Fauna Assessment

Turner Caravan Park

Augusta

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Version 1

On behalf of:
The Chief Executive Officer
Shire of Augusta Margaret River
PO Box 61
Margaret River WA 6285

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

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Acronyms/Abbreviations:

ALA: Atlas of Living Australia – Website - www.ala.org.au/

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

BC Bill: *Biodiversity Conservation Bill (2015)*. WA Government.

BoM: Bureau of Meteorology, Australian Government.

°C: Degrees Celsius.

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

CAMBA: China Australia Migratory Bird Agreement 1998.

CBD: Central Business District.

DAA: Department of Aboriginal Affairs, Western Australia.

DAFWA: Department of Agriculture and Food, Western Australia.

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

DBH: Diametre at breast height (~1.5m) of a tree.

DEC: Department of Environment and Conservation (now DPaW and DER), WA Government.

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

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

DER: Department of Environment Regulation (formerly DEC, DoE), WA Government.

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

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

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

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

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

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

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

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

DPaW: Department of Parks and Wildlife (formerly DEC, CALM, DoE), WA Government.

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

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

EPA: Environmental Protection Authority, WA Government.

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

GIS: Geographical Information System.

ha: Hectare (10,000 square metres).

IBRA: Interim Biogeographic Regionalisation for Australia.

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

JAMBA: Japan Australia Migratory Bird Agreement 1981.

kms: Kilometres.

MNES: Matters of National Environmental Significance.

MRWA: Main Roads Western Australia, WA Government

m: Metre.

mm: Millimetre.

P: Priority - DPaW fauna conservation ranking.

POS: Public Open Space.

RAOU: Royal Australia Ornithologist Union.

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

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

SEWPaC: Department of Sustainability, Environment, Water, Population and Communities (now DotEE, formerly DEH, DEWHA), Australian Government

SRE: Short Range Endemic.

SSC: Species Survival Commission, International.

WA: Western Australia.

WAM: Western Australian Museum, WA Government.

WRP: Western Ringtail Possum.

SUMMARY

This report details the results of a "fauna survey" of the Turner Caravan Park (and some adjoining reserves) carried out on behalf of the Shire of Augusta Margaret River (The Shire). The area assessed has included the entire Turner Caravan Park area (the Park) (Lots 35 and 858) and adjacent reserves and public land bounded by Osnaburg Street, Allnut Terrace and Hardy Street (R9658, R4376, R39910, R19230, VCL) and vegetation bordering Blackwood Avenue and Albany Terrace, in total referred to as the Subject Site The subject site totals about 21.5 hectares (Figure 1 and 2).

The primary aim of the fauna assessment was to identify any likely constraints (with an emphasis on the presence and habitat of the western ringtail possum and black cockatoos) on proposed development initiatives already identified within the Park including the following:

- additional foreshore camping sites as per the 2017 site layout plan;
- new chalets as per 2017 Chalet Masterplan; and
- Tree removals as designated by the Shire and those classified as unsafe trees by the Arbor Guy. (see Appendix F for plans and listings).

To comply with the scope of works a Level 1 fauna survey as defined by the EPA (EPA 2016c) was undertaken and in accordance with these guidelines the assessment has therefore included a literature review and a field reconnaissance survey. Because of the known or likely presence of 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 survey work has also included a targeted assessment of the site's significance to these species as well.

Field survey work has also included several daytime reconnaissance surveys, two nocturnal surveys and the deployment of camera traps and a bat call recorder (Figure 3).

Daytime field survey work at the site was carried out on various days during March, April and May 2018 (4 March, 24 March, 13, 14 & 15 April and 1 May 2018). Nocturnal surveys of the subject site were carried out on the 13 and 15 April 2018. All field survey work was carried out by Greg Harewood (Zoologist).

Descriptions and examples images of the main fauna habitats/dominant vegetation present within the subject site are provided in Table 1. The location and extent of each unit are shown in Figure 4.

The majority (~63%) of the caravan park itself is cleared or parkland cleared with scattered peppermint, marri, karri, paperbark and a range of other endemic, non-endemic and exotic trees and shrubs. The centre of the Park contains a remnant paperbark swamp which appears to be seasonally inundated or at least waterlogged

during the wetter months of the year. The western and eastern sides of caravan park contain a remnant karri and marri dominated open forest over dese shrubland.

The bushland reserves contain karri and marri dominated open forest in the south and a marri jarrah dominated open forest in the north.

