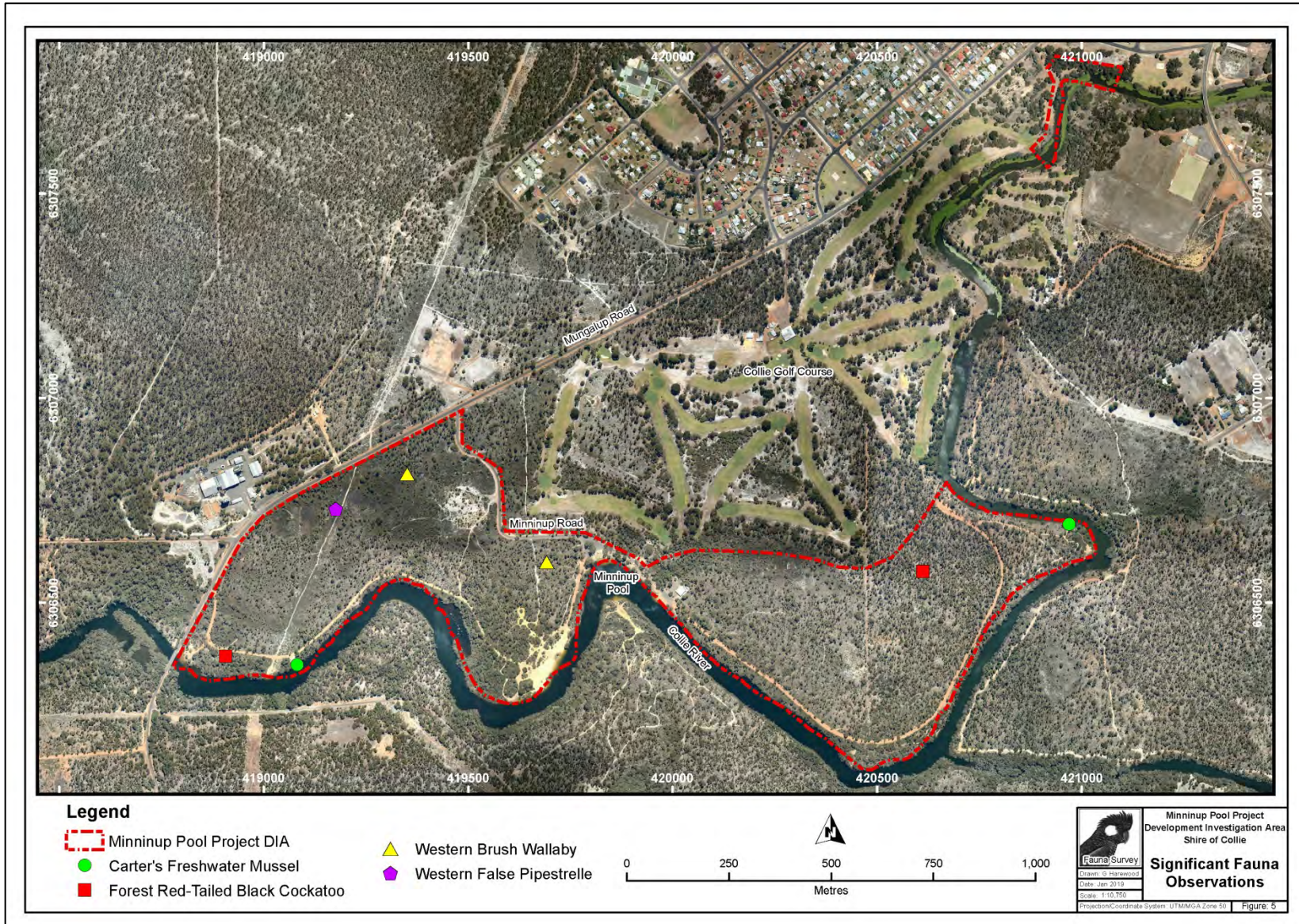


Figure 5. Locations of sighting/records of fauna species of conservation significance.

All fauna observations are listed in **Appendix B**. A total of 43 native fauna species were observed (or positively identified from foraging evidence, scats, tracks, skeletons or calls) within the subject site during the survey period. Seven introduced species (mosquito fish, mallard, muscovy duck, dog, red fox, rabbit and black rat) were also recorded.

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 2019); and
- Protected Matters Search Tool (DotEE 2019).

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.

Table 2 summarises the number of fauna species potentially occurring within or utilising at times the subject site, based on results from the literature review and observations made during the field assessment. A complete list of fauna possibly inhabiting or frequenting the subject site is located in **Appendix B**.

As previously indicated, not all species listed as potentially occurring within the wider area in existing databases and publications (i.e. EPBC Act Threatened Fauna and Migratory species lists, DBCA's NatureMap database, various reports and publications) are shown in the expected listing in **Appendix B**. Some species have been excluded from this list based largely on the lack of suitable habitat at the subject site and in the general area or known local extinction even if suitable habitat is present.

Table 2. Summary of Potential Vertebrate Fauna Species (as listed in **Appendix B**)

Group	Total number of <u>Potential</u> species	Potential number of <u>Specially Protected</u> species	Potential number of <u>Migrator</u> y species	Potential number of <u>Priority</u> species	Number of species <u>Obs</u> <u>erved</u> : Field Survey 2018/19
Bivalves	1	1	0	0	1
Crustaceans (Aquatic Macro species only)	4 ²	0	0	0	0
Fish	4 ¹	0	0	0	1 ¹
Amphibians	12	0	0	0	1
Reptiles	39	0	0	1	2
Birds	138 ⁸	4	0	4	32 ²
Non-Volant Mammals	21 ⁷	3	0	3	8 ³
Volant Mammals (Bats)	9	0	0	1	5
Total	228¹⁸	8	0	9	50⁷

Note: 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 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.

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

Fauna of conservation significance identified during the literature review as previously being recorded in the general area are listed in **Table 3**. Each has been assessed and ranked for their likelihood of occurrence within the subject site itself based on information obtained during the fauna assessment.

Table 3. Likelihood of Occurrence – Fauna Species of Conservation Significance (continues on following pages).

Species	Conservation Status		Habitat Preferences	Habitat Present	Likelihood of Occurrence
	WC Act/ DBCA Priority	EPBC Act			
Western Pygmy Trapdoor Spider <i>Bertmainius opimus</i>	P3	-	Found in mesic habitats. The species makes shallow burrows in the bark of trees and in the mossy banks of creeks.	Yes	Unlikely to Occur. No previous records in vicinity.
Carter’s Freshwater Mussel <i>Westralunio carteri</i>	S3	VU	Occurs in greatest abundance in slower flowing streams with stable sediments that are soft enough for burrowing amongst woody debris and exposed tree roots.	Yes	Known to Occur.
Pouched Lamprey <i>Geotria australis</i>	P1	-	This species lives in mud burrows in the upper reaches of coastal streams for the first four years of life until migrating to the sea. Adults migrate up to 60km upstream during spawning.	Yes	Would Not Occur. Wellington Dam prevents migration.
Balston’s Pygmy Perch <i>Nannatherina balstoni</i>	S3	VU	Acidic, tannin stained freshwater pools, streams and lakes within 30km of the coast, typically situated amongst peat flats. Prefers shallow water and is commonly found in association with tall sedge thickets.	Yes	Would Not Occur. Regionally extinct.
Darling Range Heath Ctenotus <i>Ctenotus dell</i>	P4	-	Mainly laterite and clays supporting jarrah/marri woodland with a shrub dominated understorey, sheltering in dense vegetation, inside grass trees and beneath rocks, sometimes in burrows.	Yes	Possibly Occurs.

Species	Conservation Status		Habitat Preferences	Habitat Present	Likelihood of Occurrence
	WC Act/ DBCA Priority	EPBC Act			
Malleefowl <i>Leipoa ocellata</i>	S3	VU	Mainly scrubs and thickets of mallee <i>Eucalyptus</i> spp., boree <i>Melaleuca lanceolata</i> and bowgada <i>Acacia linophylla</i> , also dense litter forming shrublands.	No	Would Not Occur. Regionally extinct.
Blue-billed Duck <i>Oxyura australis</i>	P4	-	Well vegetated freshwater swamps, large dams and lakes, winters on more open water. Occasionally salt lakes and estuaries freshened by floodwaters.	Yes	Possibly Occurs.
Glossy Ibis <i>Plegadis falcinellus</i>	S5	Mig	Well vegetated wetlands, wet pastures, rice fields, floodwaters, floodplains, brackish or occasionally saline wetlands, mangroves, mudflats, occasionally dry grasslands.	Yes/ Marginal	Unlikely to Occur. Uncommon in SW.
Migratory Shorebirds/Wetland Species/Marine Species (various reptiles, birds and mammals)	S5, Various	Ma, Mig, Various	Varies between species but includes open ocean, beaches and permanent/temporary wetlands varying from billabongs, swamps, lakes, floodplains, sewerage farms, saltwork ponds, estuaries, lagoons, mudflats sandbars, pastures, airfields, sports fields and lawns.	No/ Marginal	Unlikely to Occur/Would not Occur. Small numbers of a few species very occasionally.
Eastern Osprey <i>Pandion haliaetus</i>	S5	Ma, Mig	Coasts, estuaries, bays, inlets, islands, and surrounding waters, coral atolls, reefs, lagoons, rock cliffs and stacks. Ascends larger rivers.	No/ Marginal	Unlikely to Occur, Flyover only on very rare occasions.

Species	Conservation Status		Habitat Preferences	Habitat Present	Likelihood of Occurrence
	WC Act/ DBCA Priority	EPBC Act			
Peregrine Falcon <i>Falco peregrinus</i>	S7	-	Diverse from rainforest to arid shrublands, from coastal heath to alpine Mainly about cliffs along coasts, rivers and ranges and about wooded watercourses and lakes.	Yes	Possibly Occurs.
Masked Owl (SW population) <i>Tyto n. novaehollandiae</i>	P3	-	Roosts and nests in heavy forest, hunts over open woodlands and farmlands.	Yes	Possibly Occurs.
Barking Owl (SW population) <i>Ninox connivens connivens</i>	P2	-	Dense vegetation, especially forest and thickets of waterside vegetation such as <i>melaleucas</i> . Roosts in tree hollows.	Yes/ Marginal	Unlikely to Occur. Rarely recorded this far north.
Australasian Bittern <i>Botaurus poiciloptilus</i>	S1	EN	Freshwater wetlands, occasionally estuarine; prefers heavy vegetation such as beds of tall dense <i>Typha</i> , <i>Baumea</i> and sedges in freshwater swamps.	Yes/ Marginal	Unlikely to Occur. Habitat marginal quality and extent.
Black Bittern <i>Ixobrychus flavicollis</i>	P1	-	Freshwater pools, swamps and lagoons, well screened with trees. Shelters in dense waterside vegetation.	Yes	Possibly Occurs.
Little Bittern <i>Ixobrychus minutus</i>	P4	-	Dense vegetation surrounding/within freshwater pools, swamps and lagoons, well screened with trees. Shelters in dense beds of <i>Typha</i> , <i>Baumea</i> and tall rushes in freshwater swamps around lakes and along rivers.	Yes	Possibly Occurs.

Species	Conservation Status		Habitat Preferences	Habitat Present	Likelihood of Occurrence
	WC Act/ DBCA Priority	EPBC Act			
Carnaby`s Black Cockatoo <i>Calyptorhynchus latirostris</i>	S2	EN	Forests, woodlands, heathlands, farms; feeds on <i>Banksia</i> , <i>Hakea</i> and Marri.	Yes	Possibly Occurs.
Baudin`s Black Cockatoo <i>Calyptorhynchus baudinii</i>	S2	VU	Mainly eucalypt forests where it feeds primarily on the marri seeds.	Yes	Possibly Occurs.
Forest Red-tailed Black Cockatoo <i>Calyptorhynchus banksii naso</i>	S3	VU	Eucalypt forests, feeds on marri, jarrah, blackbutt, karri, sheoak and snottygobble.	Yes	Known to Occur.
Fork-tailed Swift <i>Apus pacificus</i>	S5	Ma, Mig	Low to very high airspace over varied habitat from rainforest to semi desert.	Yes	Unlikely to Occur, Flyover only on very rare occasions.
Grey Wagtail <i>Motacilla cinerea</i>	S5	Mig, Ma	In Australia, near running water in disused quarries, sandy, rocky streams in escarpments and rainforest, sewerage ponds, ploughed fields and airfields.	No/ Marginal	Unlikely to Occur. Never recorded in this area.
Chuditch <i>Dasyurus geoffroii</i>	S3	VU	Forest, mallee shrublands, woodland and desert. The densest populations have been found in riparian jarrah forest.	Yes	Possibly Occurs.
South-western Brush-tailed Phascogale <i>Phascogale tapoatafa wambenger</i>	S6	-	Dry sclerophyll forests and open woodlands that contain hollow-bearing trees but a sparse ground cover.	Yes	Possibly Occurs.
Southern Brown Bandicoot <i>Isodon fusciventer</i>	P4	-	Dense scrubby, often swampy, vegetation with dense cover.	Yes	Possibly Occurs.

Species	Conservation Status		Habitat Preferences	Habitat Present	Likelihood of Occurrence
	WC Act/ DBCA Priority	EPBC Act			
Bilby <i>Macrotis lagotis</i>	S3	VU	<i>Acacia</i> shrublands, spinifex and hummock grassland. Mitchell grass and stony downs country if cracking clay, also desert sand plains and dune fields sometimes with spinifex hummock grassland and <i>acacia</i> shrubland.	Yes?	Would Not Occur. Regionally extinct.
Numbat <i>Myrmecobius fasciatus</i>	S3	VU	Open Woodlands generally dominated by eucalypts that provide hollow logs and branches for shelter and termites for food.	Yes/ Marginal	Would Not Occur – Locally extinct.
Western Ringtail Possum <i>Pseudocheirus occidentalis</i>	S1	CR	Coastal peppermint, coastal peppermint-tuart, jarrah-marri associations, sheoak woodland, and eucalypt woodland and mallee.	Yes	Possibly Occurs.
Quokka <i>Setonix brachyurus</i>	S3	VU	Currently restricted to densely vegetated coastal heaths, swamps, riverine habitats including tea-tree thickets on sandy soils along creek systems.	No/ Marginal	Would Not Occur.
Tammar <i>Macropus eugenii derbianus</i>	P4	-	Coastal scrub, heath, dry sclerophyll forest and thickets in mallee and woodland.	No/ Marginal	Would Not Occur. Locally extinct.
Woylie <i>Bettongia penicillata ogilbyi</i>	S1	EN	Open sclerophyll forest and woodland with a low, dense, understorey of tussock grasses or woody scrub.	Yes/ Marginal	Would Not Occur Locally extinct.

Species	Conservation Status		Habitat Preferences	Habitat Present	Likelihood of Occurrence
	WC Act/ DBCA Priority	EPBC Act			
Western Brush Wallaby <i>Macropus irma</i>	P4	-	Open forest or woodland, particularly favouring open, seasonally wet flats with low grasses and open scrubby thickets.	Yes	Known to Occur
Western False Pipistrelle <i>Falsistrellus mackenziei</i>	P4	-	Wet sclerophyll forest dominated by karri and in high rainfall zones of the jarrah and marri forest.	Yes	Known to Occur
Water Rat <i>Hydromys chrysogaster</i>	P4	-	Permanent water, fresh, brackish or marine.	Yes	Possibly Occurs

Note: Those with a possibility of occurring within the subject site are shaded.

See **Appendix A** for conservation status codes.

5 Potential Impacts and Management Recommendations

The exact location and extent of native vegetation clearing within the subject site that will be undertaken if the development of a nature hub (e.g. nature based camping ground and visitor day use area) were to proceed has yet to be planned or finalised and therefore it is difficult to quantify impacts.

The potential direct and indirect impact on fauna that may occur as a consequence of clearing, construction and then ongoing use of the facility will be dependent on each fauna species habits, population density and the quantity and quality of potential habitat that will be affected. As a consequence only generalised objectives for management of impacts on fauna and fauna habitat can be provided at this stage. The primary management objectives include but are not limited to:

- Ensure the ongoing ecological viability of the subject site by protecting the ecological biodiversity and habitat values, the flora and fauna (including invertebrates, fungi and micro-organisms) and other ecological values (drainage lines, and foreshore) present;
- Carry out restoration and regeneration of fauna habitats where applicable;
- Manage watercourses so as to protect the riparian environment, particularly in relation to riparian vegetation and habitats and bank stability.

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, foxes) including dogs off leads;
- Death or injury of fauna during clearing and construction; and
- An increase in fauna road kills subsequent to development.

Given the exact nature of the development is unknown at this stage it is not possible to define likely impact with certainty and so the following generalised management measures are provided for consideration during ongoing planning. The recommendations are provided for guidance and aim to reduce the impact on fauna and fauna habitat as much as reasonable and practicable. This listing is not exhaustive and management plans and possible offsets will need to be finalised after liaison with relevant regulatory authorities as planning for the project proceeds. It is recommended that:

- Planning for any proposed development should aim to avoid the need to clear as much of the existing vegetation as possible. Project infrastructure, including buildings, access routes, pathways, carparks etc. should be positioned in previously disturbed areas where possible and areas of sensitive vegetation (e.g. riparian vegetation, large hollow bearing trees) should be avoided.
- Prevent unauthorised access to natural areas. As part of the proposed development, access to bush areas via a number of existing secondary tracks should be restricted in some way to prevent access to vehicles and the likely spread of dieback;
- Formulate a bushfire management plan for hazard reduction activities and ecological burns with the aim of minimising impacts on fauna and fauna habitat;
- Ensure domestic animal usage in natural areas is undertaken in a responsible manner (e.g. dogs on leads only);
- Continue or initiate feral animal controls (in partnership with surround landholders and land mangers)

When and if any significant clearing is undertaken when the development proceeds the following management measures should be considered for implementation.

- During site works areas requiring clearing should be clearly marked and access to other areas restricted to prevent accidental clearing of areas to be retained.
- During clearing operations, a suitably experienced “fauna spotter” should be employed to inspect logs, trees and hollows (where possible) before clearing to reduce likelihood of injury to fauna. Trees observed to contain hollows should be felled in a manner that reduces the likelihood that fauna present will be injured. Hollows in fallen trees should be inspected for fauna prior to removal from the site. If feasible any fauna encountered should be relocated to suitable retained habitat nearby.
- No dead, standing or fallen timber should be removed unnecessarily. Logs (hollow or not) and other debris resulting from land clearing should be used to enhance fauna habitat in untouched and rehabilitated areas if possible. Where possible, logs are to be retained either by pushing the logs into the surrounding forest, when significant disturbance to the forest can be avoided, or the logs cut so that the length of log outside the clearing area remains insitu.
- Any holes, pits or trenches required for services should be kept open for only as long as necessary and suitable escape ramps (45° batter) and bridging provided if the site is to be left unattended for extended periods. Significant sized holes, pits or trenches should be inspected for fauna immediately prior to filling.
- Disruption to surface and sub-surface hydrology should be minimised where possible and levees and drains designed to mimic natural drainage flows where disruptions will occur.
- Any proposed revegetation/rehabilitation at the site should utilise local seed stock that includes cockatoo food plants, specifically *Eucalyptus*, *Corymbia*, *Banksia*, *Hakea*, and *Allocasuarina*. The final selection of suitable species should be carried out after liaison with appropriate experts or local land care groups to ascertain which species are most suitable for the area. Susceptibility to dieback should be taken into consideration.