The fauna habitat values of the cleared and parkland cleared sections of the Park are low given the absence of native ground cover, leaf litter, hollow logs, and a paucity of hollow trees. Biodiversity would therefore be very low with only a fraction of the potential species likely to occur. This area does however represent potential habitat for the western ringtail possum given the high number of peppermints. There are also a number of marri trees known to be favoured by black cockatoos as a food source.

The remnant bushland areas (within the Park and in the reserves) are in very good condition with dense ground cover, abundant leaf litter, fallen hollow logs and numerous hollow trees. These areas have a high potential to host a large number of the predicted fauna species including a number of threatened and priority species.

The black cockatoo habitat tree assessment identified a total of 583 trees with a DBH of ≥50cms within the subject site. Four hundred and twenty of the trees (420, ~72.0%) were not observed to contain hollows of any size. One hundred and thirty trees (130, ~22.3%) contained one or more possible hollows considered by the Author not to be suitable for black cockatoos to use for nesting purposes.

Thirty three trees (33, ~5.7%) were identified as potentially containing a hollow that appeared possibly big enough to allow the entry of a black cockatoo into a suitably sized and orientated branch/trunk though conclusive evidence of actual use by black cockatoos (e.g. chew marks) was not seen in any instance.

None of the identified potential black cockatoo hollows were located within trees located inside the bounds of the caravan park itself, where trees with hollows on any size are rare (only 10 trees with possible hollows recorded).

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

Excluding totally cleared areas, almost the entire site can be regarded as containing foraging habitat of some type given the presence of a range of plant species documented as being foraged upon by cockatoos. It should however be noted that some plant species are favoured over others, with marri, when present, being the preferred food source for all three species of black cockatoo. Plant species such as karri do not contribute to the resource significantly despite being common as it is much less frequently fed upon.

In some areas the favoured foraging species are absent or represented by only a small number of specimens. Much of the caravan park contains only poor quality foraging habitat given the absence of favoured foraging species such as marri and jarrah.

Very little foraging debris left by black cockatoos was observed within the subject site with evidence being limited to chewed fruits from a non-endemic eucalyptus species. This evidence could not be attributed specifically to any one of three black cockatoo species known to frequent the general area.

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

The locations of various western ringtail possum observations made during the site surveys are shown in Figure 6.

Eight WRPs were observed during the first nocturnal survey of the site, all within the Park boundary (or very close). Eleven individuals were recorded during the second nocturnal survey (nine with the Park Boundary). The distribution of the observations suggests that there were at least 10 WRPs present with the Park boundary at the time of the surveys.

Based on the observations made, the majority of the vegetated sections of the site represents WRP habitat of some type (i.e. refuge, foraging or dispersal).

Two other fauna species of conservation significance were recorded during the assessment these being the quenda and the south-western brush-tailed phascogale (both recorded several times at several locations on camera traps).

With respect to native vertebrate fauna, 20 mammal (including nine bat species), 107 bird, 28 reptile and 11 frog species have previously been recorded in the wider area, some of which have the potential to occur in or utilise sections of the subject site at times. Nine species of introduced animals could also frequent the area.

Of the 166 native vertebrate animals that are listed as potentially occurring, six are considered to be endangered/vulnerable or in need of special protection under State and/or Federal law (the three black cockatoo species, peregrine falcon, western ringtail possum and south-western brush-tailed phascogale (Schedule 6). In addition, four DBCA priority species are also listed as potentially occurring (short-nosed snake, masked owl, quenda and western false pipistrelle).

Three species were confirmed as present during the fauna survey south-western brush-tailed phascogale, western ringtail possum and quenda. Black cockatoo foraging activity was also recorded but the specific species responsible could not be determined. Thirty four other native fauna species were also recorded during the assessment, most being common widespread bird species.

Constraints on development within the study area will largely be centred on the presence of habitat used or potentially used by the western ringtail possum. The potential impacts on this species and/or its habitat will need to be taken into consideration during the ongoing planning and construction phases of the proposed development initiatives and tree trimming or removal.

A series of other recommendations aimed at mitigating and minimising potential impacts on western ringtail possum (and fauna and fauna habitat in general) are provided in Section 7. These should be taken into consideration during planning and development and implemented if considered reasonable and practicable.

The need to refer the proposed development initiatives to the DoTEE for assessment to ensure compliance with the *EPBC Act* should be considered by the Shire given the recent upgrade of the western ringtail possum's status to critically endangered at the federal level.

1. INTRODUCTION

This report details the results of a “fauna survey” of the Turner Caravan Park (and some adjoining reserves) carried out on behalf of the Shire of Augusta Margaret River (The Shire).

The Shire Council has approved funding in the 2017-18 budget to conduct a review of the Turner Caravan Park and to develop a Concept Master Plan that will inform future development within the Park.

As a part of the concept master planning process the Shire require a “Fauna Survey” be undertaken with the main objectives being defined as:

Undertake a fauna survey of the Caravan Park with emphasis on the presence and habitat of the western ringtail possum and black cockatoos and provide a report based on the Environmental Protection Authority “Guidelines for Fauna surveys for environmental impact assessment” including identification of those constraints and opportunities for the Park.

The area assessed has included the entire Turner Caravan Park area (the Park) (Lots 35 and 858) and adjacent reserves and public land bounded by Osnaburg Street, Allnut Terrace and Hardy Street (R9658, R4376, R39910, R19230, VCL) and vegetation bordering Blackwood Avenue and Albany Terrace, in total referred to as the Subject Site (Figure 1 and 2).

The subject site totals about 21.5 hectares.

2. SCOPE OF WORKS

The Shire have defined the following services as the scope of works:

- Undertake a fauna survey of the entire Park area and adjacent public land including reconnaissance surveys of Reserves in the area bounded by Osnaburg Street, Allnut Terrace and Hardy Street, with emphasis on the presence and habitat of the western ringtail possum and black cockatoos and provide a report based on the Environmental Protection Authority "Guidelines for Fauna surveys for environmental impact assessment" (EPA 2016c) including identification of those constraints and opportunities for the Park.

- Report fauna sighting signs and observations.

- A minimum of two non-consecutive night surveying sessions should be undertaken.

- The consultant is required to make an assessment on the impacts on the proposed development initiatives already identified within the Park including the following:

    - additional foreshore camping sites as per the 2017 site layout plan;

    - new chalets as per 2017 Chalet Masterplan; and

    - Tree removals as designated by the Shire and those classified as unsafe trees by the Arbor Guy.

      (See Appendix F for plans and listings)

- If significant fauna species are located in the proposed development areas the consultant is required to provide advice about the potential impact on the species and appropriate ways to reduce, mitigate and manage impacts; and

- Identify any fauna constraints and opportunities for the Park to inform the overall masterplan.

Note: For the purposes of this proposal the term Black Cockatoo is in reference to Baudin's Black Cockatoo *Calyptorhynchus baudinii*, Carnaby's Black Cockatoo *Calyptorhynchus latirostris* and the Forest Red-tailed Black Cockatoo *Calyptorhynchus banksii naso.*

3. METHODS

3.1 POTENTIAL FAUNA INVENTORY - LITERATURE REVIEW

3.1.1 Database Searches

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

- DBCA's NatureMap Database Search (combined data from DBCA, ALA, WAM, BA and consultant's reports) (DBCA 2018b); and
- Protected Matters Search Tool (DotEE 2018).

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

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

3.1.2 Previous Fauna Surveys in the Area

Fauna surveys, assessments and reviews have been undertaken in nearby areas in the past, though not all are publicly available and could not be referenced. The most significant of those available have been used as the primary reference material for compiling a list of fauna species of conservation significance most likely to occur in the general area.

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

- ATA Environmental (2005). Fauna Survey Riverslea Subdivision. Unpublished Report for Greendene Development Corporation Ltd.
- ATA Environmental (2006). Location 413 Smiths Beach Fauna Assessment Survey. Unpublished report for Canal Rocks Properties.
- Biota (2009). Milyeannup Wind Farm - Terrestrial Fauna Survey. Unpublished report for Verve Energy.
- Christensen, P., Annels, A., Liddelow, G. and Skinner,P. (1985). Vertebrate Fauna in The Southern Forests of Western Australia, A Survey. Forest Dept. of Western Australia, Bull. No. 94. Perth.

- ENV Australia (2007). Busselton to Margaret River Transmission Line – Biological Assessment. Unpublished report for Western Power.

- GHD (2012). Flora and Fauna Assessment - Report for Margaret River Bypass. Unpublished report for MRWA.

- Green Iguana (2009). Vertebrate fauna of Lot 320 Higgins Road, Margaret River, and Shire of Augusta-Margaret River Reserves R27633 and R39081. Unpublished report for Strategen.

- Harewood, G. (2009). Fauna Survey (Level 2). Gracetown. Unpublished report for Strategen.