6 Conclusion

The fauna assessment within the subject site was undertaken for the purposes of delineating and characterising the faunal assemblages and fauna habitats and faunal assemblages present. Targeted black cockatoo and western ringtail possum assessments were also carried out.

With respect to native vertebrate fauna, 23 mammal (including nine bat species), 130 bird, 39 reptile, 12 frog and five fish species have previously been recorded in the wider area, some of which have the potential to occur in or utilise sections of the subject site at times. Eighteen species of introduced animals could also frequent the area.

Of the 211 native vertebrate animals that are listed as potentially occurring, seven are considered to be Endangered/Vulnerable or in need of special protection under State and/or Federal law. In addition, nine DBCA priority species are also listed as potentially occurring. One invertebrate species of conservation significance is also listed as a potential species. These particular species are discussed in further detail in the following sections of the report.

A total of 43 native fauna species were observed (or positively identified from foraging evidence, scats, tracks, skeletons or calls) within the subject site during the survey period. Seven introduced species (mosquito fish, mallard, muscovy duck, dog, red fox, rabbit and black rat) were also recorded.

Four fauna species of conservation significance were recorded these being the forest red-tailed black cockatoo (Vulnerable), the western brush wallaby (Priority 4), the western false pipistrelle (Priority 4) and Carter's freshwater mussel (Priority 4).

The habitat assessment and other observations made during the field reconnaissance survey suggests that some other fauna species of conservation significance are also likely to persist in the general area. Subject to suitable habitat being present (i.e. quality and extent) it is therefore considered possible that some are likely to reside or at least frequent the subject site at times despite not having been observed/recorded.

The potential impacts on fauna species of conservation significance and/or their habitat will therefore need to be taken into consideration during the course of ongoing planning so as to minimise the potential for impacts. Future planning should also aim to reduce potential impacts so as to simplify any statutory approval processes that maybe required. To this end a series of management objectives and recommended actions are provided for consideration during ongoing development planning.

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APPENDIX A. Conservation Categories.

EPBC Act Threatened Fauna Categories

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

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

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

Wildlife Conservation (Specially Protected Fauna) Notice 2018 Categories

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

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

Category	Code	Description
Schedule 1 (S1) Critically Endangered species	CR	Threatened species considered to be facing an extremely high risk of extinction in the wild in the immediate future.
Schedule 2 (S2) Endangered species	EN	Threatened species considered to be facing a very high risk of extinction in the wild in the near future.
Schedule 3 (S3) Vulnerable species	VU	Threatened species considered to be facing a high risk of extinction in the wild in the medium-term future.
Schedule 4 (S4) Presumed extinct species	EX	Species which have been adequately searched for and there is no reasonable doubt that the last member of the species has died.
Schedule 5 (S5) Migratory birds protected under an international agreement	MI	Fauna that periodically or occasionally visit Australia or an external Territory or the exclusive economic zone; or Birds that are subject to an agreement between the government of Australia and the governments of Japan (JAMBA), China (CAMBA) and The Republic of Korea (ROKAMBA), and the Bonn Convention, relating to the protection of migratory birds.
Schedule 6 (S6) Fauna that is of special conservation need as conservation dependent fauna	CD	Fauna of special conservation need being species dependent on ongoing conservation intervention to prevent it becoming eligible for listing as threatened.
Schedule 7 (S7) Other specially protected fauna.	OS	Fauna otherwise in need of special protection to ensure their conservation.

Western Australian DBCA Priority Fauna Categories

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

Species that are adequately known, are rare but not threatened, or meet criteria for near threatened, or that have been recently removed from the threatened species or other specially protected fauna lists for other than taxonomic reasons, are placed in Priority 4. These species require regular monitoring.

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

Category	Code	Description
Priority 1 (P1) Poorly Known Species.	P1	Species that are known from one or a few locations (generally five or less) which are potentially at risk. All occurrences are either: very small; or on lands not managed for conservation, e.g. agricultural or pastoral lands, urban areas, road and rail reserves, gravel reserves and active mineral leases; or otherwise under threat of habitat destruction or degradation. Species may be included if they are comparatively well known from one or more locations but do not meet adequacy of survey requirements and appear to be under immediate threat from known threatening processes. Such species are in urgent need of further survey.
Priority 2 (P2) Poorly Known Species.	P2	Species that are known from one or a few locations (generally five or less), some of which are on lands managed primarily for nature conservation, e.g. national parks, conservation parks, nature reserves and other lands with secure tenure being managed for conservation. Species may be included if they are comparatively well known from one or more locations but do not meet adequacy of survey requirements and appear to be under threat from known threatening processes. Such species are in urgent need of further survey.
Priority 3 (P3) Poorly Known Species.	P3	Species that are known from several locations and the species does not appear to be under imminent threat, or from few but widespread locations with either large population size or significant remaining areas of apparently suitable habitat, much of it not under imminent threat. Species may be included if they are comparatively well known from several locations but do not meet adequacy of survey requirements and known threatening processes exist that could affect them. Such species are in need of further survey.
Priority 4 (P4) Rare, Near Threatened and other species in need of monitoring.	P4	<p>(a) Rare: Species that are considered to have been adequately surveyed, or for which sufficient knowledge is available, and that are considered not currently threatened or in need of special protection, but could be if present circumstances change. These species are usually represented on conservation lands.</p> <p>(b) Near Threatened: Species that are considered to have been adequately surveyed and that are close to qualifying for Vulnerable, but are not listed as Conservation Dependent.</p> <p>(c) Species that have been removed from the list of threatened species during the past five years for reasons other than taxonomy.</p>

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

IUCN Red List Threatened Species Categories

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

Categories are summarized below.

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

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

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

APPENDIX B. Observed and Potential Vertebrate Fauna Listing.

Recorded and Potential Fauna Listing

Minninup Pool Project Development Investigation Area, Collie

Compiled by Greg Harewood - January 2019

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

Approx Centroid -33.37673°S and 116.13825°E

A = Ecoedge (2019). Targeted Fauna Minninup Pool Project Development Investigation Area. Unpublished report for the Shire of Collie.

B = Harewood, G. (2013). Fauna Assessment of Collie Motorplex, Proposed Clearing Areas, Cardiff. Unpublished report for RPS.

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F = GHD (2009). Level 1 Fauna Assessment - Collie Urea Project. Unpublished report for Perdaman Industries.

G = GHD (2008). Collie Shotts Industrial Park, Spring Flora, Fauna and Wetland Assessment. Unpublished report for LandCorp.

H = Bancroft, W. and Bamford, M. (2006). Fauna Survey of the Muja South Extension Project. Unpublished report for Griffin Coal.

I = DBCA (2018). NatureMap Database search. "By Circle" 116° 08' 18" E, 33° 22' 36" S – Subject Site (plus 30 km buffer). 09/01/2018.

Class Family Species	Common Name	Conservation Status	A	B	C	D	E	F	G	H	I
Bivalvia											
Hyriidae											
Freshwater Bivalves											
<i>Westralunio carteri</i>	Carter's Freshwater Mussel	S3 VU VU A2c	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, IUCN Red List Category Definitions LC = Least Concern - see Appendix A and <http://www.iucn-csg.org/index.php/red-list-categories/> for others.

Class Family Species	Common Name	Conservation Status	A	B	C	D	E	F	G	H	I
Crustacea											
Parastacidae Freshwater Crayfish											
<i>Cherax cainii</i>	Smooth Marron										X
<i>Cherax destructor</i>	Yabbie	Introduced									X
<i>Cherax preissii</i>	Common Koonac	Introduced									X
<i>Cherax quinquecarinatus</i>	Common Gilgie										
Fish											
Percichthyidae Basses and Cods											
<i>Bostockia porosa</i>	Nightfish										
Galaxiidae Galaxiids											
<i>Galaxias occidentalis</i>	Western Minnow										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, IUCN Red List Category Definitions LC = Least Concern - see Appendix A and <http://www.iucn-csg.org/index.php/red-list-categories/> for others.

Class Family Species	Common Name	Conservation Status	A	B	C	D	E	F	G	H	I
Nannopercidae Pygmy Perches											
<i>Edelia vittata</i>	Western Pygmy Perch										X
Plotosidae Eeltail Catfishes											
<i>Tandanus bostocki</i>	Freshwater Cobbler										
Poeciliidae Livebearers											
<i>Gambusia holbrooki</i>	Mosquito Fish	Introduced	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, IUCN Red List Category Definitions LC = Least Concern - see Appendix A and <http://www.iucn-csg.org/index.php/red-list-categories/> for others.

Class Family Species	Common Name	Conservation Status	A	B	C	D	E	F	G	H	I
Amphibians											
Myobatrachidae											
Ground or Burrowing Frogs											
<i>Crinia georgiana</i>	Quacking Frog	LC					X		X	X	X
<i>Crinia glauerti</i>	Glauert's Froglet	LC					X	X	X	X	X
<i>Crinia pseudinsignifera</i>	Bleating Froglet	LC						X	X		X
<i>Geocrinia leai</i>	Lea's Frog	LC						X	X		X
<i>Heleioporus barycragus</i>	Western Marsh Frog	LC								X	
<i>Heleioporus eyrei</i>	Moaning Frog	LC					X			X	X
<i>Heleioporus inornatus</i>	Whooping Frog	LC					X			X	X
<i>Heleioporus psammophilus</i>	Sand Frog	LC					X	X		X	
<i>Limnodynastes dorsalis</i>	Banjo Frog	LC					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, IUCN Red List Category Definitions LC = Least Concern - see Appendix A and <http://www.iucn-csg.org/index.php/red-list-categories/> for others.

Class Family Species	Common Name	Conservation Status	A	B	C	D	E	F	G	H	I
<i>Pseudophryne guentheri</i>	Güenther's Toadlet	LC								X	
Hylidae											
Tree or Water-Holding Frogs											
<i>Litoria adelaidensis</i>	Slender Tree Frog	LC	X							X	X
<i>Litoria moorei</i>	Motorbike Frog	LC								X	X
Reptiles											
Chelidae											
Side-necked Tortoises											
<i>Chelodina colliei</i>	SW Long-necked Turtle	LC								X	
Gekkonidae											
Geckoes											
<i>Christinus marmoratus</i>	Marbled Gecko										X
<i>Diplodactylus polyophthalmus</i>	Speckled Stone Gecko							X			X
<i>Underwoodisaurus milii</i>	Barking Gecko										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, IUCN Red List Category Definitions LC = Least Concern - see Appendix A and <http://www.iucn-csg.org/index.php/red-list-categories/> for others.

Class Family Species	Common Name	Conservation Status	A	B	C	D	E	F	G	H	I
Pygopodidae Legless Lizards											
<i>Aprasia pulchella</i>	Pretty Worm Lizard						X			X	X
<i>Aprasia repens</i>	Sand-plain Worm Lizard						X			X	X
<i>Lialis burtonis</i>	Common Snake Lizard						X				
<i>Pygopus lepidopodus</i>	Southern Scaleyfoot										
Agamidae Dragon Lizards											
<i>Pogona minor</i>	Bearded Dragon						X			X	
Varanidae Monitor's or Goanna's											
<i>Varanus gouldii</i>	Gould's Sand Monitor						X			X	X
<i>Varanus rosenbergi</i>	Heath Monitor						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, IUCN Red List Category Definitions LC = Least Concern - see Appendix A and <http://www.iucn-csg.org/index.php/red-list-categories/> for others.

Class Family Species	Common Name	Conservation Status	A	B	C	D	E	F	G	H	I
Scincidae											
Skinks											
<i>Acritoscincus trilineatum</i>	South-western Cool Skink						X			X	
<i>Cryptoblepharus buchananii</i>	Fence Skink			X	X		X			X	X
<i>Ctenotus catenifer</i>	Chain-striped Heath Ctenotus										
<i>Ctenotus delli</i>	Dell's Skink	P4					X				X
<i>Ctenotus impar</i>	South-western Odd-striped Ctenotus						X			X	X
<i>Ctenotus labillardieri</i>	Red-legged Skink						X				X
<i>Egernia kingii</i>	King's Skink										
<i>Egernia napoleonis</i>	Salmon-bellied Skink		X		X		X			X	X
<i>Egernia pulchra</i>	Spectacled Rock Skink										
<i>Hemiergis gracilipes</i>	Southwestern Mulch Skink						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, IUCN Red List Category Definitions LC = Least Concern - see Appendix A and <http://www.iucn-csg.org/index.php/red-list-categories/> for others.

Class Family Species	Common Name	Conservation Status	A	B	C	D	E	F	G	H	I
<i>Hemiergus initialis</i>	Five-toed Earless Skink										X
<i>Hemiergus peronii peronii</i>	Four-toed Mulch Skink										X
<i>Lerista distinguenda</i>	South-western Four-toed Lerista				X		X			X	X
<i>Lerista microtis microtis</i>	Southwestern Five-toed Lerista										
<i>Menetia greyii</i>	Dwarf Skink						X			X	X
<i>Morethia obscura</i>	Dusky Morethia				X		X			X	X
<i>Tiliqua rugosa</i>	Bobtail		X	X	X	X	X		X	X	
Typhlopidae											
Blind Snakes											
<i>Anilius australis</i>	Southern Blind Snake						X			X	
<i>Anilius pinguis</i>	Stout Blind Snake										

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Class Family Species	Common Name	Conservation Status	A	B	C	D	E	F	G	H	I
Boidae Pythons, Boas											
<i>Morelia spilota imbricata</i>	Southern Carpet Python										X
Elapidae Elapid Snakes											
<i>Echiopsis curta</i>	Bardick										
<i>Elapognathus coronatus</i>	Crowned Snake										
<i>Neelaps bimaculatus</i>	Black-naped Snake										
<i>Notechis scutatus</i>	Tiger Snake								X	X	X
<i>Parasuta gouldii</i>	Gould's Hooded Snake							X		X	X
<i>Parasuta nigriceps</i>	Black-backed Snake										X
<i>Pseudonaja affinis</i>	Dugite						X		X	X	X
<i>Simoselaps bertholdi</i>	Jan`s Banded Snake										X

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Class Family Species	Common Name	Conservation Status	A	B	C	D	E	F	G	H	I
Birds											
Casuariidae Emus, Cassowaries											
<i>Dromaius novaehollandiae</i>	Emu	LC		X						X	X
Phasianidae Quails, Pheasants											
<i>Coturnix pectoralis</i>	Stubble Quail	LC									X
<i>Coturnix ypsilophora</i>	Brown Quail	LC								X	

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Class Family Species	Common Name	Conservation Status	A	B	C	D	E	F	G	H	I
Anatidae											
Geese, Swans, Ducks											
<i>Anas castanea</i>	Chestnut Teal	LC									X
<i>Anas gracilis</i>	Grey Teal	LC								X	X
<i>Anas platyrhynchos</i>	Mallard	Introduced	X								
<i>Anas rhynchos</i>	Australasian Shoveler	LC									
<i>Anas superciliosa</i>	Pacific Black Duck	LC	X				X	X	X	X	X
<i>Aythya australis</i>	Hardhead	LC									X
<i>Biziura lobata</i>	Musk Duck	LC	X								X
<i>Cairina moschata</i>	Muscovy Duck	Introduced	X								
<i>Chenonetta jubata</i>	Australian Wood Duck	LC	X	X			X		X	X	X
<i>Cygnus atratus</i>	Black Swan	LC									X

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Class Family Species	Common Name	Conservation Status	A	B	C	D	E	F	G	H	I
<i>Malacorhynchus membranaceus</i>	Pink-eared Duck	LC									
<i>Oxyura australis</i>	Blue-billed Duck	P4 NT									
<i>Tadorna tadornoides</i>	Australian Shelduck	LC								X	X
Podicipedidae											
Grebes											
<i>Podiceps cristatus</i>	Great Crested Grebe	LC									X
<i>Poliiocephalus poliocephalus</i>	Hoary-headed Grebe	LC									X
<i>Tachybaptus novaehollandiae</i>	Australasian Grebe	LC									X
Anhingidae											
Darters											
<i>Anhinga melanogaster</i>	Australasian Darter	LC									

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Class Family Species	Common Name	Conservation Status	A	B	C	D	E	F	G	H	I
Phalacrocoracidae											
Cormorants											
<i>Phalacrocorax carbo</i>	Great Cormorant	LC	X								X
<i>Phalacrocorax melanoleucos</i>	Little Pied Cormorant	LC	X								
<i>Phalacrocorax sulcirostris</i>	Little Black Cormorant	LC	X								X
<i>Phalacrocorax varius</i>	Pied Cormorant	LC									X
Pelecanidae											
Pelicans											
<i>Pelecanus conspicillatus</i>	Australian Pelican	LC									X

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Class Family Species	Common Name	Conservation Status	A	B	C	D	E	F	G	H	I
Ardeidae Herons, Egrets, Bitterns											
<i>Ardea alba</i>	Great Egret	CA JA									
<i>Ardea ibis</i>	Cattle Egret	CA JA									
<i>Ardea pacifica</i>	White-necked Heron	LC								X	X
<i>Egretta novaehollandiae</i>	White-faced Heron	LC	X				X			X	X
<i>Ixobrychus flavicollis</i>	Black Bittern (SW population)	P2 LC									X
<i>Ixobrychus minutus</i>	Little Bittern	P4 LC									
<i>Nycticorax caledonicus</i>	Rufous Night Heron	LC									X

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Class Family Species	Common Name	Conservation Status	A	B	C	D	E	F	G	H	I
Threskiornithidae											
Ibises, Spoonbills											
<i>Platalea flavipes</i>	Yellow-billed Spoonbill	LC									X
<i>Threskiornis molucca</i>	Australian White Ibis	LC									
<i>Threskiornis spinicollis</i>	Straw-necked Ibis	LC									X

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Class Family Species	Common Name	Conservation Status	A	B	C	D	E	F	G	H	I
Accipitridae											
Kites, Goshawks, Eagles, Harriers											
<i>Accipiter cirrocephalus</i>	Collared Sparrowhawk	LC	X		X					X	X
<i>Accipiter fasciatus</i>	Brown Goshawk	LC	X	X			X			X	X
<i>Aquila audax</i>	Wedge-tailed Eagle	LC			X		X			X	X
<i>Aquila morphnoides</i>	Little Eagle	LC			X		X			X	
<i>Circus approximans</i>	Swamp Harrier	LC								X	X
<i>Elanus caeruleus</i>	Black-shouldered Kite	LC			X		X				X
<i>Haliastur sphenurus</i>	Whistling Kite	LC		X							X
<i>Hamirostra isura</i>	Square-tailed Kite	LC									

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Class Family Species	Common Name	Conservation Status	A	B	C	D	E	F	G	H	I
Falconidae											
Falcons											
<i>Falco berigora</i>	Brown Falcon	LC								X	X
<i>Falco cenchroides</i>	Australian Kestrel	LC					X			X	X
<i>Falco longipennis</i>	Australian Hobby	LC									X
<i>Falco peregrinus</i>	Peregrine Falcon	S7 LC									X
Rallidae											
Rails, Crakes, Swamphens, Coots											
<i>Fulica atra</i>	Eurasian Coot	LC	X								X
<i>Gallinula tenebrosa</i>	Dusky Moorhen	LC									X
<i>Porphyrio porphyrio</i>	Purple Swamphen	LC	X						X	X	X
Turnicidae											
Button-quails											
<i>Turnix varia</i>	Painted Button-quail	LC					X				

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Class Family Species	Common Name	Conservation Status	A	B	C	D	E	F	G	H	I
Charadriidae Lapwings, Plovers, Dotterels											
<i>Charadrius melanops</i>	Black-fronted Dotterel						X			X	
Columbidae Pigeons, Doves											
<i>Columba livia</i>	Domestic Pigeon	Introduced									
<i>Ocyphaps lophotes</i>	Crested Pigeon	LC								X	X
<i>Phaps chalcoptera</i>	Common Bronzewing	LC	X	X	X	X	X	X	X	X	X
<i>Phaps elegans</i>	Brush Bronzewing	LC									X
<i>Streptopelia chinensis</i>	Spotted Turtle Dove	Introduced									
<i>Streptopelia senegalensis</i>	Laughing Turtle-Dove	Introduced									X

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Class Family Species	Common Name	Conservation Status	A	B	C	D	E	F	G	H	I
Cacatuidae Cockatoos, Corellas											
<i>Cacatua sanguinea gymnopsis</i>	Little Corella	Introduced									
<i>Cacatua tenuirostris</i>	Eastern Long-billed Corella	Introduced									
<i>Calyptorhynchus banksii naso</i>	Forest Red-tailed Black-Cockatoo	S3 VU	X	X	X	X	X	X		X	
<i>Calyptorhynchus baudinii</i>	Baudin`s Black-Cockatoo	S2 EN EN A3cde		X	X	X	X	X	X		X
<i>Calyptorhynchus latirostris</i>	Carnaby`s Black-Cockatoo	S2 EN EN A2bcde			X		X	X		X	X
<i>Eolophus roseicapilla</i>	Galah	LC				X	X				

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Class Family Species	Common Name	Conservation Status	A	B	C	D	E	F	G	H	I
Psittacidae											
Parrots											
<i>Glossopsitta porphyrocephala</i>	Purple-crowned Lorikeet	LC								X	
<i>Neophema elegans</i>	Elegant Parrot	LC		X			X			X	X
<i>Platycercus icterotis</i>	Western Rosella	LC	X	X	X		X	X	X		
<i>Platycercus spurius</i>	Red-capped Parrot	LC		X		X	X	X	X	X	X
<i>Platycercus zonarius</i>	Australian Ringneck Parrot	LC	X	X	X	X	X	X	X	X	X
<i>Polytelis anthopeplus</i>	Regent Parrot	LC									X

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Class Family Species	Common Name	Conservation Status	A	B	C	D	E	F	G	H	I
Cuculidae Parasitic Cuckoos											
<i>Cacomantis flabelliformis</i>	Fan-tailed Cuckoo	LC		X			X		X	X	X
<i>Chrysococcyx basalis</i>	Horsfield's Bronze Cuckoo	LC					X			X	
<i>Chrysococcyx lucidus</i>	Shining Bronze Cuckoo	LC		X		X	X			X	X
<i>Cuculus pallidus</i>	Pallid Cuckoo	LC					X		X	X	
Strigidae Hawk Owls											
<i>Ninox novaeseelandiae</i>	Boobook Owl	LC			X		X				
Tytonidae Barn Owls											
<i>Tyto alba</i>	Barn Owl	LC									
<i>Tyto n. novaehollandiae</i>	Masked Owl (SW population)	P3									

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Class Family Species	Common Name	Conservation Status	A	B	C	D	E	F	G	H	I
Podargidae Frogmouths											
<i>Podargus strigoides</i>	Tawny Frogmouth	LC					X			X	X
Aegothelidae Owlet-nightjars											
<i>Aegotheles cristatus</i>	Australian Owlet-nightjar	LC								X	X
Halcyonidae Tree Kingfishers											
<i>Dacelo novaeguineae</i>	Laughing Kookaburra	Introduced		X	X	X	X	X	X	X	X
<i>Todiramphus sanctus</i>	Sacred Kingfisher	LC					X		X	X	X
Meropidae Bee-eaters											
<i>Merops ornatus</i>	Rainbow Bee-eater	JA LC			X		X			X	X
Climacteridae Treecreepers											
<i>Climacteris rufa</i>	Rufous Treecreeper				X		X				

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Class Family Species	Common Name	Conservation Status	A	B	C	D	E	F	G	H	I
Maluridae											
Fairy Wrens, GrassWrens											
<i>Malurus elegans</i>	Red-winged Fairy-wren	LC	X		X	X	X				X
<i>Malurus splendens</i>	Splendid Fairy-wren	LC	X	X	X		X	X	X	X	X

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Class Family Species	Common Name	Conservation Status	A	B	C	D	E	F	G	H	I
Pardalotidae											
Pardalotes, Bristlebirds, Scrubwrens, Gerygones, Thornbills											
<i>Acanthiza apicalis</i>	Broad-tailed Thornbill	LC	X	X	X	X	X	X		X	X
<i>Acanthiza chrysorrhoa</i>	Yellow-rumped Thornbill	LC		X	X		X		X	X	X
<i>Acanthiza inornata</i>	Western Thornbill	LC	X	X	X	X	X			X	X
<i>Gerygone fusca</i>	Western Gerygone	LC	X	X	X	X	X	X	X	X	X
<i>Pardalotus punctatus</i>	Spotted Pardalote	LC				X	X			X	X
<i>Pardalotus striatus</i>	Striated Pardalote	LC	X	X		X	X			X	X
<i>Sericornis frontalis</i>	White-browed Scrubwren	LC			X		X		X	X	X
<i>Smicrornis brevirostris</i>	Weebill	LC		X		X	X	X	X	X	X

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Class Family Species	Common Name	Conservation Status	A	B	C	D	E	F	G	H	I
Meliphagidae											
Honeyeaters, Chats											
<i>Acanthorhynchus superciliosus</i>	Western Spinebill	LC		X	X	X	X			X	X
<i>Anthochaera carunculata</i>	Red Wattlebird	LC	X	X	X	X	X	X	X	X	X
<i>Anthochaera lunulata</i>	Western Little Wattlebird			X						X	X
<i>Epthianura albifrons</i>	White-fronted Chat	LC									X
<i>Lichenostomus ornatus</i>	Yellow-plumed Honeyeater	LC									
<i>Lichenostomus virescens</i>	Singing Honeyeater	LC					X			X	
<i>Lichmera indistincta</i>	Brown Honeyeater	LC		X	X	X	X	X	X	X	X
<i>Melithreptus brevirostris</i>	Brown-headed Honeyeater	LC									X
<i>Melithreptus chloropsis</i>	Gilbert's Honeyeater	LC		X	X						X
<i>Phylidonyris melanops</i>	Tawny-crowned Honeyeater	LC					X		X		

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Class Family Species	Common Name	Conservation Status	A	B	C	D	E	F	G	H	I
<i>Phylidonyris nigra</i>	White-cheeked Honeyeater	LC									
<i>Phylidonyris novaehollandiae</i>	New Holland Honeyeater	LC	X	X		X	X		X	X	X
Petroicidae											
Australian Robins											
<i>Eopsaltria australis</i>	Western Yellow Robin	LC		X	X			X		X	X
<i>Eopsaltria georgiana</i>	White-breasted Robin	LC			X						X
<i>Microeca fascinans</i>	Jacky Winter	LC						X			X
<i>Petroica cucullata</i>	Hooded Robin						X				
<i>Petroica goodenovii</i>	Red-capped Robin	LC					X				X
<i>Petroica multicolor</i>	Scarlet Robin	LC		X	X	X	X	X		X	
Pomatostomidae											
Babblers											
<i>Pomatostomus superciliosus</i>	White-browed Babbler			X							

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Neosittidae											
Sitellas											
<i>Daphoenositta chrysoptera</i>	Varied Sittella	LC		X	X	X	X			X	X
Pachycephalidae											
Crested Shrike-tit, Crested Bellbird, Shrike Thrushes, Whistlers											
<i>Colluricincla harmonica</i>	Grey Shrike-thrush	LC		X	X		X	X	X	X	X
<i>Pachycephala occidentalis</i>	Western Whistler	LC	X	X	X	X	X	X		X	
<i>Pachycephala rufiventris</i>	Rufous Whistler	LC	X			X	X			X	X
Dicruridae											
Monarchs, Magpie Lark, Flycatchers, Fantails, Drongo											
<i>Grallina cyanoleuca</i>	Magpie-lark	LC			X	X	X	X		X	X
<i>Myiagra inquieta</i>	Restless Flycatcher	LC									X
<i>Rhipidura fuliginosa</i>	Grey Fantail	LC	X	X	X	X	X	X	X	X	
<i>Rhipidura leucophrys</i>	Willie Wagtail	LC			X	X	X	X	X	X	X

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Campephagidae											
Cuckoo-shrikes, Trillers											
<i>Coracina novaehollandiae</i>	Black-faced Cuckoo-shrike	LC			X	X	X	X	X	X	X
<i>Lalage sueurii</i>	White-winged Triller	LC					X				
Artamidae											
Woodswallows, Butcherbirds, Currawongs											
<i>Artamus cinereus</i>	Black-faced Woodswallow	LC									X
<i>Artamus cyanopterus</i>	Dusky Woodswallow	LC			X		X		X	X	X
<i>Cracticus nigrogularis</i>	Pied Butcherbird	LC							X		X
<i>Cracticus tibicen</i>	Australian Magpie	LC	X		X	X	X	X	X	X	X
<i>Cracticus torquatus</i>	Grey Butcherbird	LC			X	X	X			X	X
<i>Strepera versicolor</i>	Grey Currawong	LC								X	X

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Class Family Species	Common Name	Conservation Status	A	B	C	D	E	F	G	H	I
Corvidae Ravens, Crows											
<i>Corvus coronoides</i>	Australian Raven	LC	X	X	X	X	X	X	X	X	X
Motacillidae Old World Pipits, Wagtails											
<i>Anthus novaeseelandiae</i>	Australian Pipit	LC					X			X	
Passeridae Grass Finches, Mannikins, Sparrows											
<i>Stagonopleura oculata</i>	Red-eared Firetail	LC					X	X			X
Dicaeidae Flowerpeckers											
<i>Dicaeum hirundinaceum</i>	Mistletoebird	LC									X

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Class Family Species	Common Name	Conservation Status	A	B	C	D	E	F	G	H	I
Hirundinidae											
Swallows, Martins											
<i>Hirundo ariel</i>	Fairy Martin	LC					X				
<i>Hirundo neoxena</i>	Welcome Swallow	LC					X	X	X	X	X
<i>Hirundo nigricans</i>	Tree Martin	LC	X		X		X			X	
Sylviidae											
Old World Warblers											
<i>Cincloramphus cruralis</i>	Brown Songlark	LC									
<i>Cincloramphus mathewsi</i>	Rufous Songlark	LC									
Zosteropidae											
White-eyes											
<i>Zosterops lateralis</i>	Silvereye	LC	X		X	X	X	X	X	X	X
Mammals											
Tachyglossidae											
Echidnas											
<i>Tachyglossus aculeatus</i>	Echidna	LC	X	X			X	X		X	X

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Class Family Species	Common Name	Conservation Status	A	B	C	D	E	F	G	H	I
Dasyuridae Carnivorous Marsupials											
<i>Antechinus flavipes</i>	Yellow-footed Antechinus	LC					X	X		X	X
<i>Dasyurus geoffroii</i>	Chuditch	S3 VU NT					X	X		X	X
<i>Phascogale tapoatafa wambenger</i>	South-western Brush-tailed Phascogale	S6									
<i>Sminthopsis gilberti</i>	Gilbert's Dunnart	LC								X	X
Peramelidae Bandicoots											
<i>Isoodon obesulus fusciventer</i>	Quenda	P4 LC		X			X			X	
Phalangeridae Brush-tail Possums, Cuscuses											
<i>Trichosurus vulpecula</i>	Common Brushtail Possum	LC	X	X	X	X	X	X	X	X	X
Burramyidae Pygmy Possums											
<i>Cercartetus concinnus</i>	Western Pygmy-possum	LC									X

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Class Family Species	Common Name	Conservation Status	A	B	C	D	E	F	G	H	I
Tarsipedidae											
Honey Possum											
<i>Tarsipes rostratus</i>	Honey Possum	LC									
Pseudocheiridae											
Ringtail Possums											
<i>Pseudocheirus occidentalis</i>	Western Ringtail Possum	S1 CR CR A2bce+3bce+4b									X
Macropodidae											
Kangaroos, Wallabies											
<i>Macropus fuliginosus</i>	Western Grey Kangaroo	LC	X	X	X	X	X	X	X	X	X
<i>Notamacropus irma</i>	Western Brush Wallaby	P4 NT	X				X	X	X	X	
Molossidae											
Freetail Bats											
<i>Mormopterus kitcheneri</i>	Southern Freetail Bat	LC	X			X					X
<i>Tadarida australis</i>	White-striped Freetail-bat	LC				X	X				

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Class Family Species	Common Name	Conservation Status	A	B	C	D	E	F	G	H	I
Vespertilionidae											
Ordinary Bats											
<i>Chalinolobus gouldii</i>	Gould's Wattled Bat	LC	X			X	X			X	X
<i>Chalinolobus morio</i>	Chocolate Wattled Bat	LC	X			X					X
<i>Falsistrellus mackenziei</i>	Western False Pipistrelle	P4 NT	X			X					X
<i>Nyctophilus geoffroyi</i>	Lesser Long-eared Bat	LC				X				X	X
<i>Nyctophilus gouldi</i>	Gould's Long-eared Bat	LC									X
<i>Nyctophilus major</i>	Western Long-eared Bat	DD									
<i>Vespadelus regulus</i>	Southern Forest Bat	LC	X			X				X	X

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Class Family Species	Common Name	Conservation Status	A	B	C	D	E	F	G	H	I
Muridae											
Rats, Mice											
<i>Hydromys chrysogaster</i>	Water Rat	P4 LC									X
<i>Mus musculus</i>	House Mouse	Introduced					X			X	X
<i>Rattus fuscipes</i>	Western Bush Rat	LC									X
<i>Rattus rattus</i>	Black Rat	Introduced	X								X
Canidae											
Dogs, Foxes											
<i>Canis lupus</i>	Dog	Introduced	X			X	X	X		X	X
<i>Vulpes vulpes</i>	Red Fox	Introduced	X			X	X	X		X	X
Felidae											
Cats											
<i>Felis catus</i>	Cat	Introduced				X					X

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

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APPENDIX C. DBCA NatureMap & Protected Matters Search Tool Results.

NatureMap - Collie

Created By Greg Harewood on 0910112019

Kingdom Animalia
Current Names Only Yes
Core Datasets Only Yes
Method 'By Circle'
Centre 116° 08' 18" E, 33° 22' 36" S
Buffer 30km
Group By Species Group

Species Group	Species	Records
Amphibian	10	152
Bird	134	4713
Fish	6	52
Invertebrate	1027	4675
Mammal	39	656
Reptile	37	290
TOTAL	1253	10538

Name ID Species Name Naturalised Conservation Code ¹Endemic To Query Area

Amphibian

1.	25398	<i>Crinia georgiana</i> (Quacking Frog)
2.	25399	<i>Crinia glauerti</i> (Clicking Frog)
3.	25401	<i>Crinia pseudinsignifera</i> (Bleating Froglet)
4.	25404	<i>Geocrinia leai</i> (Ticking Frog)
5.	25410	<i>Heleioporus eyrei</i> (Moaning Frog)
6.	25411	<i>Heleioporus inornatus</i> (Whooping Frog)
7.	25415	<i>Limnodynastes dorsalis</i> (Western Banjo Frog)
8.	25378	<i>Litoria adelaidensis</i> (Slender Tree Frog)
9.	25388	<i>Litoria moorei</i> (Motorbike Frog)
10.	25426	<i>Neobatrachus pelobatoides</i> (Humming Frog)

Bird

11.	24559	<i>Acanthagenys rufogularis</i> (Spiny-cheeked Honeyeater)
12.	24260	<i>Acanthiza apicalis</i> (Broad-tailed Thornbill, Inland Thornbill)
13.	24261	<i>Acanthiza chrysorrhoa</i> (Yellow-rumped Thornbill/1)
14.	24262	<i>Acanthiza inornata</i> (Western Thornbill/1)
15.	24560	<i>Acanthorhynchus superciliosus</i> (Western Spinebill/1)
16.	25535	<i>Accipiter cirrocephalus</i> (Collared Sparrowhawk)
17.	25536	<i>Accipiter fasciatus</i> (Brown Goshawk)
18.	25755	<i>Acrocephalus australis</i> (Australian Reed Warbler)
19.	25544	<i>Aegotheles cristatus</i> (Australian Owllet-nighthjar)
20.	24310	<i>Anas castanea</i> (Chestnut Teal)
21.	24312	<i>Anas gracilis</i> (Grey Teal)
22.	24316	<i>Anas superciliosa</i> (Pacific Black Duck)
23.	47414	<i>Anhinga novaehollandiae</i> (Australasian Darter)
24.	24561	<i>Anthochaera carunculata</i> (Red Wattlebird)
25.	24562	<i>Anthochaera lunulata</i> (Western Little wattlebird)
26.	25670	<i>Anthus australis</i> (Australian Pipit)
27.	24285	<i>Aquila audax</i> (Wedge-tailed Eagle)
28.	41324	<i>Ardea modesta</i> (great egret/ white egret)
29.	24341	<i>Ardea pacifica</i> (White-necked Heron)
30.	25566	<i>Artamus cinereus</i> (Black-faced Woodswallow)
31.	24353	<i>Artamus cyanopterus</i> (Dusky Woodswallow)
32.	24318	<i>Aythya australis</i> (Hardhead)
33.		<i>Barnardius zonarius</i>
34.	24319	<i>Biziura lobata</i> (Musk Duck)
35.	24359	<i>Burhinus grallarius</i> (Bush Stone-curlew)
36.	25714	<i>Cacatua pastinator</i> (Western Long-billed Corella)
37.	25715	<i>Cacatua roseicapilla</i> (Galah)
38.	25598	<i>Cacomantis flabelliformis</i> (Fan-tailed Cuckoo)
39.	24427	<i>Cacomantis flabelliformis</i> subsp. <i>flabelliformis</i> (Fan-tailed Cuckoo)