- Harewood, G. (2013). Fauna Assessment Busselton to Flinders Bay Rail Trail. Unpublished report for ngh environmental.

- How, R.A., Dell, J., and Humphreys, W. F. (1987). The ground vertebrate fauna of coastal areas between Busselton and Albany, Western Australia. Records of the Western Australian Museum 13(4):553-574.

- Ninox Wildlife Consulting (1989). Fauna Survey - Beenup Heavy Minerals Mine ERMP. Unpublished report for BHP UTAH.

- NGH/Harewood, G. (2015). Level 2 Fauna Survey Meelup Regional Park. Unpublished report for City of Busselton.

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.

3.1.3 Existing Publications

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

- Anstis, M. (2013). Tadpoles and Frogs of Australia. New Holland Publishers, Sydney.

- Barrett, G., Silcocks, A., Barry, S., Cunningham, R. and Poulter, R. (2003). The New Atlas of Australian Birds. Royal Australasian Ornithologists Union, Victoria.

- Bush, B., Maryan, B., Browne-Cooper, R. & Robinson, D. (2007). Reptiles and Frogs in the Bush: Southwestern Australia. UWA Press, Nedlands.

- Churchill, S. (2008). Australian Bats. Second Edition, Allen & Unwin.

- Cogger, H.G. (2014). Reptiles and Amphibians of Australia. 7th Edition. CSIRO Publishing.
- Johnstone, R.E. and Storr, G.M. (1998). Handbook of Western Australian Birds: Volume 1 – Non-passerines (Emu to Dollarbird). Western Australian Museum, Perth Western Australia.
- Johnstone, R.E. and Storr, G.M. (2004). Handbook of Western Australian Birds: Volume 2 – Passerines (Blue-winged Pitta to Goldfinch). Western Australian Museum, Perth Western Australia.
- Menkhorst, P. and Knight, F. (2011). A Field Guide to the Mammals of Australia. Oxford University Press, Melbourne.
- Morgan, D.L., Beatty, S.J., Klunzinger, M.W, Allen, M.G. and Burnham, Q.E (2011). Field Guide to the Freshwater Fishes, Crayfishes and Mussels of South Western Australia. Published by SERCUL.
- Storr, G.M., Smith, L.A. and Johnstone R.E. (1983). Lizards of Western Australia II: Dragons and Monitors. WA Museum, Perth.
- Storr, G.M., Smith, L.A. and Johnstone R.E. (1990). Lizards of Western Australia III: Geckos and Pygopods. WA Museum, Perth.
- Storr, G.M., Smith, L.A. and Johnstone R.E. (1999). Lizards of Western Australia I: Skinks. Revised Edition, WA Museum, Perth.
- Storr, G.M., Smith, L.A. and Johnstone R.E. (2002). Snakes of Western Australia. Revised Edition, WA Museum, Perth.
- Tyler M.J. & Doughty P. (2009). Field Guide to Frogs of Western Australia, Fourth Edition, WA Museum, Perth.
- Van Dyck, S., Gynther, I. & Baker, A. Eds (2013). Field Companion to The Mammals of Australia. Queensland Museum.
- Wilson, S. and Swan, G. (2013). A Complete Guide to Reptiles of Australia. Reed, New Holland, Sydney.
- Woinarski, J., Burbidge, A. & Harrison, P. (2014). The Action Plan for Australian Mammals 2012. CSIRO Publishing.

3.1.4 Fauna of Conservation Significance

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

- *Environment Protection and Biodiversity Conservation Act 1999* (*EPBC Act*). Administered by the Australian Government DotEE;
- *Wildlife Conservation Act 1950* (*WC Act*). Administered by the Western Australian DBCA (Govt. of WA 2018);
- Red List produced by the SSC of the World Conservation Union (also known as the IUCN Red List - the acronym derived from its former name of the International Union for Conservation of Nature and Natural Resources). The Red List has no legislative power in Australia but is used as a framework for State and Commonwealth categories and criteria; and
- DBCA Priority Fauna list. A non-statutory list maintained by the DBCA for management purposes (DBCA 2018a).

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

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

(Note - Species listed under JAMBA are also protected under Schedule 5 of the *WC Act*.)

All migratory bird species listed in the annexes to these bilateral agreements are protected in Australia as matters of national environmental significance (MNES) under the *EPBC Act*.