Name	Species Name	Naturalised	Conservation Code	Endem!	eQuery
40.	42307 <i>Cacomantis pallidus</i> (Pallid Cuckoo)				
41.	25717 <i>Calyptorhynchus banksii</i> (Red-tailed Black-Cockatoo)				
42.	24731 <i>Calyptorhynchus banksii</i> subsp. <i>naso</i> (Forest Red-tailed Black Cockatoo)		T		
43.	24733 <i>Calyptorhynchus baudinii</i> (Baudin's Cockatoo, White-tailed Long-billed Black Cockatoo)		T		
44.	24734 <i>Calyptorhynchus atirostris</i> (Carnaby's Cockatoo, White-tailed Short-billed Black Cockatoo)		T		
45.	48400 <i>Calyptorhynchus</i> sp. (white-tailed black cockatoo)		T		
46.	24321 <i>Chenonetta jubata</i> (Australian Wood Duck, Wood Duck)				
47.	25601 <i>Chrysococcyx lucidus</i> (Shining Bronze Cuckoo)				
48.	24432 <i>Chrysococcyx lucidus</i> subsp. <i>plagosus</i> (Shining Bronze Cuckoo)				
49.	24288 <i>Circus approximans</i> (Swamp Harrier)				
50.	25675 <i>Colluricincla harmonica</i> (Grey Shrike-thrush)				
51.	25568 Coracina novaehollandiae (Black-faced Cuckoo-shrike)				
52.	25592 <i>Corvus coronoides</i> (Australian Raven)				
53.	24671 <i>Coturnix pectoralis</i> (Stubble Quail)				
54.	24420 <i>Cracticus nigrogularis</i> (Pied Butcherbird)				
55.	25595 <i>Cracticus tibicen</i> (Australian Magpie)				
56.	25596 <i>Cracticus torquatus</i> (Grey Butcherbird)				
57.	24322 <i>Cygnus atratus</i> (Black Swan)				
58.	30901 <i>Dacelo novaeguineae</i> (Laughing Kookaburra)	y			
59.	25673 <i>Daphoenositta chrysoptera</i> (Varied Sittella)				
60.	25607 Dicaeum hirundinaceum (Mistletoebird)				
61.	24470 <i>Dromaius novaehollandiae</i> (Emu)				
62.	<i>Egreffa novaehollandiae</i>				
63.	Elanus axillaris				
64.	24290 <i>Elanus caeruleus</i> subsp. <i>axillaris</i> (Australian Black-shouldered Kite)				
65.	47937 <i>Eileyornis melanops</i> (Black-fronted Doffere)				
66.	Eolophus roseicapillus				
67.	25692 <i>Eopsaltria australis</i> (Yellow Robin)				
68.	24651 <i>Eopsaltria australis</i> subsp. <i>griseogularis</i> (Western Yellow Robin)				
69.	24652 <i>Eopsaltria georgiana</i> (White-breasted Robin)				
70.	24567 <i>Epthianura albifrons</i> (White-fronted Chat)				
71.	25621 <i>Falco berigora</i> (Brown Falcon)				
72.	25622 Falco cenchroides (Australian Kestrel, Nankeen Kestrel)				
73.	24472 <i>Falco cenchroides</i> subsp. <i>cenchroides</i> (Australian Kestrel, Nankeen Kestrel)				
74.	25623 <i>Falco longipennis</i> (Australian Hobby)				
75.	25624 <i>Falco peregrinus</i> (Peregrine Falcon)		S		
76.	25727 <i>Fulica atra</i> (Eurasian Coot)				
77.	25729 <i>Gallinula tenebrosa</i> (Dusky Moorhen)				
78.	25530 <i>Gerygone fusca</i> (Western Gerygone)				
79.	47962 <i>Glyciphila melanops</i> (Tawny-crowned Honeyeater)				
80.	24443 <i>Grallina cyanoeuca</i> (Magpie-lark)				
81.	24293 <i>Haliaeetus leucogaster</i> (White-bellied Sea-Eagle)				
82.	24295 <i>Haliaastur sphenurus</i> (Whistling Kite)				
83.	47965 <i>Hieraaetus morphnoides</i> (Liffle Eagle)				
84.	25734 <i>Himantopus himantopus</i> (Black-winged Stilt)				
85.	24491 <i>Hirundo neoxena</i> (Welcome Swallow)				
86.	24347 <i>Ixobrychus flavicollis</i> subsp. <i>australis</i> (Black Bittern (southwest subpop.), Australian Black Bittern)		P2		
87.	24367 <i>Lalage tricolor</i> (White-winged Triller)				
88.	24557 <i>Leipoa ocellata</i> (Malleefowl)		T		
89.	25661 Lichmera indistincta (Brown Honeyeater)				
90.	25650 <i>Malurus eiegans</i> (Red-winged Fairy-wren)				
91.	25654 <i>Malurus splendens</i> (Splendid Fairy-wren)				
92.	47997 <i>Melanodryas cucullata</i> (Hooded Robin)				
93.	25663 <i>Melithreptus brevirostris</i> (Brown-headed Honeyeater)				
94.	24587 <i>Melithreptus chloropsis</i> (Western White-naped Honeyeater)				
95.	24598 Merops ornatus (Rainbow Bee-eater)				
96.	Microcarbo melanoeuco				
97.	25693 <i>Microeca fascians</i> (Jacky Winter)				
98.	25610 <i>Myiagra inquieta</i> (Restless Flycatcher)				
99.	24738 <i>Neophema eiegans</i> (Elegant Parrot)				
100.	25564 <i>Nycticorax caledonicus</i> (Rufous Night Heron)				
101.	24407 <i>Ocyphaps ophotes</i> (Crested Pigeon)				
102.	25680 <i>Pachycephala rufiventris</i> (Rufous Whistler)				
103.	24692 <i>Pachyptila belcheri</i> (Slender-billed Prion)				
104.	25681 <i>Pardalotus punctatus</i> (Spotted Pardalote)				
105.	24626 <i>Pardalotus punctatus</i> subsp. <i>xanthopyge</i> (Yellow-rumped Pardalote)				
106.	25682 <i>Pardalotus striatus</i> (Striated Pardalote)				

Name	Species Name	Naturalised	Conservation Code	Endem! eTQuery
107.	24648 <i>Pelecanus conspicillatus</i> (Australian Pelican)			
108.	48061 <i>Petrochelidon nigricans</i> (Tree Martin)			
109.	48066 <i>Petroica boodang</i> (Scarlet Robin)			
110.	24659 <i>Petroica goddenovii</i> (Red-capped Robin)			
111.	25697 <i>Phalacrocorax carbo</i> (Great Cormorant)			
112.	24667 <i>Phalacrocorax sulcirostris</i> (Little Black Cormorant)			
113.	25699 <i>Phalacrocorax varius</i> (Pied Cormorant)			
114.	24409 <i>Phaps chalcoptera</i> (Common Bronzewing)			
115.	25587 <i>Phaps elegans</i> (Brush Bronzewing)			
116.	48071 <i>Phylidonyris niger</i> (White-cheeked Honeyeater)			
117.	24596 <i>Phylidonyris novaehollandiae</i> (New Holland Honeyeater)			
118.	24841 <i>Platalea flavipes</i> (Yellow-billed Spoonbill)			
119.	25720 <i>Platycercus icterotis</i> (Western Rosella)			
120.	24745 <i>Platycercus icterotis</i> subsp. <i>icterotis</i> (Western Rosella)			
121.	24747 <i>Platycercus spurius</i> (Red-capped Parrot)			
122.	25721 <i>Platycercus zonarius</i> (Australian Ringneck, Ring-necked Parrot)			
123.	24843 <i>Plegadis falcinellus</i> (Glossy Ibis)		IA	
124.	25703 <i>Podargus strigoides</i> (Tawny Frogmouth)			
125.	25704 <i>Podiceps cristatus</i> (Great Crested Grebe)			
126.	24681 <i>Poliiocephalus poliocephalus</i> (Hoary-headed Grebe)			
127.	25722 <i>Polytelis anthopeplus</i> (Regent Parrot)			
128.	25731 <i>Porphyria porphyria</i> (Purple SWamphen)			
129.	Purpureicephalus spurius			
130.	48096 <i>Rhipidura albiscapa</i> (Grey Fantail)			
131.	25614 <i>Rhipidura leucophrys</i> (Willie Wagtail)			
132.	25616 <i>Rhipidura rufiventris</i> (Northern Fantail)			
133.	25534 <i>Sericornis frontalis</i> (White-browed Scrubwren)			
134.	30948 <i>Smicromis brevirostris</i> (Weebill)			
135.	24645 <i>Stagonopleura oculata</i> (Red-eared Firetail)			
136.	25597 <i>Strepera versicolor</i> (Grey Currawong)			
137.	25590 <i>Streptopelia senegalensis</i> (Laughing Turtle-Dove)	y		
138.	25705 <i>Tachybaptus novaehollandiae</i> (Australasian Grebe, Black-throated Grebe)			
139.	24331 <i>Tadorna tadornoides</i> (Australian Shelduck, Mountain Duck)			
140.	24845 <i>Threskiornis spinicollis</i> (Straw-necked Ibis)			
141.	25549 <i>Todiramphus sanctus</i> (Sacred Kingfisher)			
142.	48141 <i>Tribonyx ventralis</i> (Black-tailed Native-hen)			
143.	48147 <i>Turnix varius</i> (Painted Button-quail)			
144.	25765 <i>Zosterops lateralis</i> (Grey-breasted White-eye, Silvereye)			

Fish

145.	<i>Edelia vittata</i>			
146.	34028 <i>Gambusia occidentalis</i> (Western Minnow)			
147.	34030 <i>Geotria australis</i> (Pouched Lamprey)		P1	
148.	Leiopotherapon unicolor			
149.	<i>Nannoperca vittata</i>			
150.	<i>Tridentiger trigonocephalus</i>			

Invertebrate

151.	<i>Abantiades hydrographis</i>
152.	<i>Abantiades acclivatus</i>
153.	<i>Abantiades</i> sp. fc761
154.	<i>Abantiades</i> sp. fc958
155.	<i>Acantholophus</i> sp. fc496
156.	<i>Acantholophus</i> sp. fc869
157.	<i>Acariformes</i> sp.
158.	<i>Adelium</i> sp. fc904
159.	<i>Adreppus</i> sp. fc1323
160.	<i>Adreppus</i> sp. fc868
161.	<i>Adversaeschna brevistylis</i>
162.	<i>Aedriodes</i> sp. fc1597
163.	<i>Aeshnidae</i> sp.
164.	<i>Agonocheila</i> sp. fc1059
165.	Agraptocorixa parvipunctata
166.	<i>Agraptocorixa</i> sp.
167.	<i>Agrotis munda</i>
168.	<i>Alotanypus dalyupensis</i>
169.	<i>Amblyomma fimbriatum</i>
170.	<i>Amorbus bispinus</i>
171.	<i>Amphisopodidae</i> sp.
172.	Aname mainae
173.	<i>Aname tepperi</i>

Name	Species Name	Naturalised	Conservation Code	Endem! eQuery
174.	<i>Anax papuensis</i>			
175.	Ancylidae sp.			
176.	<i>Anisops hyperion</i>			
177.	<i>Anisops</i> sp.			
178.	Anisops thienemanni			
179.	<i>Anthela canescens</i>			
180.	<i>Anthela ferruginosa</i>			
181.	<i>Anthela</i> sp. fc381			
182.	Anthicidae sp.			
183.	<i>Antichiropus nanus</i>			
184.	<i>Antiporus gilbeti</i>			
185.	<i>Antiporus occidentalis</i>			
186.	<i>Antiporus</i> sp.			
187.	<i>Aphanosperma</i> sp. fc1418			y
188.	<i>Apis mellifera</i>			
189.	<i>Apterogylus</i> sp. fc811			
190.	Archiarigiolestes pusi/lus			
191.	<i>Archichauliodes</i> sp.			
192.	<i>Arcina fu/gorigera</i>			
193.	<i>Arhodia</i> sp. fc2			
194.	<i>Arhodia</i> sp. fc320			
195.	<i>Arhodia</i> sp. fc79			
196.	Artoriopsis expo/ita			
197.	<i>Artoriopsis joergi</i>			
198.	Athericidae sp.			
199.	Aturidae sp.			
200.	Austroaeschna anacantha			
201.	<i>Austrogomphus (Zephyrogomphus) latera/is</i>			
202.	Austrolestes ana/is			
203.	33972 <i>Austromerope poultoni</i> (earwigfly (southwest), scorpionf/y)			
204.	<i>Austrosynthemis cyanitincta</i>			
205.	Backbourkia brounii			
206.	Baetidae sp.			
207.	<i>Baiami</i> sp. fc732			
208.	Baiami tegenarioides			
209.	Baiami volucripes			
210.	<i>Ballarra longipalpus</i>			
211.	Berosus approximans			
212.	47873 <i>Betmainius opimus</i> (western pygmy trapdoor spider)		P3	
213.	<i>Botf/Yocladius bibulmun</i>			
214.	Botryocladus freemani			
215.	Brentidae sp.			
216.	<i>Caedicia</i> sp. fc485			
217.	Caenidae sp.			
218.	<i>Calliphora</i> sp. fc480			
219.	<i>Calliphora</i> sp. fc53			
220.	<i>Calolampra</i> sp. fc147			
221.	<i>Calosoma schayeri</i>			
222.	<i>Camponotus</i> sp. fc423			
223.	Carabidae sp.			
224.	<i>Catthaea saturnioides</i>			
225.	<i>Cedarinia</i> sp. fc3014			y
226.	Cedarinia sp. fc576			
227.	<i>Cedarinia</i> sp. fc690			
228.	<i>Cedarinia</i> sp. fc722			y
229.	Cedarinia sp. fc726			
230.	<i>Cedarinia</i> sp. fc890			
231.	Ceinidae sp.			
232.	<i>Cenogmus</i> sp. fc264			
233.	<i>Ceratopogonidae</i> sp.			
234.	<i>Cercophonius sulcatus</i>			
235.	<i>Cha/copterooides</i> sp. fc930			
236.	Chaoboridae sp.			
237.	<i>Chauliognathus</i> sp. fc795			
238.	Chenistonia sp. fc567			
239.	<i>Chenistonia</i> sp. fc581			
240.	<i>Chenistonia</i> sp. fc721			
241.	33939 Cherax cainii (Marron)			
242.	<i>Cherax destructor</i>			
243.	<i>Cherax plebejus</i>			

Name	Species Name	Naturalised	Conservation Code	Endem! eTQuery
244.	<i>Cherax preissii</i>			
245.	Cherax quinquecarinatus			
246.	33940 <i>Cherax tenuimanus</i> (Margaret River hairy marron, Margaret River Marron)		T	
247.	<i>Cheumatopsyche</i> sp. AV2 (SAP)			
248.	Chironominae sp.			
249.	<i>Chironomus</i> aff. <i>a/ternans</i> (V24) (CB)			
250.	Chironomus occidentalis			
251.	<i>Chironomus tepperi</i>			
252.	<i>Chlorocoma dic/oraria</i>			
253.	<i>Chlorocoma</i> sp. fc22			
254.	<i>Chrysopa</i> sp. fc361			
255.	<i>Chrysopa</i> sp. fc822			
256.	<i>Cicadetta quadricinta</i>			
257.	<i>Cisseis</i> sp. fc3024			y
258.	<i>Cladocera</i> (unident)			
259.	<i>Cladopelma cuttivalva</i>			
260.	Coccinella repanda			
261.	<i>Coenagrionidae</i> sp.			
262.	<i>Colpochila antenna/is</i>			
263.	<i>Colpochila bogaria</i>			
264.	<i>Colpochila</i> sp. fc1866			
265.	<i>Conchostraca</i> (unident)			
266.	Condocerus aptus			
267.	<i>Conoderus</i> sp. fc1062			
268.	<i>Conoderus</i> sp. fc1109			
269.	<i>Conoderus</i> sp. fc135			
270.	<i>Conoderus</i> sp. fc1816			
271.	<i>Conoderus</i> sp. fc1818			
272.	Conoderus sp. fc26			
273.	<i>Conoderus</i> sp. fc444			
274.	<i>Conoderus</i> sp. fc909			
275.	<i>Copepoda</i> sp.			
276.	<i>Coptocercus rubripes</i>			
277.	<i>Corduliidae</i> sp.			
278.	Corixidae sp.			
279.	<i>Cormocephalus aurantiipes</i>			
280.	<i>Cormocephalus strigosus</i>			
281.	<i>Corydalidae</i> sp.			
282.	<i>Corynoneura</i> sp. (V49) (SAP)			
283.	<i>Coryphistes</i> sp. fc231			
284.	Cricotopus 'brevicornis'			
285.	<i>Cricotopus 'parbicinctus'</i>			
286.	<i>Crypsiphona ocellaria</i>			
287.	Cryptochironomus griseidorsum			
288.	<i>Cryptodus</i> sp. fc189			
289.	<i>Culicidae</i> sp.			
290.	Curcu/ionidae sp.			
291.	<i>Dasyptodia selenophora</i>			
292.	<i>Destolmia</i> sp. fc4			
293.	Dichromodes personalis			
294.	<i>Dicrotendipes</i> sp. A (V47) (SAP)			
295.	Dingosa serrata			
296.	Discophlebia /ucasii			
297.	<i>Dolichopodidae</i> sp.			
298.	<i>Doratifera</i> sp. fc1625			
299.	<i>Doratifera</i> sp. fc332			
300.	<i>Drasterius</i> sp. fc1120			
301.	<i>Dugesidae</i> sp.			
302.	<i>Dytiscidae</i> sp.			
303.	<i>Ecnomidae</i> sp.			
304.	<i>Ecnomus</i> sp.			
305.	Ecphantus quadrilobus sp nova			
306.	<i>Ectropis</i> sp. fc23			
307.	<i>Elea/e</i> sp. fc695			
308.	<i>Empididae</i> sp.			
309.	<i>Entometa fervens</i>			
310.	<i>Entometa</i> sp. fc426			
311.	Epicoma melanosUca			
312.	<i>Eriophora biapicata</i>			
313.	<i>Ethmostigmus rubripes</i>			