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

3.1.5 Taxonomy and Nomenclature

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

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

3.1.6 Likelihood of Occurrence – Fauna of Conservation Significance

Fauna of conservation significance identified during the literature review as previously being recorded in the general area were assessed and ranked for their likelihood of occurrence within the 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 Cape Naturaliste/Leeuwin Ridge area. 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.

3.2 SITE SURVEYS

Daytime field survey work at the site was carried out on various days during March, April and May 2018 (4 March, 24 March, 13, 14 & 15 April and 1 May 2018). Nocturnal surveys of the subject site were carried out on the 13 and 15 April 2018. All field survey work was carried out by Greg Harewood (Zoologist).

3.2.1 Fauna Habitat Assessment

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

The main aim of the habitat assessment was to determine if it was likely that any species of conservation significance would be utilising the areas that maybe impacted on as a consequence of development at the site. The habitat information obtained was also used to aid in finalising the overall potential fauna list.

As part of the desktop literature review, available information on the habitat requirements of the species of conservation significance listed as possibly occurring in the area was researched. During the field survey the habitats within the subject site were assessed and specific elements identified, if present, to determine the likelihood of listed threatened species utilising the area and its significance to them.

3.2.2 Black Cockatoo Habitat Assessment

The following methods were employed during the black cockatoo habitat assessment to comply with the defined scope of works and are based on guidelines published by the DotEE (Commonwealth of Australia 2012) which states that surveys for Carnaby's, Baudin's and forest red-tailed black cockatoo habitat should:

- be done by a suitably qualified person with experience in vegetation or cockatoo surveys, depending on the type of survey being undertaken;
- maximise the chance of detecting the species' habitat and/or signs of use;
- determine the context of the site within the broader landscape—for example, the amount and quality of habitat nearby and in the local region (for example, within 10 km);

- account for uncertainty and error (false presence and absences); and
- include collation of existing data on known locations of breeding and feeding birds and night roost locations.

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

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

So as to comply with the requested scope of works and in line with the published guidelines the following was carried out.

3.2.2.1 Black Cockatoo Breeding Habitat

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

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

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

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

- Small = ~<5cm diametre (i.e. entrance too small for a black cockatoo);
- Medium = ~5cm-10cm diametre (i.e. entrance too small for a black cockatoo);
- Large = ~>10cm diametre (entrance large enough for a black cockatoo but possible hollow appears to be unsuitable for nesting i.e. wrong orientation, too small, too low or too shallow); or
- Large (cockatoo) = ~>10cm diametre (entrance appears big enough to provide access to a possible hollow that may be suitable for a black cockatoo to use for nesting).

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

- Tree < 50cm DBH or an unsuitable species (not recorded);
- Tree ≥50cm DBH, no hollows seen;
- Tree ≥50cm DBH, one or more hollows seen, none of which were considered suitable for black cockatoos to use for nesting; or
- Tree ≥50cm DBH, one or more hollows seen, with at least one considered suitable for black cockatoos to use for nesting.

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

Generally, any tree which is alive or dead that contains one or more visible hollows (cavities within the trunk or branches) 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. It should be noted that the survey may have been conducted outside of the main breeding season of one or more of the three species of black cockatoo.

3.2.2.2 Black Cockatoo Foraging Habitat

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

3.2.2.3 Black Cockatoo Roosting Habitat

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

3.2.3 Western Ringtail Possum Assessment

To determine if western ringtail possums were utilising the study area the following was carried out:

- Concurrent with the daytime black cockatoo habitat assessment dreys (and other potential daytime refuge habitat), scats and individual WRPs were searched for and recorded if observed; and

- Two night time surveys to locate and record the distribution and abundance of WRPs within the subject site was carried out. The nocturnal counts involved the systematic searching of potential WRP habitats on foot using a head torch.

3.2.4 Camera Traps

Eleven motion sensing, infrared "camera traps" (Acorn model LTl 5210A) were placed within subject site on the 4 March 2018. These were retrieved in 24 March 2018 (20 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 3.

A total of 220 "camera trap days" were achieved and 962 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.

3.2.5 Acoustic Bat Recordings

Two nights of acoustic bat call recordings was undertaken using a Wildlife Acoustics SM2+ Bat Detector. The recordings were undertaken on the 14 and 15 April 2018, commencing at sunset and continuing until sunrise the following day. The recording location is shown in Figure 3.

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.

3.2.6 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.

3.2.7 Opportunistic Fauna Observations

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

4. SURVEY CONSTRAINTS

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

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

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

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

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

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

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

5. RESULTS

5.1 POTENTIAL FAUNA INVENTORY – LITERATURE REVIEW

A list of vertebrate fauna species considered 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 2017) and the Protected Matters Search Tool (DotEE 2017) 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. Some of the species listed are less likely to occur in some section of the subject site than others (i.e. the actual Caravan Park area is less likely to harbour some of the listed species than the vegetated reserves).

With respect to native vertebrate fauna, 20 mammal (including nine bat species), 107 bird, 28 reptile and 11 frog species have previously been recorded in the wider area, some of which have the potential to occur in or utilise sections of the subject site at times. Nine species of introduced animals could also frequent the area.

Of the 166 native vertebrate animals that are listed as potentially occurring, six are considered to be endangered/vulnerable or in need of special protection under State and/or Federal law. In addition, four DBCA priority species are also listed as potentially occurring.

5.1.1 Fauna Habitat Assessment

Descriptions and examples images of the main fauna habitats/dominant vegetation present within the subject site are provided in Table 1. The location and extent of each unit are shown in Figure 4.

Table 1: Main Fauna Habitats within the Subject Site

Fauna Habitat Description	Example Image
Karri (*Eucalyptus diversicolor*) and Marri (*Corymbia calophylla*) Open Forest over Shrubland. Total Area = ~9.4 ha (~43.9%)	
Marri (*Corymbia calophylla)* Jarrah *(Eucalyptus marginata)* Open Forest over Low Shrubland. Total Area = ~3.9 ha (~18.2%)	
Paperbark Low Open Forest over shrubland and sedges. Small area of *Typha orientalis*. Seasonally inundated/waterlogged. Total Area = ~1.0 ha (~4.7%)	
Sedgeland within Karri Marri Open Forest. Seasonally inundated/waterlogged. Total Area = ~0.1 ha (~0.5%)	

Fauna Habitat Description	Example Image
Scattered trees over grassland, buildings & minor roads (63% of Caravan Park). Total Area = ~5.6 ha (~26.2%)	
Major Roads/Verges Total Area = ~1.4 ha (~6.5%)	No Image

The majority (~63%) of the caravan park itself is cleared or parkland cleared with scattered peppermint, marri, karri, paperbark and a range of other endemic, non-endemic and exotic trees and shrubs. The centre of the Park contains a remnant paperbark swamp which appears to be seasonally inundated or at least waterlogged during the wetter months of the year. The western and eastern sides of caravan park contain a remnant karri and marri dominated open forest over dese shrubland.

The bushland reserves contain karri-marri dominated open forest in the south and a marri-jarrah dominated open forest in the north.

The overall fauna habitat values of the cleared and parkland cleared sections of the Park are low given the absence of native ground cover, leaf litter, hollow logs, and a paucity of hollow trees. Biodiversity would therefore be very low with only a fraction of the potential species likely to occur. This area does however represent potential habitat for the western ringtail possum given the high number of peppermints. There are also a number of marri trees, the fruits of which are known to be favoured by black cockatoos as a food source.

The remnant bushland areas (within the Park and in the reserves) are in very good condition with dense ground cover, abundant leaf litter, fallen hollow logs and numerous hollow trees. These areas have a high potential to host a large number of the predicted fauna species including a number of threatened and priority species.

5.1.2 Black Cockatoo Habitat Assessment

5.1.2.1 Black Cockatoo Habitat Tree Assessment

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

- Karri – *Eucalyptus diversicolor;*
- Marri – *Corymbia calophylla;*
- Jarrah - *Eucalyptus marginata*;
- Blackbutt - *Eucalyptus patens;* and
- Dead unidentifiable or unknown species.

A summary of the potential black cockatoo breeding trees (using DotEE criteria i.e. any suitable tree species with a DBH ≥ 50cm (Commonwealth of Australia 2012)) observed within the subject site is provided in Table 2 below and their location shown in Figure 5.

Table 2: Summary of potential cockatoo breeding habitat trees (DBH ≥50cm)

Total Number of Habitat Trees	Number of Trees with No Hollows Observed	Number of Trees with Hollows Considered Unsuitable for Nesting Black Cockatoos	Number of Trees with Hollows Considered Possibly Suitable for Nesting Black Cockatoos	Tree Species				
				Karri	Marri	Jarrah	Blackbutt	Unknown
583	420	130	33	252	223	57	26	25

The assessment identified a total of 583 trees with a DBH of ≥50cms within the subject site. Four hundred and twenty of the trees (420, ~72.0%) were not observed to contain hollows of any size. One hundred and thirty trees (130, ~22.3%) contained one or more possible hollows considered by the Author not to be suitable for black cockatoos to use for nesting purposes.