Name	Species Name	Naturalised	Conservation Code	1 Endem!	eTQuery
314.	<i>Ethmostigmus</i> sp. fc223				
315.	<i>Eucyclodes buprestaria</i>				
316.	<i>Eunatalis spinicornis</i>				
317.	<i>Eylaidae</i> sp.				
318.	<i>Gasteracantha minax</i>				
319.	<i>Ge/astocoridae</i> sp.				
320.	Genus fc1022 sp. fc1022				
321.	Genus fc1024 sp. fc1024				y
322.	Genus fc1026 sp. fc1026				
323.	Genus fc1029 sp. fc1029				
324.	Genus fc1031 sp. fc1031				
325.	Genus fc1036 sp. fc1036				
326.	Genus fc1037 sp. fc1037				
327.	Genus fc1038 sp. fc1038				
328.	Genus fc1046 sp. fc1046				
329.	Genus fc1051 sp. fc1051				
330.	Genus fc1055 sp. fc1055				
331.	Genus fc1056 sp. fc1056				
332.	Genus fc1057 sp. fc1057				
333.	Genus fc106 sp. fc106				
334.	Genus fc1060 sp. fc1060				y
335.	Genus fc1068 sp. fc1068				
336.	Genus fc1075 sp. fc1075				
337.	Genus fc1079 sp. fc1079				
338.	Genus fc108 sp. fc108				
339.	Genus fc1080 sp. fc1080				
340.	Genus fc1081 sp. fc1081				
341.	Genus fc1093 sp. fc1093				y
342.	Genus fc1094 sp. fc1094				
343.	Genus fc1098 sp. fc1098				
344.	Genus fc1101 sp. fc1101				
345.	Genus fc1105 sp. fc1105				
346.	Genus fc1115 sp. fc1115				
347.	Genus fc1118 sp. fc1118				
348.	Genus fc1126 sp. fc1126				
349.	Genus fc1128 sp. fc1128				
350.	Genus fc1134 sp. fc1134				
351.	Genus fc1135 sp. fc1135				
352.	Genus fc1139 sp. fc1139				
353.	Genus fc1161 sp. fc1161				
354.	Genus fc1166 sp. fc1166				
355.	Genus fc1169 sp. fc1169				
356.	Genus fc12 sp. fc12				
357.	Genus fc123 sp. fc123				
358.	Genus fc126 sp. fc126				
359.	Genus fc129 sp. fc129				
360.	Genus fc130 sp. fc130				
361.	Genus fc1302 sp. fc1302				
362.	Genus fc132 sp. fc132				
363.	Genus fc1344 sp. fc1344				
364.	Genus fc1349 sp. fc1349				
365.	Genus fc137 sp. fc137				
366.	Genus fc1372 sp. fc1372				
367.	Genus fc139 sp. fc139				
368.	Genus fc14 sp. fc14				
369.	Genus fc140 sp. fc140				
370.	Genus fc1401 sp. fc1401				
371.	Genus fc1420 sp. fc1420				y
372.	Genus fc1421 sp. fc1421				
373.	Genus fc1422 sp. fc1422				
374.	Genus fc1424 sp. fc1424				
375.	Genus fc1425 sp. fc1425				
376.	Genus fc1426 sp. fc1426				
377.	Genus fc1428 sp. fc1428				
378.	Genus fc1429 sp. fc1429				
379.	Genus fc1430 sp. fc1430				
380.	Genus fc1431 sp. fc1431				
381.	Genus fc1432 sp. fc1432				y
382.	Genus fc1433 sp. fc1433				y
383.	Genus fc1434 sp. fc1434				y

Name	Species Name	Naturalised	Conservation Code	Endem! eTQuery
384.	Genus fc144 sp. fc144			
385.	Genus fc145 sp. fc145			
386.	Genus fc146 sp. fc146			
387.	Genus fc1488 sp. fc1488			
388.	Genus fc1490 sp. fc1490			
389.	Genus fc1491 sp. fc1491			
390.	Genus fc1493 sp. fc1493			
391.	Genus fc1497 sp. fc1497			
392.	Genus fc1503 sp. fc1503			
393.	Genus fc1504 sp. fc1504			
394.	Genus fc1505 sp. fc1505			y
395.	Genus fc1506 sp. fc1506			y
396.	Genus fc1507 sp. fc1507			y
397.	Genus fc151 sp. fc151			
398.	Genus fc1511 sp. fc1511			
399.	Genus fc1512 sp. fc1512			
400.	Genus fc1513 sp. fc1513			
401.	Genus fc1516 sp. fc1516			
402.	Genus fc1517 sp. fc1517			
403.	Genus fc1519 sp. fc1519			
404.	Genus fc1527 sp. fc1527			
405.	Genus fc153 sp. fc153			
406.	Genus fc1530 sp. fc1530			
407.	Genus fc1537 sp. fc1537			y
408.	Genus fc1538 sp. fc1538			
409.	Genus fc1539 sp. fc1539			y
410.	Genus fc1541 sp. fc1541			
411.	Genus fc1542 sp. fc1542			y
412.	Genus fc1546 sp. fc1546			
413.	Genus fc1557 sp. fc1557			
414.	Genus fc1558 sp. fc1558			
415.	Genus fc156 sp. fc156			
416.	Genus fc1560 sp. fc1560			
417.	Genus fc1561 sp. fc1561			
418.	Genus fc1574 sp. fc1574			
419.	Genus fc1579 sp. fc1579			
420.	Genus fc1580 sp. fc1580			
421.	Genus fc1589 sp. fc1589			
422.	Genus fc1599 sp. fc1599			y
423.	Genus fc16 sp. fc16			
424.	Genus fc1626 sp. fc1626			
425.	Genus fc1627 sp. fc1627			
426.	Genus fc1628 sp. fc1628			
427.	Genus fc163 sp. fc163			
428.	Genus fc1631 sp. fc1631			
429.	Genus fc1720 sp. fc1720			
430.	Genus fc173 sp. fc173			
431.	Genus fc174 sp. fc174			
432.	Genus fc1751 sp. fc1751			
433.	Genus fc176 sp. fc176			
434.	Genus fc1771 sp. fc1771			
435.	Genus fc178 sp. fc178			
436.	Genus fc180 sp. fc180			
437.	Genus fc1811 sp. fc1811			
438.	Genus fc1817 sp. fc1817			
439.	Genus fc1831 sp. fc1831			
440.	Genus fc1832 sp. fc1832			
441.	Genus fc1833 sp. fc1833			
442.	Genus fc1834 sp. fc1834			
443.	Genus fc1840 sp. fc1840			
444.	Genus fc1847 sp. fc1847			
445.	Genus fc1852 sp. fc1852			
446.	Genus fc1857 sp. fc1857			
447.	Genus fc187 sp. fc187			
448.	Genus fc1875 sp. fc1875			
449.	Genus fc1876 sp. fc1876			
450.	Genus fc1882 sp. fc1882			
451.	Genus fc1898 sp. fc1898			
452.	Genus fc1899 sp. fc1899			
453.	Genus fc1906 sp. fc1906			

Name	Species Name	Naturalised	Conservation Code	Endem!	eQuery
454.	<i>Genus fc1913 sp. fc1913</i>				
455.	<i>Genus fc1933 sp. fc1933</i>				
456.	<i>Genus fc1938 sp. fc1938</i>				
457.	<i>Genus fc1944 sp. fc1944</i>				
458.	<i>Genus fc1964 sp. fc1964</i>				
459.	<i>Genus fc1966 sp. fc1966</i>				
460.	<i>Genus fc1993 sp. fc1993</i>				
461.	<i>Genus fc1994 sp. fc1994</i>				
462.	<i>Genus fc20 sp. fc20</i>				
463.	<i>Genus fc203 sp. fc203</i>				
464.	<i>Genus fc2037 sp. fc2037</i>				
465.	<i>Genus fc2041 sp. fc2041</i>				
466.	<i>Genus fc2049 sp. fc2049</i>				
467.	<i>Genus fc2050 sp. fc2050</i>				
468.	<i>Genus fc2054 sp. fc2054</i>				
469.	<i>Genus fc2059 sp. fc2059</i>				y
470.	<i>Genus fc206 sp. fc206</i>				
471.	<i>Genus fc2089 sp. fc2089</i>				
472.	<i>Genus fc2094 sp. fc2094</i>				
473.	<i>Genus fc2125 sp. fc2125</i>				y
474.	<i>Genus fc2128 sp. fc2128</i>				
475.	<i>Genus fc2158 sp. fc2158</i>				
476.	<i>Genus fc217 sp. fc217</i>				
477.	<i>Genus fc2196 sp. fc2196</i>				
478.	<i>Genus fc221 sp. fc221</i>				
479.	<i>Genus fc2220 sp. fc2220</i>				
480.	<i>Genus fc225 sp. fc225</i>				
481.	<i>Genus fc226 sp. fc226</i>				
482.	<i>Genus fc227 sp. fc227</i>				
483.	<i>Genus fc228 sp. fc228</i>				
484.	<i>Genus fc236 sp. fc236</i>				
485.	<i>Genus fc24 sp. fc24</i>				
486.	<i>Genus fc2446 sp. fc2446</i>				
487.	<i>Genus fc25 sp. fc25</i>				
488.	<i>Genus fc251 sp. fc251</i>				
489.	<i>Genus fc257 sp. fc257</i>				
490.	<i>Genus fc258 sp. fc258</i>				
491.	<i>Genus fc259 sp. fc259</i>				
492.	<i>Genus fc260 sp. fc260</i>				
493.	<i>Genus fc2627 sp. fc2627</i>				
494.	<i>Genus fc2639 sp. fc2639</i>				
495.	<i>Genus fc2653 sp. fc2653</i>				
496.	<i>Genus fc267 sp. fc267</i>				
497.	<i>Genus fc2704 sp. fc2704</i>				
498.	<i>Genus fc2705 sp. fc2705</i>				
499.	<i>Genus fc2715 sp. fc2715</i>				
500.	<i>Genus fc2719 sp. fc2719</i>				y
501.	<i>Genus fc2720 sp. fc2720</i>				
502.	<i>Genus fc2722 sp. fc2722</i>				y
503.	<i>Genus fc2734 sp. fc2734</i>				y
504.	<i>Genus fc2885 sp. fc2885</i>				y
505.	<i>Genus fc2886 sp. fc2886</i>				y
506.	<i>Genus fc2887 sp. fc2887</i>				
507.	<i>Genus fc2888 sp. fc2888</i>				
508.	<i>Genus fc2889 sp. fc2889</i>				
509.	<i>Genus fc2890 sp. fc2890</i>				
510.	<i>Genus fc2892 sp. fc2892</i>				y
511.	<i>Genus fc2901 sp. fc2901</i>				
512.	<i>Genus fc2902 sp. fc2902</i>				y
513.	<i>Genus fc2903 sp. fc2903</i>				
514.	<i>Genus fc2904 sp. fc2904</i>				
515.	<i>Genus fc2905 sp. fc2905</i>				
516.	<i>Genus fc2906 sp. fc2906</i>				y
517.	<i>Genus fc2907 sp. fc2907</i>				
518.	<i>Genus fc2908 sp. fc2908</i>				y
519.	<i>Genus fc2909 sp. fc2909</i>				
520.	<i>Genus fc2910 sp. fc2910</i>				y
521.	<i>Genus fc2911 sp. fc2911</i>				y
522.	<i>Genus fc2914 sp. fc2914</i>				
523.	<i>Genus fc2915 sp. fc2915</i>				

Name	Species Name	Naturalised	Conservation Code	Endem!	eQuery
524.	Genus fc2919 sp. fc2919				
525.	Genus fc2921 sp. fc2921				
526.	Genus fc2924 sp. fc2924				
527.	Genus fc2926 sp. fc2926				
528.	Genus fc2935 sp. fc2935				
529.	Genus fc2948 sp. fc2948				
530.	Genus fc2950 sp. fc2950				
531.	Genus fc2953 sp. fc2953				
532.	Genus fc2999 sp. fc2999				
533.	Genus fc3012 sp. fc3012				
534.	Genus fc3013 sp. fc3013				y
535.	Genus fc3015 sp. fc3015				y
536.	Genus fc3016 sp. fc3016				
537.	Genus fc3018 sp. fc3018				y
538.	Genus fc3023 sp. fc3023				y
539.	Genus fc3026 sp. fc3026				
540.	Genus fc3027 sp. fc3027				y
541.	Genus fc3028 sp. fc3028				y
542.	Genus fc3029 sp. fc3029				y
543.	Genus fc3030 sp. fc3030				y
544.	Genus fc3031 sp. fc3031				y
545.	Genus fc309 sp. fc309				
546.	Genus fc3103 sp. fc3103				
547.	Genus fc3108 sp. fc3108				
548.	Genus fc311 sp. fc311				
549.	Genus fc3113 sp. fc3113				
550.	Genus fc3115 sp. fc3115				
551.	Genus fc3116 sp. fc3116				y
552.	Genus fc3117 sp. fc3117				
553.	Genus fc3118 sp. fc3118				
554.	Genus fc3119 sp. fc3119				y
555.	Genus fc312 sp. fc312				
556.	Genus fc3120 sp. fc3120				y
557.	Genus fc3121 sp. fc3121				y
558.	Genus fc3122 sp. fc3122				
559.	Genus fc3123 sp. fc3123				y
560.	Genus fc3126 sp. fc3126				
561.	Genus fc3127 sp. fc3127				y
562.	Genus fc3128 sp. fc3128				
563.	Genus fc3129 sp. fc3129				y
564.	Genus fc313 sp. fc313				
565.	Genus fc3130 sp. fc3130				y
566.	Genus fc3131 sp. fc3131				y
567.	Genus fc3132 sp. fc3132				y
568.	Genus fc3136 sp. fc3136				
569.	Genus fc3137 sp. fc3137				y
570.	Genus fc3138 sp. fc3138				
571.	Genus fc3139 sp. fc3139				y
572.	Genus fc3140 sp. fc3140				
573.	Genus fc3141 sp. fc3141				y
574.	Genus fc3144 sp. fc3144				
575.	Genus fc3151 sp. fc3151				
576.	Genus fc3154 sp. fc3154				
577.	Genus fc3155 sp. fc3155				y
578.	Genus fc3157 sp. fc3157				y
579.	Genus fc3158 sp. fc3158				
580.	Genus fc3159 sp. fc3159				y
581.	Genus fc316 sp. fc316				
582.	Genus fc3160 sp. fc3160				y
583.	Genus fc3161 sp. fc3161				
584.	Genus fc3162 sp. fc3162				
585.	Genus fc3166 sp. fc3166				y
586.	Genus fc3167 sp. fc3167				y
587.	Genus fc317 sp. fc317				
588.	Genus fc318 sp. fc318				
589.	Genus fc32 sp. fc32				
590.	Genus fc3220 sp. fc3220				
591.	Genus fc3221 sp. fc3221				
592.	Genus fc323 sp. fc323				
593.	Genus fc324 sp. fc324				

Name	Species Name	Naturalised	Conservation Code	Endem!	eQuery
594.	<i>Genus fc326 sp. fc326</i>				
595.	<i>Genus fc33 sp. fc33</i>				
596.	<i>Genus fc333 sp. fc333</i>				
597.	<i>Genus fc336 sp. fc336</i>				
598.	<i>Genus fc342 sp. fc342</i>				
599.	<i>Genus fc3439 sp. fc3439</i>				y
600.	<i>Genus fc3440 sp. fc3440</i>				
601.	<i>Genus fc3441 sp. fc3441</i>				y
602.	<i>Genus fc3442 sp. fc3442</i>				
603.	<i>Genus fc345 sp. fc345</i>				
604.	<i>Genus fc3453 sp. fc3453</i>				
605.	<i>Genus fc3455 sp. fc3455</i>				y
606.	<i>Genus fc3456 sp. fc3456</i>				
607.	<i>Genus fc3461 sp. fc3461</i>				
608.	<i>Genus fc350 sp. fc350</i>				
609.	<i>Genus fc3510 sp. fc3510</i>				y
610.	<i>Genus fc3519 sp. fc3519</i>				
611.	<i>Genus fc3534 sp. fc3534</i>				
612.	<i>Genus fc3535 sp. fc3535</i>				y
613.	<i>Genus fc3536 sp. fc3536</i>				y
614.	<i>Genus fc3537 sp. fc3537</i>				y
615.	<i>Genus fc3538 sp. fc3538</i>				
616.	<i>Genus fc3549 sp. fc3549</i>				y
617.	<i>Genus fc3550 sp. fc3550</i>				y
618.	<i>Genus fc360 sp. fc360</i>				
619.	<i>Genus fc362 sp. fc362</i>				
620.	<i>Genus fc367 sp. fc367</i>				
621.	<i>Genus fc369 sp. fc369</i>				
622.	<i>Genus fc374 sp. fc374</i>				
623.	<i>Genus fc375 sp. fc375</i>				
624.	<i>Genus fc376 sp. fc376</i>				
625.	<i>Genus fc38 sp. fc38</i>				
626.	<i>Genus fc380 sp. fc380</i>				
627.	<i>Genus fc382 sp. fc382</i>				
628.	<i>Genus fc383 sp. fc383</i>				
629.	<i>Genus fc386 sp. fc386</i>				
630.	<i>Genus fc389 sp. fc389</i>				
631.	<i>Genus fc391 sp. fc391</i>				
632.	<i>Genus fc392 sp. fc392</i>				
633.	<i>Genus fc396 sp. fc396</i>				
634.	<i>Genus fc397 sp. fc397</i>				
635.	<i>Genus fc399 sp. fc399</i>				
636.	<i>Genus fc400 sp. fc400</i>				
637.	<i>Genus fc401 sp. fc401</i>				
638.	<i>Genus fc403 sp. fc403</i>				
639.	<i>Genus fc407 sp. fc407</i>				
640.	<i>Genus fc41 sp. fc41</i>				
641.	<i>Genus fc410 sp. fc410</i>				
642.	<i>Genus fc411 sp. fc411</i>				
643.	<i>Genus fc413 sp. fc413</i>				
644.	<i>Genus fc414 sp. fc414</i>				
645.	<i>Genus fc417 sp. fc417</i>				
646.	<i>Genus fc419 sp. fc419</i>				
647.	<i>Genus fc420 sp. fc420</i>				
648.	<i>Genus fc421 sp. fc421</i>				
649.	<i>Genus fc422 sp. fc422</i>				
650.	<i>Genus fc424 sp. fc424</i>				
651.	<i>Genus fc425 sp. fc425</i>				
652.	<i>Genus fc430 sp. fc430</i>				
653.	<i>Genus fc436 sp. fc436</i>				
654.	<i>Genus fc439 sp. fc439</i>				
655.	<i>Genus fc441 sp. fc441</i>				
656.	<i>Genus fc449 sp. fc449</i>				
657.	<i>Genus fc451 sp. fc451</i>				
658.	<i>Genus fc452 sp. fc452</i>				
659.	<i>Genus fc454 sp. fc454</i>				
660.	<i>Genus fc459 sp. fc459</i>				
661.	<i>Genus fc460 sp. fc460</i>				
662.	<i>Genus fc467 sp. fc467</i>				
663.	<i>Genus fc469 sp. fc469</i>				

Name	Species Name	Naturalised	Conservation Code	Endem! eTQuery
664.	Genus fc47 sp. fc47			
665.	Genus fc473 sp. fc473			
666.	Genus fc48 sp. fc48			
667.	Genus fc484 sp. fc484			
668.	Genus fc489 sp. fc489			
669.	Genus fc491 sp. fc491			
670.	Genus fc498 sp. fc498			
671.	Genus fc50 sp. fc50			
672.	Genus fc502 sp. fc502			
673.	Genus fc514 sp. fc514			
674.	Genus fc521 sp. fc521			
675.	Genus fc523 sp. fc523			
676.	Genus fc532 sp. fc532			
677.	Genus fc539 sp. fc539			
678.	Genus fc54 sp. fc54			
679.	Genus fc541 sp. fc541			
680.	Genus fc544 sp. fc544			
681.	Genus fc553 sp. fc553			
682.	Genus fc554 sp. fc554			y
683.	Genus fc564 sp. fc564			
684.	Genus fc568 sp. fc568			
685.	Genus fc571 sp. fc571			
686.	Genus fc573 sp. fc573			y
687.	Genus fc577 sp. fc577			
688.	Genus fc579 sp. fc579			
689.	Genus fc583 sp. fc583			
690.	Genus fc585 sp. fc585			
691.	Genus fc590 sp. fc590			
692.	Genus fc599 sp. fc599			
693.	Genus fc6 sp. fc6			
694.	Genus fc60 sp. fc60			
695.	Genus fc603 sp. fc603			
696.	Genus fc608 sp. fc608			
697.	Genus fc609 sp. fc609			
698.	Genus fc61 sp. fc61			
699.	Genus fc611 sp. fc611			
700.	Genus fc612 sp. fc612			
701.	Genus fc618 sp. fc618			
702.	Genus fc62 sp. fc62			
703.	Genus fc625 sp. fc625			
704.	Genus fc626 sp. fc626			
705.	Genus fc628 sp. fc628			
706.	Genus fc629 sp. fc629			
707.	Genus fc63 sp. fc63			
708.	Genus fc636 sp. fc636			
709.	Genus fc638 sp. fc638			
710.	Genus fc639 sp. fc639			
711.	Genus fc64 sp. fc64			
712.	Genus fc641 sp. fc641			
713.	Genus fc642 sp. fc642			
714.	Genus fc646 sp. fc646			
715.	Genus fc648 sp. fc648			
716.	Genus fc649 sp. fc649			
717.	Genus fc650 sp. fc650			
718.	Genus fc652 sp. fc652			
719.	Genus fc655 sp. fc655			
720.	Genus fc656 sp. fc656			
721.	Genus fc657 sp. fc657			
722.	Genus fc658 sp. fc658			
723.	Genus fc66 sp. fc66			
724.	Genus fc661 sp. fc661			
725.	Genus fc662 sp. fc662			
726.	Genus fc669 sp. fc669			
727.	Genus fc67 sp. fc67			
728.	Genus fc670 sp. fc670			
729.	Genus fc671 sp. fc671			
730.	Genus fc674 sp. fc674			
731.	Genus fc675 sp. fc675			
732.	Genus fc676 sp. fc676			y
733.	Genus fc678 sp. fc678			

Name	Species Name	Naturalised	Conservation Code	Endem!	eQuery
734.	Genus fe679 sp. fe679				y
735.	Genus fe680 sp. fe680				
736.	Genus fe681 sp. fe681				y
737.	Genus fe682 sp. fe682				
738.	Genus fe683 sp. fe683				
739.	Genus fe684 sp. fe684				y
740.	Genus fe685 sp. fe685				y
741.	Genus fe687 sp. fe687				
742.	Genus fe691 sp. fe691				
743.	Genus fe692 sp. fe692				
744.	Genus fe693 sp. fe693				
745.	Genus fe694 sp. fe694				
746.	Genus fe696 sp. fe696				
747.	Genus fe697 sp. fe697				
748.	Genus fe698 sp. fe698				y
749.	Genus fe699 sp. fe699				
750.	Genus fe703 sp. fe703				
751.	Genus fe704 sp. fe704				y
752.	Genus fe705 sp. fe705				y
753.	Genus fe714 sp. fe714				
754.	Genus fe717 sp. fe717				
755.	Genus fe718 sp. fe718				
756.	Genus fe719 sp. fe719				
757.	Genus fe72 sp. fe72				
758.	Genus fe720 sp. fe720				y
759.	Genus fe723 sp. fe723				
760.	Genus fe724 sp. fe724				y
761.	Genus fe727 sp. fe727				
762.	Genus fe729 sp. fe729				
763.	Genus fe73 sp. fe73				
764.	Genus fe730 sp. fe730				y
765.	Genus fe731 sp. fe731				y
766.	Genus fe733 sp. fe733				y
767.	Genus fe734 sp. fe734				
768.	Genus fe736 sp. fe736				y
769.	Genus fe738 sp. fe738				
770.	Genus fe740 sp. fe740				
771.	Genus fe741 sp. fe741				
772.	Genus fe743 sp. fe743				
773.	Genus fe75 sp. fe75				
774.	Genus fe750 sp. fe750				
775.	Genus fe751 sp. fe751				
776.	Genus fe752 sp. fe752				y
777.	Genus fe753 sp. fe753				
778.	Genus fe754 sp. fe754				
779.	Genus fe755 sp. fe755				
780.	Genus fe757 sp. fe757				
781.	Genus fe758 sp. fe758				
782.	Genus fe759 sp. fe759				
783.	Genus fe76 sp. fe76				
784.	Genus fe760 sp. fe760				
785.	Genus fe765 sp. fe765				
786.	Genus fe766 sp. fe766				
787.	Genus fe768 sp. fe768				y
788.	Genus fe769 sp. fe769				y
789.	Genus fe11 sp. fe11				
790.	Genus fe770 sp. fe770				
791.	Genus fe771 sp. fe771				
792.	Genus fe112 sp. fe772				
793.	Genus fe776 sp. fe776				
794.	Genus fe782 sp. fe782				
795.	Genus fe783 sp. fe783				y
796.	Genus fe784 sp. fe784				
797.	Genus fe785 sp. fe785				
798.	Genus fe787 sp. fe787				
799.	Genus fe788 sp. fe788				y
800.	Genus fe789 sp. fe789				y
801.	Genus fe790 sp. fe790				y
802.	Genus fe791 sp. fe791				
803.	Genus fe792 sp. fe792				

Name	Species Name	Naturalised	Conservation Code	Endem!	eTQuery
804.	<i>Genus fc793 sp. fc793</i>				y
805.	<i>Genus fc794 sp. fc794</i>				
806.	<i>Genus fc797 sp. fc797</i>				
807.	<i>Genus fc799 sp. fc799</i>				
808.	<i>Genus fc80 sp. fc80</i>				
809.	<i>Genus fc801 sp. fc801</i>				
810.	<i>Genus fc812 sp. fc812</i>				
811.	<i>Genus fc813 sp. fc813</i>				
812.	<i>Genus fc815 sp. fc815</i>				
813.	<i>Genus fc818 sp. fc818</i>				
814.	<i>Genus fc82 sp. fc82</i>				
815.	<i>Genus fc821 sp. fc821</i>				
816.	<i>Genus fc829 sp. fc829</i>				
817.	<i>Genus fc83 sp. fc83</i>				
818.	<i>Genus fc833 sp. fc833</i>				
819.	<i>Genus fc834 sp. fc834</i>				
820.	<i>Genus fc837 sp. fc837</i>				
821.	<i>Genus fc840 sp. fc840</i>				
822.	<i>Genus fc849 sp. fc849</i>				
823.	<i>Genus fc852 sp. fc852</i>				
824.	<i>Genus fc855 sp. fc855</i>				
825.	<i>Genus fc857 sp. fc857</i>				
826.	<i>Genus fc859 sp. fc859</i>				
827.	<i>Genus fc86 sp. fc86</i>				
828.	<i>Genus fc861 sp. fc861</i>				
829.	<i>Genus fc862 sp. fc862</i>				
830.	<i>Genus fc863 sp. fc863</i>				
831.	<i>Genus fc864 sp. fc864</i>				
832.	<i>Genus fc873 sp. fc873</i>				
833.	<i>Genus fc878 sp. fc878</i>				
834.	<i>Genus fc881 sp. fc881</i>				
835.	<i>Genus fc886 sp. fc886</i>				
836.	<i>Genus fc90 sp. fc90</i>				
837.	<i>Genus fc916 sp. fc916</i>				
838.	<i>Genus fc92 sp. fc92</i>				
839.	<i>Genus fc921 sp. fc921</i>				
840.	<i>Genus fc925 sp. fc925</i>				
841.	<i>Genus fc928 sp. fc928</i>				
842.	<i>Genus fc942 sp. fc942</i>				
843.	<i>Genus fc947 sp. fc947</i>				
844.	<i>Genus fc95 sp. fc95</i>				
845.	<i>Genus fc950 sp. fc950</i>				
846.	<i>Genus fc957 sp. fc957</i>				
847.	<i>Genus fc986 sp. fc986</i>				
848.	<i>Genus fc988 sp. fc988</i>				
849.	<i>Gomphidae sp.</i>				
850.	<i>Goniaea sp. fc1470</i>				
851.	<i>Goniaea sp. fc1547</i>				
852.	<i>Goniaea sp. fc2019</i>				
853.	<i>Goniaea sp. fc233</i>				
854.	<i>Goniaea sp. fc235</i>				
855.	<i>Goniaea sp. fc272</i>				
856.	<i>Goniaea sp. fc3017</i>				y
857.	<i>Goniaea sp. fc304</i>				
858.	<i>Goniaea sp. fc871</i>				
859.	<i>Goniaea sp. fc872</i>				
860.	Goniaea vacans				
861.	<i>Goniaoidea sp. fc1261</i>				
862.	Gordiidae sp.				
863.	<i>Gripopterygidae sp.</i>				
864.	<i>Gymnometriocnemus sp. 1 (V44ottho sp. C & R)</i>				
865.	<i>Gymnometriocnemus sp. 2 (V45 spA&B ottho sp. O)</i>				
866.	<i>Gyrinidae sp.</i>				
867.	<i>Habronyx sp. fc3135</i>				y
868.	<i>Halipidae sp.</i>				
869.	<i>Halipus sp.</i>				
870.	<i>Harpacticoida sp</i>				
871.	<i>Harpechys chilo</i>				
872.	<i>Harpobittacus phaeoscius</i>				
873.	<i>Harpobittacus similis</i>				

Name	Species Name	Naturalised	Conservation Code	Endem! eTQuery
874.	<i>Harris/us</i> sp. A (SAP)			
875.	<i>Hebridae</i> sp.			
876.	<i>Heliomystis</i> sp. fc663			
877.	<i>Hel/yethira litua</i>			
878.	Hemicordulia tau			
879.	<i>Hemicordulidae</i> sp.			
880.	<i>Hesperocordulia betthoudi</i>			
881.	<i>Heteronyx</i> sp. fc1820			
882.	<i>Heteronyx</i> sp. fc28			
883.	<i>Heteronyx</i> sp. fc347			
884.	<i>Heteronyx</i> sp. fc363			
885.	<i>Heteronyx</i> sp. fc94			
886.	<i>Heteronyx</i> sp. fc951			
887.	Heurodes turritus			
888.	<i>Hierodu/a</i> sp. fc767			
889.	<i>Hoggicosa storri</i>			
890.	Hogna crispipes			
891.	Hogna immansueta			
892.	<i>Hyderodes</i> sp.			
893.	<i>Hydrachnidae</i> sp.			
894.	<i>Hydraena</i> sp.			
895.	<i>Hydraenidae</i> sp.			
896.	Hydrobiosidae sp.			
897.	<i>Hydrometridae</i> sp.			
898.	<i>Hydrophilidae</i> sp.			
899.	<i>Hydropsychidae</i> sp.			
900.	<i>Hydroptila</i> sp.			
901.	<i>Hydroptilidae</i> sp.			
902.	Hyocephalus auprugnus			
903.	<i>Hyphydrus e/egans</i>			
904.	<i>Hypobapta barnard/</i>			
905.	<i>Hypobapta</i> sp. fc955			
906.	<i>Hypograpta aristarcha</i>			
907.	<i>Hypsimetopodidae</i> sp.			
908.	<i>Hyriidae</i> sp.			
909.	<i>Insu/odrilus bitidus</i>			
910.	<i>Iphierga</i> sp. fc1454			
911.	Isopeda Jeishmanni			
912.	<i>Karaops jarrit</i>			
913.	<i>Kiefferulus mattin i</i>			
914.	Lagynochthonius australicus			
915.	<i>Lampona brevipes</i>			
916.	<i>Lanceles lanceolatus</i>			
917.	<i>Laxta</i> sp. fc119			
918.	<i>Laxta</i> sp. fc27			
919.	<i>Lepidoptera (non-pyralid)</i>			
920.	Leptoceridae sp.			
921.	<i>Leptoptera australica</i>			
922.	<i>Leptophlebiidae</i> sp.			
923.	Lestidae sp.			
924.	<i>Libellulidae</i> sp.			
925.	Limbodessus inornatus			
926.	Limbodessus shuckhardi			
927.	<i>Limnesiidae</i> sp.			
928.	Limnoxenus sp.			
929.	Limnoxenus zelandicus			
930.	Lissomma serpentaria			
931.	<i>Longepi woodman</i>			
932.	<i>Lopescladius?</i> V35 (=503 sp. D)			
933.	<i>Lymnaeidae</i> sp.			
934.	<i>Lyncestis melanoschista</i>			
935.	Lynceus sp.			
936.	<i>Macrogyrus angustatus</i>			
937.	<i>Maechidus</i> sp. fc1388			
938.	<i>Mandalotus</i> sp. fc2088			
939.	<i>Megapodagrionidae</i> sp.			
940.	<i>Megaporus howittii</i>			
941.	<i>Megaporus</i> sp.			
942.	<i>Melobasis</i> sp. fc701			
943.	<i>Mesamphisopodidae</i> sp.			

Name	Species Name	Naturalised	Conservation Code	Endem! eTQuery
944.	<i>Mesoveliidae</i> sp.			
945.	<i>Metistete</i> sp. fc1104			
946.	<i>Metistete</i> sp. fc340			
947.	<i>Metriolagria</i> sp. fc192			
948.	<i>Metriorrhynchus</i> sp. fc2000			
949.	<i>Metriorrhynchus</i> sp. fc99			
950.	<i>Miconecta gracilis</i>			
951.	<i>Miconecta robusta</i>			
952.	<i>Microvelia</i> sp.			
953.	<i>Missulena granulosa</i>			
954.	<i>Missulena hoggi</i>			
955.	<i>Mituliodon tarantulinus</i>			
956.	<i>Moerarchis clathrella</i>			
957.	Muscidae sp.			
958.	<i>Myrmecia ana/is</i>			
959.	<i>Myrmecia</i> sp. fc2046			
960.	<i>Myrmecia</i> sp. fc2223			
961.	<i>Myrmecia</i> sp. fc252			
962.	<i>Myrmecia</i> sp. fc281			
963.	<i>Myrmecia</i> sp. fc408			
964.	<i>Myrmecia</i> sp. fc487			
965.	<i>Myrmecia</i> sp. fc664			
966.	<i>Myrmecia</i> sp. fc998			
967.	<i>Myrmecia vindex</i>			
968.	<i>Naididae</i> sp.			
969.	<i>Nannophya occidentalis</i>			
970.	<i>Necterosoma darwini</i>			
971.	<i>Necterosoma regulare</i>			
972.	<i>Necterosoma</i> sp.			
973.	<i>Nematoda</i> sp.			
974.	<i>Neohyborrhynchus</i> sp. fc814			y
975.	Neoniphargidae sp.			
976.	<i>Neotemnopteryx</i> sp. fc120			
977.	<i>Neotemnopteryx</i> sp. fc591			
978.	<i>Nerthra</i> sp. fc1567			
979.	<i>Nerthra</i> sp. fc1611			
980.	<i>Nerthra</i> sp. fc2694			
981.	<i>Newmanoperla exigua</i>			
982.	<i>Nicodamus mainae</i>			
983.	<i>Nota/ina</i> nr. sp. AV14			
984.	<i>Nota/ina</i> sp.			
985.	<i>Notonectidae</i> sp.			
986.	<i>Notonomus</i> sp. fc746			
987.	<i>Nousia</i> sp. AV16			
988.	<i>Nunciella aspera</i>			
989.	<i>Nyctemera amica</i>			
990.	<i>Nyungara bunni</i>			
991.	<i>Ochrogaster</i> sp. fc10			
992.	<i>Ochrogaster</i> sp. fc2655			
993.	<i>Ochrogaster</i> sp. fc7			
994.	<i>Oecetis</i> sp.			
995.	<i>Oectosis</i> sp. fc711			
996.	<i>Oenochroma cerasiplaga</i>			
997.	<i>Oenochroma</i> sp. fc31			
998.	<i>Oenochroma vinaria</i>			
999.	<i>Oenosandra boisduvalii</i>			
1000.	<i>Offadens soror</i> (ex genus 1 WA sp. 1)			
1001.	<i>Oligochaeta</i> sp.			
1002.	<i>Olios diana</i>			
1003.	<i>Olios</i> sp. fc939			
1004.	<i>Ommatoiu/us moreletii</i>			
1005.	Oniscidae sp.			
1006.	<i>Oniscigastridae</i> sp.			
1007.	<i>Onosandrus</i> sp. fc526			
1008.	<i>Onthophagus ferox</i>			
1009.	<i>Onthophagus</i> sp. fc3218			
1010.	<i>Onychohydrus scutellaris</i>			
1011.	<i>Onychohydrus</i> sp.			
1012.	<i>Ophion</i> sp. fc87			
1013.	<i>Opisthopora</i> sp.			