Thirty three trees (33, ~5.7%) were identified as potentially containing a hollow that appeared possibly big enough to allow the entry of a black cockatoo into a suitably sized and orientated branch/trunk though conclusive evidence of actual use by black cockatoos (e.g. chew marks) was not seen in any instance.

None of the identified potential black cockatoo hollows were located within trees located inside the bounds of the caravan park itself where trees with hollows on any size are rare (only 10 trees with possible hollows recorded).

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

5.1.2.2 Black Cockatoo Foraging Habitat Assessment

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

- Karri – *Eucalyptus diversicolor;*
- Marri – *Corymbia calophylla;*
- Jarrah - *Eucalyptus marginata*;
- Blackbutt - *Eucalyptus patens;* and
- Small number of endemic, no-nendemic and exotic species.

Excluding totally cleared areas, almost the entire site can be regarded as containing foraging habitat of some type 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. It should also be noted that some plant species are favoured over others with marri, when present, being the preferred food source for all three species of black cockatoo. Plant species such as karri do not contribute to the resource significantly despite being common as it is much less frequently fed upon.

In some areas the favoured foraging species are absent or represented by only a small number of specimens. Much of the caravan park contains only poor quality foraging habitat given the absence of favoured foraging species such as marri and jarrah.

Very little foraging debris left by black cockatoos was observed within the subject site with evidence being limited to chewed fruits from a non-endemic eucalyptus species. This evidence could not be attributed specifically to any one of three black cockatoo species known to frequent the general area.

5.1.2.3 Black Cockatoo Roosting Habitat Assessment

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

5.1.3 Western Ringtail Possum Assessment

The locations of various western ringtail possum observations made during the site surveys are shown in Figure 6.

Only two WRP dreys were observed during the day survey. One hundred and sixty three trees containing possible hollows were also observed though not all are likely to be suitable for WRPs to utilise. Forks in trees, subtle cavities in tree trunks, fallen hollow logs, rabbit burrows and dense ground cover (e.g. swordgrass/sedges) are also use by

WRPs for daytime refuge and therefore observations of dreys and hollows only provide a guide to WRP habitat use/quality as other opportunities for daytime refuge may exist.

WRP scats were observed at seven separate locations. Over the majority of the subject site dense groundcover made searching for scats difficult and time consuming and therefore this method for determining WRP presence was not employed extensively.

Eight WRPs were observed during the first nocturnal survey of the site, all within the Park boundary (or very close). Eleven individuals were recorded during the second nocturnal survey (nine with the Park Boundary). The distribution of the observations suggests that there were at least 10 WRPs present with the Park boundary at the time of the surveys.

Four common brushtail possums were observed during the first night survey (none with the park boundary). Two individuals were observed on the second night survey, both within the Park boundary.

Based on the observations made, the majority of the vegetated sections of the site represents WRP habitat of some type (i.e. refuge, foraging or dispersal).

5.1.4 Camera Traps

The complete results of the camera trapping carried out are provided within Appendix E. In total, 18 fauna species (native and introduced) were recorded. Of most interest was the recording of the Priority 4 quenda (*Isoodon fusciventer*) six times at four locations, the Schedule 6 (*WC Act*) south-western brush-tailed phascogale (*Phascogale tapoatafa wambenger*) five times at six times at four locations and the critically endangered (*WC Act* and *EPBC Act*) western ringtail possum (*Pseudocheirus occidentalis*) once at one location.

Feral species recorded included numerous photos of the red fox (*Vulpes vulpes*) and several black rats (*Rattus rattus)*.

5.1.5 Acoustic Bat Recordings

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

- Gould`s Long-eared Bat - *Nyctophilus gouldi;*
- Lesser Long-eared Bat - *Nyctophilus geoffroyi;*
- Western Long-eared Bat - *Nyctophilus major major*; and
- Southern Forest Bat - *Vespadelus regulus.*

All of the bats recorded are common widespread species.

5.1.6 Other Fauna Species of Conservation Significance

Besides those species already mentioned as having been recorded (quenda, south-western brush-tailed phascogale and the western ringtail possum) no other fauna species of conservation significance was recorded. Evidence of black cockatoos foraging on site was found but the species responsible could not be determined.

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 4 (within Section 7) and in Appendix B.