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1014.	<i>Opodiphthera helena</i>			
1015.	Oratemnus curtus			
1016.	<i>Orthoc/adiinae 503 sp. A (SAP)</i>			
1017.	<i>Orthoc/adiinae sp.</i>			
1018.	<i>Orthoc/adiinae sp. P (SAP)</i>			
1019.	<i>Ostracoda (unident.)</i>			
1020.	<i>Oxidae sp.</i>			
1021.	<i>Oxyethira sp.</i>			
1022.	<i>Oxyops fasciata</i>			
1023.	<i>Oxyops pictipennis</i>			
1024.	<i>Oxyops sp. fc1278</i>			
1025.	<i>Pachycondyla sp. fc737</i>			
1026.	33988 <i>Pachysaga munggai (cricket)</i>			
1027.	<i>Pachysaga sp. fc688</i>			
1028.	<i>Palaemonidae sp.</i>			
1029.	<i>Pantydia sp. fc329</i>			
1030.	<i>Pantydia sp. fc388</i>			
1031.	<i>Pantydia sp. fc5</i>			
1032.	<i>Parac/adopelma M1 (SFM)</i>			
1033.	Paracymus pygmaeus			
1034.	<i>Parakiefferiella sp. 51</i>			
1035.	<i>Parakiefferiella variegatus</i>			
1036.	<i>Paralimnophyes pullulus (V42)</i>			
1037.	<i>Parameliadae sp.</i>			
1038.	Paramerina levidensis			
1039.	Paranisops sp.			y
1040.	<i>Parastacidae sp.</i>			
1041.	<i>Paropsis sp. fc667</i>			
1042.	<i>Paropsis sp. fc707</i>			y
1043.	<i>Paropsis sp. fc913</i>			
1044.	<i>Paropsisterna sp. fc1092</i>			
1045.	Paropsisterna sp. fc112			
1046.	<i>Paropsisterna sp. fc1540</i>			
1047.	<i>Paropsisterna sp. fc175</i>			
1048.	Paropsisterna sp. fc463			
1049.	<i>Paropsisterna sp. fc665</i>			
1050.	<i>Paropsisterna sp. fc677</i>			
1051.	<i>Paropsisterna sp. fc786</i>			
1052.	<i>Paroster sp.</i>			
1053.	<i>Pentaneurini genus V20</i>			
1054.	Peripyra sanguinipuncta			
1055.	Persectania ewingii			
1056.	<i>Perthiidae sp.</i>			
1057.	Phallaria ophiusaria			
1058.	<i>Phau/acridium sp. fc293</i>			
1059.	<i>Philophloeus eucalypti</i>			
1060.	<i>Philopotamidae sp.</i>			
1061.	<i>Pho/odes sp. fc384</i>			
1062.	<i>Phoracantha semipuncta</i>			y
1063.	Phreatoicidae sp.			
1064.	<i>Phreodrilidae sp.</i>			
1065.	<i>Phyllotocus ustulatus</i>			y
1066.	Planorbidae sp.			
1067.	<i>Platynectes sp.</i>			
1068.	<i>Platyzosteria sp. fc1474</i>			
1069.	<i>Platyzosteria sp. fc2015</i>			
1070.	<i>Platyzosteria sp. fc219</i>			
1071.	<i>Platyzosteria sp. fc254</i>			
1072.	<i>Platyzosteria sp. fc507</i>			
1073.	<i>Platyzosteria sp. fc706</i>			y
1074.	<i>Platyzosteria sp. fc899</i>			
1075.	<i>Podykipus leptoiuloides</i>			
1076.	<i>Poeci/asthena sp. fc2630</i>			
1077.	<i>Pollaninus cupreus</i>			
1078.	<i>Pollaninus sp. fc78</i>			
1079.	<i>Pol/tys /aciniosus</i>			
1080.	<i>Polypedilum nr. convexum (SAP)</i>			
1081.	<i>Polypedilum watsoni</i>			
1082.	<i>Polyphrades aesa/on</i>			
1083.	<i>Polyzosteria mitchelli</i>			

Name	Species Name	Naturalised	Conservation Code	Endem! eQuery
1084.	<i>Polyzosteria</i> sp. fc592			
1085.	<i>Pore/asp.</i> fc749			
1086.	<i>Prasinocyma</i> sp. fc393			
1087.	<i>Prionopelta</i> sp. fc542			
1088.	<i>Procladius paludicola</i>			
1089.	<i>Procladius</i> sp.			
1090.	<i>Procordulia affinis</i>			
1091.	<i>Promecoderus</i> sp. fc253			
1092.	<i>Proteuxoa pissonephra</i>			
1093.	<i>Proteuxoa</i> sp. fc2752			
1094.	<i>Pseudoceneus</i> sp. fc528			
1095.	<i>Ptomaphila /acrymosa</i>			
1096.	<i>Raveniella peckorum</i>			
1097.	<i>Rebilus</i> sp. fc1427			
1098.	<i>Rebilus</i> sp. fc938			
1099.	<i>Rhadinosomus /acordaire</i>			
1100.	<i>Rhantus suturalis</i>			
1101.	<i>Rheotanytarsus</i> sp. (SFM)			
1102.	<i>Rheotanytarsus undetwoodi</i>			
1103.	<i>Rhinaria</i> sp. fc209			
1104.	<i>Rhinotia</i> sp. fc168			
1105.	<i>Rhytidoponera</i> sp. fc543			
1106.	<i>Richardsonianidae</i> sp.			
1107.	<i>Riekoperla occidentalis</i>			
1108.	<i>Riethia v4</i>			
1109.	<i>Sandava scitissima</i>			
1110.	<i>Sce/eocantha</i> sp. fc1082			
1111.	Scittidae sp. <i>Scutigera</i>			
1112.	<i>indecisa</i> <i>Semanopterus</i>			
1113.	sp. fc1021			
1114.	<i>Semanopterus</i> sp. fc824			
1115.	<i>Sigara mullaka</i>			
1116.	<i>Sigara</i> sp.			
1117.	<i>Simuliidae</i> sp.			
1118.	<i>Skusella /V12 ex-WA" (Cranston)</i>			
1119.	<i>Smicrophylax australis</i>			
1120.	<i>Sorama bicolor</i>			
1121.	<i>Sphaeriidae</i> sp.			
1122.	<i>Spilosoma</i> sp. fc445			
1123.	<i>Staphylinidae</i> sp.			
1124.	<i>Stenoderus suturalis</i>			
1125.	<i>Sternopriscus browni</i>			
1126.	<i>Sternopriscus marginatus</i>			
1127.	<i>Sternopriscus</i> sp.			
1128.	<i>Stibaroma melanotoxa</i>			
1129.	<i>Storena</i> sp. fc468			
1130.	<i>Styloniscidae</i> sp.			
1131.	<i>Synthemistidae</i> sp.			
1132.	<i>Tabanidae</i> sp.			
1133.	<i>Talaurinus roei</i>			
1134.	<i>Ta/aurinus</i> sp. fc817			
1135.	<i>Talitridae</i> sp.			
1136.	<i>Tamopsis occidentalis</i>			
1137.	<i>Tanychilus</i> sp. fc348			
1138.	<i>Tanypodinae</i> sp.			
1139.	<i>Tanytarsus aff edwardi</i>			
1140.	<i>Tanytarsus aff manleyensis</i>			
1141.	<i>Tanytarsus b1</i>			
1142.	<i>Tanytarsus barbatarsis</i>			
1143.	<i>Tanytarsus fuscithorax/semibarbitarsus</i>			
1144.	<i>Tanytarsus nr K5</i>			
1145.	<i>Tanytarsus palmatus</i>			
1146.	<i>Taschorema pallescens</i>			
1147.	<i>Tasmanicosa /euckartii</i>			
1148.	<i>Tasmanocoenis th/yardi</i>			
1149.	<i>Teia athlophora</i>			
1150.	<i>Telephlebiidae</i> sp.			
1151.	<i>Temnocephalidea</i> sp.			
1152.	<i>Thalaina clara</i>			
1153.	<i>Thalamarchella alveo/a</i>			

Name	Species Name	Naturalised	Conservation Code	Endem!	eQuery
1154.	<i>Theridion mortuale</i>				y
1155.	<i>Thiaridae</i> sp.				
1156.	<i>Thienemanniella</i> sp. (V19) (SAP)				
1157.	<i>Tipulidae</i> sp.				
1158.	<i>Trachycosmus sculptilis</i>				
1159.	Tranes vigorsii				
1160.	<i>Trichomma</i> sp. fc3025				y
1161.	<i>Triplectides australis</i>				
1162.	<i>Triplectides</i> sp. AV21 (SFM)				
1163.	<i>Trissodon</i> sp. fc1562				
1164.	<i>Uraba lugens</i>				
1165.	<i>Uresiphita ornithopteralis</i>				
1166.	<i>Urodacus novaehollandiae</i>				
1167.	<i>Utetheisa pulchelloides</i>				
1168.	Vanessa kershawi				
1169.	<i>Veliidae</i> sp				
1170.	Venator immansueta				
1171.	<i>Venatrix pullastra</i>				
1172.	34113 <i>Westralunio carteri</i> (Carter's Freshwater Mussel)		T		
1173.	<i>Xanthorhoe</i> sp. fc42				
1174.	<i>Xanthorhoe</i> sp. fc455				
1175.	<i>Zephyrchæa janineae</i> the				
1176.	dart sp. fc322 unidentifiable				
1177.	unidentifiable				

Mammal

1178.	25449 <i>Antechinus flavipes</i> (Yellow-footed Antechinus)				
1179.	24088 <i>Antechinus flavipes</i> subsp. <i>leucogaster</i> (Yellow-footed Antechinus, Mardo)				
1180.	24161 <i>Bettongia lesueur</i> subsp. <i>graii</i> (Boodie (inland), Burrowing Bettong (inland))		X		
1181.	24162 <i>Bettongia penicillata</i> subsp. <i>ogilbyi</i> (Woylie, Brush-tailed Belfong)		T		
1182.	30883 <i>Canis lupus</i> subsp. <i>familiaris</i> (Dog)	y			
1183.	24086 <i>Cercartetus concinnus</i> (Western Pygmy-possum, Mundarda)				
1184.	24186 <i>Chalinolobus gouldii</i> (Gould's Waffled Bat)				
1185.	24187 <i>Chalinolobus mario</i> (Chocolate Waffled Bat)				
1186.	24092 <i>Dasyurus geoffroyi</i> (Chuditch, Western Quo//)		T		
1187.	24189 <i>Falsistrellus mackenziei</i> (Western False Pipistrelle, Western Falsistrelle)		P4		
1188.	24041 <i>Felis catus</i> (Cat)	y			
1189.	24215 <i>Hydromys chrysogaster</i> (water-rat, Rakali)		P4		
1190.	48588 <i>Isodon fusciventer</i> (Quenda, southwestern brown bandicoot)		P4		
1191.	24132 <i>Macropus fuliginosus</i> (Western Grey Kangaroo)				
1192.	24168 <i>Macrotis lagotis</i> (Bilby, Dalgyte, Ninu)		T		
1193.	24223 <i>Mus musculus</i> (House Mouse)	y			
1194.	24042 <i>Mustela putorius</i> (European Polecat, Ferret)	y			
1195.	24146 <i>Myrmecobius fasciatus</i> (Numbat, Walpurti)		T		
1196.	48024 <i>Notamacropus eugenii</i> subsp. <i>derbianus</i> (Tammar Wallaby, Tammar)		P4		
1197.	48022 <i>Notamacropus irma</i> (Western Brush Wallaby)		P4		
1198.	24194 <i>Nyctophilus geoffroyi</i> (Lesser Long-eared Bat)				
1199.	24195 <i>Nyctophilus gouldi</i> (Gould's Long-eared Bat)				
1200.	24085 <i>Oryctolagus cuniculus</i> (Rabbit)	y			
1201.	34016 <i>Ovis aries</i> (Sheep)				
1202.	25508 <i>Phascogale tapoatafa</i> (Brush-tailed Phascogale)		S		
1203.	48070 <i>Phascogale tapoatafa</i> subsp. <i>wambenger</i> (South-western Brush-tailed Phascogale, wambenger)		S		
1204.	24166 <i>Pseudocheirus occidentalis</i> (Western Ringtail Possum, ngwayir)		T		
1205.	24243 <i>Raffus fuscipes</i> (Western Bush Rat)				
1206.	24245 <i>Raffus rattus</i> (Black Rat)	y			
1207.	24145 <i>Setonix brachyurus</i> (Quokka)		T		
1208.	24111 <i>Sminthopsis gilberti</i> (Gilberts Dunnart)				
1209.	25515 <i>Sminthopsis griseoventer</i> (Grey-bellied Dunnart)				
1210.	Sminthopsis murina				
1211.	24259 <i>Sus scrota</i> (Pig)	y			
1212.	24207 <i>Tachyglossus aculeatus</i> (Short-beaked Echidna)				
1213.	25521 <i>Trichosurus vulpecula</i> (Common Brushtail Possum)				
1214.	24158 <i>Trichosurus vulpecula</i> subsp. <i>vulpecula</i> (Common Brushtail Possum)				
1215.	24206 <i>Vespadelus regulus</i> (Southern Forest Bat)				
1216.	24040 <i>Vulpes vulpes</i> (Red Fox)	y			

Reptile

1217.	42368 <i>Acritoscincus trilineatus</i> (Western Three-lined Skink)				
1218.	24990 <i>Aprasia pulchella</i> (Granite Worm-lizard)				
1219.	24991 <i>Aprasia repens</i> (Sand-plain Worm-lizard)				

Name	10	Species Name	Naturalised	Conservation Code	1	Endem!	eQuery
1220.	24980	<i>Christinus marmoratus</i> (Marbled Gecko)					
1221.	30893	<i>Cryptoblepharus buechananii</i>					
1222.	25035	<i>Ctenotus delli</i> (Dell's skink, Darling Range southwest Ctenotus)			P4		
1223.	25047	<i>Ctenotus impar</i>					
1224.	25049	<i>Ctenotus labillardieri</i>					
1225.	41403	<i>Diplodactylus calcicolus</i> (South Coast Gecko)					
1226.	44654	<i>Diplodactylus lateroides</i> (Speckled Stone Gecko)					
1227.	24939	<i>Diplodactylus polyophthalmus</i>					
1228.	25100	<i>Egernia napoleonis</i>					
1229.	30919	<i>Hemiergis gracilipes</i> (skink)					
1230.	25115	<i>Hemiergis initialis</i> subsp. <i>initialis</i>					
1231.	25475	<i>Hemiergis peronii</i>					
1232.	25118	<i>Hemiergis peronii</i> subsp. <i>tridactyla</i>					
1233.	25131	<i>Lerista distinguenda</i>					
1234.	25154	<i>Lerista microtis</i> subsp. <i>microtis</i>					
1235.	41416	<i>Liopholis pulchra</i> subsp. <i>pulchra</i> (South-western Rock Skink, Spectacled Rock Skink)					
1236.	25184	<i>Menetia greyii</i>					
1237.	25494	<i>Morelia spilota</i> (Carpet Python)					
1238.	25240	<i>Morelia spilota</i> subsp. <i>imbricata</i> (Carpet Python)					
1239.	25191	<i>Morethia lineocellata</i>					
1240.	25192	<i>Morethia obscura</i>					
1241.	25252	<i>Notechis scutatus</i> (Tiger Snake)					
1242.	25253	<i>Parasuta gouldii</i>					
1243.	25255	<i>Parasuta nigriceps</i>					
1244.	24907	<i>Pogona minor</i> subsp. <i>minor</i> (Dwarf Bearded Dragon)					
1245.	25511	<i>Pseudonaja affinis</i> (Dugite)					
1246.	25259	<i>Pseudonaja affinis</i> subsp. <i>affinis</i> (Dugite)					
1247.	42416	<i>Pseudonaja mengdeni</i> (Western Brown Snake)					
1248.	25266	<i>Simoselaps bertholdi</i> (Jan's Banded Snake)					
1249.	25519	<i>Tiliqua rugosa</i>					
1250.	25207	<i>Tiliqua rugosa</i> subsp. <i>rugosa</i>					
1251.	24983	<i>Undetwoodisaurus milii</i> (Barking Gecko)					
1252.	25218	<i>Varanus gouldii</i> (Bungarra or Sand Monitor)					
1253.	25225	<i>Varanus rosenbergi</i> (Heath 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

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



EPBC Act Protected Matters Report

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

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

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

Report created: 09/01/19 13:59:36

[Summary](#)

[Details](#)

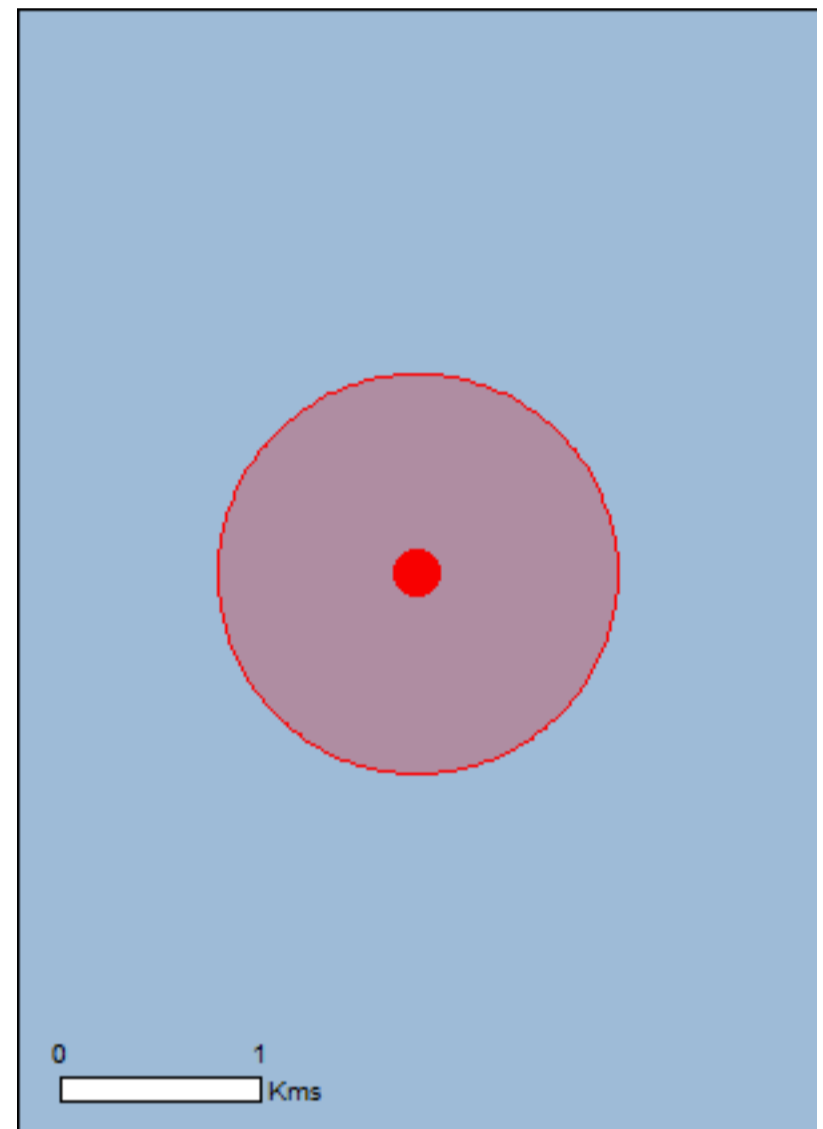
[Matters of NES](#)

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

[Extra Information](#)

[Caveat](#)

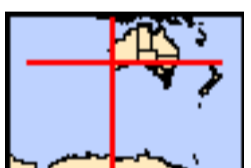
[Acknowledgements](#)



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[Coordinates](#)

[Buffer: 1.0Km](#)



Summary

Matters of National Environmental Significance

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

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Importance:	None
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	None
Listed Threatened Species:	13
Listed Migratory Species:	8

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.

Commonwealth Land:	None
Commonwealth Heritage Places:	None
Listed Marine Species:	12
Whales and Other Cetaceans:	None
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Australian Marine Parks:	None

Extra Information

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

State and Territory Reserves:	1
Regional Forest Agreements:	1
Invasive Species:	17
Nationally Important Wetlands:	None
Key Ecological Features (Marine)	None

Details

Matters of National Environmental Significance

Listed Threatened Species		[Resource Information]
Name	Status	Type of Presence
Birds		
Botaurus poiciloptilus Australasian Bittern [1001]	Endangered	Species or species habitat may occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
Calyptorhynchus banksii naso Forest Red-tailed Black-Cockatoo, Karrak [67034]	Vulnerable	Species or species habitat likely to occur within area
Calyptorhynchus baudinii Baudin's Cockatoo, Long-billed Black-Cockatoo [769]	Endangered	Breeding likely to occur within area
Calyptorhynchus latirostris Carnaby's Cockatoo, Short-billed Black-Cockatoo [59523]	Endangered	Breeding likely to occur within area
Leipoa ocellata Malleefowl [934]	Vulnerable	Species or species habitat may occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area
Fish		
Nannatherina balstoni Balston's Pygmy Perch [66698]	Vulnerable	Species or species habitat likely to occur within area
Mammals		
Dasyurus geoffroii Chuditch, Western Quoll [330]	Vulnerable	Species or species habitat likely to occur within area
Pseudocheirus occidentalis Western Ringtail Possum, Ngwayir, Womp, Woder, Ngoor, Ngoolangit [25911]	Critically Endangered	Species or species habitat may occur within area
Setonix brachyurus Quokka [229]	Vulnerable	Species or species habitat may occur within area
Other		
Westralunio carteri Carter's Freshwater Mussel, Freshwater Mussel [86266]	Vulnerable	Species or species habitat known to occur within area
Plants		

Name	Status	Type of Presence
Diuris micrantha Dwarf Bee-orchid [55082]	Vulnerable	Species or species habitat known to occur within area

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

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

Name	Threatened	Type of Presence
Migratory Marine Birds		
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area

Migratory Terrestrial Species

Motacilla cinerea Grey Wagtail [642]		Species or species habitat may occur within area
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Migratory Wetlands Species

Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat may occur within area
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Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat may occur within area
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Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
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Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area
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Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area
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Pandion haliaetus Osprey [952]		Species or species habitat may occur within area
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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		
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat may occur within area
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Ardea alba Great Egret, White Egret [59541]		Species or species habitat likely to occur within area
Ardea ibis Cattle Egret [59542]		Species or species habitat may occur within area

Name	Threatened	Type of Presence
Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat may occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat may occur within area
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area
Motacilla cinerea Grey Wagtail [642]		Species or species habitat may occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area
Pandion haliaetus Osprey [952]		Species or species habitat may occur within area

Extra Information

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

Regional Forest Agreements	[Resource Information]
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Note that all areas with completed RFAs have been included.

Name	State
South West WA RFA	Western Australia

Invasive Species	[Resource Information]
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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		
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

Name	Status	Type of Presence
Streptopelia senegalensis		habitat likely to occur within area
Laughing Turtle-dove, Laughing Dove [781]		Species or species habitat likely to occur within area
Mammals		
Canis lupus familiaris		Species or species habitat likely to occur within area
Domestic Dog [82654]		
Felis catus		Species or species habitat likely to occur within area
Cat, House Cat, Domestic Cat [19]		
Feral deer		Species or species habitat likely to occur within area
Feral deer species in Australia [85733]		
Mus musculus		Species or species habitat likely to occur within area
House Mouse [120]		
Oryctolagus cuniculus		Species or species habitat likely to occur within area
Rabbit, European Rabbit [128]		
Rattus rattus		Species or species habitat likely to occur within area
Black Rat, Ship Rat [84]		
Sus scrofa		Species or species habitat likely to occur within area
Pig [6]		
Vulpes vulpes		Species or species habitat likely to occur within area
Red Fox, Fox [18]		
Plants		
Asparagus asparagoides		Species or species habitat likely to occur within area
Bridal Creeper, Bridal Veil Creeper, Smilax, Florist's Smilax, Smilax Asparagus [22473]		
Cytisus scoparius		Species or species habitat likely to occur within area
Broom, English Broom, Scotch Broom, Common Broom, Scottish Broom, Spanish Broom [5934]		
Genista sp. X Genista monspessulana		Species or species habitat may occur within area
Broom [67538]		
Pinus radiata		Species or species habitat may occur within area
Radiata Pine Monterey Pine, Insignis Pine, Wilding Pine [20780]		
Rubus fruticosus aggregate		Species or species habitat likely to occur within area
Blackberry, European Blackberry [68406]		

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

-33.37673 116.13825

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. Habitat Tree Details.

Habitat Trees

DBH >50cm

Datum - GDA94

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

Waypoint Number	Zone	mE	mN	Tree Species	Tree Height (m)	DBH (cm)	No. Hollows	Estimated Hollow Entrance Size	Occupancy	Chew Marks	Potential Cockatoo Nest Hollow	Comments
wpt001	50H	418862	6306385	Jarrah	15-20	>50	2+	Small, Medium & Large (Cockatoo)	No Signs	No Signs	Yes	Internal dimensions of hollows unknown
wpt002	50H	418979	6306385	Marri	15-20	>50	1	Large (Cockatoo)	No Signs	Cockatoos?	Yes	Internal dimensions of hollows unknown
wpt003	50H	419258	6306571	Jarrah	15-20	>50	2+	Small, Medium & Large (Cockatoo)	No Signs	No Signs	Yes	Internal dimensions of hollows unknown
wpt004	50H	419518	6306484	Jarrah	20+	>50	2+	Small, Medium & Large (Cockatoo)	No Signs	No Signs	Yes	Internal dimensions of hollows unknown
wpt005	50H	419700	6306409	Jarrah	20+	>50	2+	Small, Medium & Large (Cockatoo)	No Signs	No Signs	Yes	Internal dimensions of hollows unknown
wpt006	50H	419721	6306445	Jarrah	20+	>50	2+	Small, Medium & Large (Cockatoo)	No Signs	No Signs	Yes	Internal dimensions of hollows unknown
wpt007	50H	419886	6306626	Jarrah	15-20	>50	2+	Medium & Large (Cockatoo)	No Signs	No Signs	Yes	Internal dimensions of hollows unknown
wpt008	50H	420250	6306308	Jarrah	15-20	>50	2+	Small, Medium & Large (Cockatoo)	No Signs	No Signs	Yes	Internal dimensions of hollows unknown
wpt009	50H	420337	6306264	Dead Jarrah	5-10	>50	2+	Large (Cockatoo)	No Signs	No Signs	Yes	Internal dimensions of hollows unknown
wpt010	50H	420754	6306683	Marri	15-20	>50	1	Large (Cockatoo)	No Signs	No Signs	Yes	Internal dimensions of hollows unknown
wpt011	50H	420589	6306654	Jarrah	15-20	>50	2+	Small, Medium & Large (Cockatoo)	No Signs	No Signs	Yes	Internal dimensions of hollows unknown
wpt012	50H	420732	6306637	Dead Jarrah	15-20	>50	1	Large (Cockatoo)	No Signs	No Signs	Yes	Large spout - internal dimensions unknown
wpt013	50H	420673	6306263	Dead Jarrah	5-10	>50	1	Large (Cockatoo)	No Signs	No Signs	Yes	Large spout - internal dimensions unknown

APPENDIX E. Camera Trap Results.

Minninup Pools Camera Trap Results

Camera Number	Date	Common Name	Species	Number
GH 18	22/09/2018	Western Grey Kangaroo	<i>Macropus fuliginosus</i>	1
GH 18	23/09/2018	Western Grey Kangaroo	<i>Macropus fuliginosus</i>	2
GH 18	25/09/2018	Red Fox	<i>Vulpes vulpes</i>	1
GH 18	28/09/2018	Western Grey Kangaroo	<i>Macropus fuliginosus</i>	2
GH 18	29/09/2018	Western Grey Kangaroo	<i>Macropus fuliginosus</i>	1
GH 18	30/09/2018	Western Grey Kangaroo	<i>Macropus fuliginosus</i>	1
GH 18	09/10/2018	Western Grey Kangaroo	<i>Macropus fuliginosus</i>	1
GH 18	11/10/2018	Western Grey Kangaroo	<i>Macropus fuliginosus</i>	1
GH 18	13/10/2018	Western Grey Kangaroo	<i>Macropus fuliginosus</i>	3
GH 18	14/10/2018	Western Grey Kangaroo	<i>Macropus fuliginosus</i>	1
GH 18	15/10/2018	Dog	<i>Canis lupus</i>	1
GH 18	23/10/2018	Western Grey Kangaroo	<i>Macropus fuliginosus</i>	1
GH 18	24/10/2018	Western Grey Kangaroo	<i>Macropus fuliginosus</i>	1
GH 26	21/09/2018	Black Rat	<i>Rattus rattus</i>	1
GH 26	22/09/2018	Mallard	<i>Anas platyrhynchos</i>	3
GH 26	23/09/2018	Common Bronzewing	<i>Phaps chalcoptera</i>	1
GH 26	24/09/2018	Mallard	<i>Anas platyrhynchos</i>	4
GH 26	24/09/2018	Red Fox	<i>Vulpes vulpes</i>	1
GH 26	25/09/2018	Grey Fantail	<i>Rhipidura fuliginosa</i>	1
GH 26	28/09/2018	Black Rat	<i>Rattus rattus</i>	1
GH 26	05/10/2018	Common Bronzewing	<i>Phaps chalcoptera</i>	1
GH 26	07/10/2018	Common Bronzewing	<i>Phaps chalcoptera</i>	1
GH 26	08/10/2018	Black Rat	<i>Rattus rattus</i>	1
GH 26	08/10/2018	Common Bronzewing	<i>Phaps chalcoptera</i>	1
GH 26	08/10/2018	Red-winged Fairy-wren	<i>Malurus elegans</i>	1
GH 26	09/10/2018	Australian Wood Duck	<i>Chenonetta jubata</i>	1
GH 26	09/10/2018	Common Bronzewing	<i>Phaps chalcoptera</i>	1
GH 26	17/10/2018	Australian Wood Duck	<i>Chenonetta jubata</i>	1
GH 26	17/10/2018	Common Bronzewing	<i>Phaps chalcoptera</i>	1
GH 26	18/10/2018	Black Rat	<i>Rattus rattus</i>	1
GH 26	18/10/2018	Common Bronzewing	<i>Phaps chalcoptera</i>	1
GH 26	19/10/2018	Common Bronzewing	<i>Phaps chalcoptera</i>	1
GH 26	20/10/2018	Black Rat	<i>Rattus rattus</i>	1
GH 26	20/10/2018	Common Bronzewing	<i>Phaps chalcoptera</i>	1
GH 26	21/10/2018	Common Bronzewing	<i>Phaps chalcoptera</i>	1
GH 26	22/10/2018	Australian Wood Duck	<i>Chenonetta jubata</i>	3
GH 26	23/10/2018	Common Bronzewing	<i>Phaps chalcoptera</i>	2
GH 26	23/10/2018	Rabbit	<i>Oryctolagus cuniculus</i>	1
GH 26	24/10/2018	Common Bronzewing	<i>Phaps chalcoptera</i>	2
GH 26	26/10/2018	Black Rat	<i>Rattus rattus</i>	1
GH 31	25/09/2018	Western Grey Kangaroo	<i>Macropus fuliginosus</i>	1
GH 31	26/09/2018	Red Fox	<i>Vulpes vulpes</i>	1
GH 31	02/10/2018	Echidna	<i>Tachyglossus aculeatus</i>	1
GH 31	03/10/2018	Red Fox	<i>Vulpes vulpes</i>	1
GH 31	06/10/2018	Western Grey Kangaroo	<i>Macropus fuliginosus</i>	1
GH 31	08/10/2018	Australian Magpie	<i>Cracticus tibicen</i>	1

Camera Number	Date	Common Name	Species	Number
GH 31	08/10/2018	Red Fox	<i>Vulpes vulpes</i>	1
GH 31	09/10/2018	Rabbit	<i>Oryctolagus cuniculus</i>	1
GH 31	12/10/2018	Western Grey Kangaroo	<i>Macropus fuliginosus</i>	1
GH 31	14/10/2018	Western Grey Kangaroo	<i>Macropus fuliginosus</i>	1
GH 31	15/10/2018	Western Grey Kangaroo	<i>Macropus fuliginosus</i>	1
GH 31	16/10/2018	Common Bronzewing	<i>Phaps chalcoptera</i>	1
GH 31	22/10/2018	Western Grey Kangaroo	<i>Macropus fuliginosus</i>	1
GH 31	23/10/2018	Western Grey Kangaroo	<i>Macropus fuliginosus</i>	1
GH 31	24/10/2018	Common Bronzewing	<i>Phaps chalcoptera</i>	1
GH 31	24/10/2018	Western Grey Kangaroo	<i>Macropus fuliginosus</i>	1
GH 33	02/10/2018	Western Grey Kangaroo	<i>Macropus fuliginosus</i>	1
GH 33	09/10/2018	Red Fox	<i>Vulpes vulpes</i>	1
GH 33	21/10/2018	Australian Raven	<i>Corvus coronoides</i>	1
GH 33	23/10/2018	Western Brush Wallaby	<i>Notamacropus irma</i>	2
GH 34	21/09/2018	Rabbit	<i>Oryctolagus cuniculus</i>	1
GH 34	24/09/2018	Rabbit	<i>Oryctolagus cuniculus</i>	1
GH 34	25/09/2018	Rabbit	<i>Oryctolagus cuniculus</i>	1
GH 34	26/09/2018	Rabbit	<i>Oryctolagus cuniculus</i>	1
GH 34	05/10/2018	Rabbit	<i>Oryctolagus cuniculus</i>	1
GH 34	06/10/2018	Rabbit	<i>Oryctolagus cuniculus</i>	1
GH 34	07/10/2018	Echidna	<i>Tachyglossus aculeatus</i>	1
GH 34	08/10/2018	Rabbit	<i>Oryctolagus cuniculus</i>	1
GH 34	10/10/2018	Rabbit	<i>Oryctolagus cuniculus</i>	1
GH 34	16/10/2018	Rabbit	<i>Oryctolagus cuniculus</i>	1
GH 34	17/10/2018	Bobtail	<i>Tiliqua rugosa</i>	1
GH 34	24/10/2018	Rabbit	<i>Oryctolagus cuniculus</i>	1
GH 34	26/10/2018	Western Grey Kangaroo	<i>Macropus fuliginosus</i>	1
GH 35	24/09/2018	Western Grey Kangaroo	<i>Macropus fuliginosus</i>	1
GH 35	26/09/2018	Western Grey Kangaroo	<i>Macropus fuliginosus</i>	1
GH 35	30/09/2018	Western Grey Kangaroo	<i>Macropus fuliginosus</i>	3
GH 35	02/10/2018	Western Grey Kangaroo	<i>Macropus fuliginosus</i>	1
GH 35	03/10/2018	Western Grey Kangaroo	<i>Macropus fuliginosus</i>	2
GH 35	20/10/2018	Red Fox	<i>Vulpes vulpes</i>	1
GH 38	24/09/2018	Western Brush Wallaby	<i>Notamacropus irma</i>	1
GH 38	29/09/2018	Silvereye	<i>Zosterops lateralis</i>	1
GH 38	04/10/2018	Western Thornbill	<i>Acanthiza inornata</i>	1
GH 39	22/09/2018	Pacific Black Duck	<i>Anas superciliosa</i>	2
GH 39	23/09/2018	Pacific Black Duck	<i>Anas superciliosa</i>	2
GH 39	24/09/2018	Pacific Black Duck	<i>Anas superciliosa</i>	1
GH 39	24/09/2018	Purple Swamphen	<i>Porphyrio porphyrio</i>	1
GH 39	24/09/2018	Western Grey Kangaroo	<i>Macropus fuliginosus</i>	1
GH 39	25/09/2018	Pacific Black Duck	<i>Anas superciliosa</i>	1
GH 39	26/09/2018	Pacific Black Duck	<i>Anas superciliosa</i>	2
GH 39	26/09/2018	Purple Swamphen	<i>Porphyrio porphyrio</i>	1
GH 39	27/09/2018	Mallard	<i>Anas platyrhynchos</i>	2
GH 39	27/09/2018	Pacific Black Duck	<i>Anas superciliosa</i>	2
GH 39	28/09/2018	Western Grey Kangaroo	<i>Macropus fuliginosus</i>	1
GH 39	29/09/2018	Black Rat	<i>Rattus rattus</i>	1

Camera Number	Date	Common Name	Species	Number
GH 39	30/09/2018	Australian Ringneck	<i>Platycercus zonarius</i>	1
GH 39	01/10/2018	Pacific Black Duck	<i>Anas superciliosa</i>	2
GH 39	03/10/2018	Common Bronzewing	<i>Phaps chalcoptera</i>	1
GH 39	05/10/2018	Common Bronzewing	<i>Phaps chalcoptera</i>	1
GH 39	06/10/2018	Dog	<i>Canis lupus</i>	1
GH 39	06/10/2018	Mallard	<i>Anas platyrhynchos</i>	2
GH 39	06/10/2018	Western Rosella	<i>Platycercus icterotis</i>	1
GH 39	07/10/2018	Black Rat	<i>Rattus rattus</i>	1
GH 39	08/10/2018	Pacific Black Duck	<i>Anas superciliosa</i>	1
GH 39	09/10/2018	Dog	<i>Canis lupus</i>	1
GH 39	09/10/2018	Pacific Black Duck	<i>Anas superciliosa</i>	1
GH 39	09/10/2018	Pacific Black Duck	<i>Anas superciliosa</i>	2
GH 39	10/10/2018	Common Brushtail Possum	<i>Trichosurus vulpecula</i>	1
GH 39	11/10/2018	Australian Ringneck	<i>Platycercus zonarius</i>	1
GH 39	12/10/2018	Purple Swamphen	<i>Porphyrio porphyrio</i>	1
GH 39	13/10/2018	Pacific Black Duck	<i>Anas superciliosa</i>	1
GH 39	17/10/2018	Pacific Black Duck	<i>Anas superciliosa</i>	1
GH 39	17/10/2018	Splendid Fairy-wren	<i>Malurus splendens</i>	1
GH 39	22/10/2018	Common Bronzewing	<i>Phaps chalcoptera</i>	2
GH 39	22/10/2018	Purple Swamphen	<i>Porphyrio porphyrio</i>	1
GH 39	23/10/2018	Dog	<i>Canis lupus</i>	1
GH 39	23/10/2018	Purple Swamphen	<i>Porphyrio porphyrio</i>	1
GH 39	24/10/2018	Australian Ringneck	<i>Platycercus zonarius</i>	1
GH 39	24/10/2018	Common Bronzewing	<i>Phaps chalcoptera</i>	1
GH 39	25/10/2018	Common Bronzewing	<i>Phaps chalcoptera</i>	1
GH 47	22/09/2018	Common Bronzewing	<i>Phaps chalcoptera</i>	1
GH 47	23/09/2018	Common Bronzewing	<i>Phaps chalcoptera</i>	2
GH 47	25/09/2018	Australian Raven	<i>Corvus coronoides</i>	1
GH 47	25/09/2018	Common Bronzewing	<i>Phaps chalcoptera</i>	1
GH 47	26/09/2018	Common Bronzewing	<i>Phaps chalcoptera</i>	1
GH 47	27/09/2018	Black Rat	<i>Rattus rattus</i>	1
GH 47	28/09/2018	Red Fox	<i>Vulpes vulpes</i>	1
GH 47	02/10/2018	Common Bronzewing	<i>Phaps chalcoptera</i>	1
GH 47	03/10/2018	Common Bronzewing	<i>Phaps chalcoptera</i>	1
GH 47	04/10/2018	Common Bronzewing	<i>Phaps chalcoptera</i>	1
GH 47	06/10/2018	Common Bronzewing	<i>Phaps chalcoptera</i>	1
GH 47	07/10/2018	White-faced Heron	<i>Ardea novaehollandiae</i>	1
GH 47	08/10/2018	Black Rat	<i>Rattus rattus</i>	1
GH 47	09/10/2018	Black Rat	<i>Rattus rattus</i>	1
GH 47	09/10/2018	Common Bronzewing	<i>Phaps chalcoptera</i>	1
GH 47	18/10/2018	Echidna	<i>Tachyglossus aculeatus</i>	1
GH 47	20/10/2018	Common Bronzewing	<i>Phaps chalcoptera</i>	1