5.1.7 Opportunistic Fauna Observations

Opportunistic fauna observations are listed in Appendix B. Including those species recorded on camera traps and during the nocturnal survey, a total of 37 native fauna species were observed (or positively identified from foraging evidence, scats, tracks, skeletons or calls) within the subject site during the survey period. Five introduced species (house mouse, red fox, rabbit, black rat and laughing kookaburra) were also recorded.

Most of the fauna species recorded were common, widespread bird species.

5.2 FAUNA INVENTORY – SUMMARY

Table 3 summarises the number of vertebrate 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 3: Summary of Potential Vertebrate Fauna Species (as listed in Appendix B)

Group	Total number of Potential species	Potential number of Specially Protected species	Potential number of Migratory species	Potential number of Priority species	Number of species Observed: Field Survey 2018
Amphibians	11	0	0	0	3
Reptiles	28	0	0	1	1
Birds	110[3]	4	0	1	23[1]
Non-Volant Mammals	17[6]	2	0	1	11[4]
Volant Mammals (Bats)	9	0	0	1	4
Total	**175[9]**	**6**	**0**	**4**	**42[5]**

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.

6. LIKELIHOOD OF OCCURRENCE AND POTENTIAL IMPACTS

Fauna of conservation significance identified during the literature review as previously being recorded in the general area are listed in Table 4. Each has been assessed and ranked for their likelihood of occurrence within the subject site itself based on information obtained during the fauna assessment.

Proposed development initiatives already identified within the Park include the following:

- Eight (8) additional foreshore camping sites as per the 2017 site layout plan;
- Eight (8) additional chalets as per 2017 Chalet Masterplan (note: some have already been constructed); and
- Tree removals as designated by the Shire and those classified as unsafe trees by the Arbor Guy.

Plans showing the location and layout of the foreshore camping sites and new chalets are contained within Appendix F along with a list of trees recommended by the Arbor Guy as requiring removal or trimming.

The construction of the additional foreshore camping sites (eight in total) and the new chalets (some of which have already been constructed) will likely require the removal or trimming of some trees (mainly peppermints).

The Arbor Guy (2017) provided an assessment of 644 trees within the Park boundary. No immediate action was recommended for 458 of these trees (71.1%). Twenty seven trees (including 18 Peppermints) have been recommended for removal with the balance (157) being subject to various degrees of trimming, ivy removal, bracing or ongoing monitoring.

The potential direct and indirect impact on fauna that may occur as a consequence of clearing, construction and then ongoing use of the area will be dependent on each fauna species habits, population density and the quantity and quality of potential habitat that will be affected.

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);
- Death or injury of fauna during clearing and construction; and
- An increase in fauna road kills subsequent to development.

In this instance impacts will most likely to be related to the loss of habitat and the potential for some species to be killed or injured during clearing. Based on available information the likely impacts on species of conservation significance previously recorded in the general area has been assessed, a summary of which is provided in Table 4 below.

Table 4: Likelihood of Occurrence and Possible Impacts – Fauna Species of Conservation Significance (continues on following pages).

Species	Conservation Status		Habitat Preferences	Habitat Present	Likelihood of Occurrence	Possible Impacts of Proposed Development Initiatives
	WC Act/ DBCA Priority	*EPBC Act*				
Cape Leeuwin Freshwater Snail *Austroassiminea letha*	S3	-	Natural seepages from limestone or lime sands.	No	Would Not Occur.	No impact.
Carter's Freshwater Mussel *Westralunio carteri*	S3	-	Occurs in greatest abundance in slower flowing streams with stable sediments that are soft enough for burrowing amongst woody debris and exposed tree roots.	No	Would Not Occur.	No impact.
Western Mud Minnow *Galaxiella munda*	S3	-	Typically found in small flowing streams near submerged vegetation, occasionally in still water of ponds, swamps and roadside drains. Water is usually darkly tannin stained and acidic (pH 3.0 – 6.0).	No	Would Not Occur.	No impact.
Black stripe minnow *Galaxiella nigrostriata*	S2	EN	Acidic ephemeral wetlands of the south-west of Western Australia. Generally prefer sandy soils. Has been documented to survive in both natural wetlands, as well as excavated roadside pools.	No/Marginal	Would Not Occur. Locally extinct.	No impact.
Balston's Pygmy Perch *Nannatherina balstoni*	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.	No	Would Not Occur.	No impact.
Salamander Fish *Lepidogalaxias salamandroides*	S2	-	The species is found in pools in sandy peat flat areas. These waters are usually darkly tannin stained and often very acidic (pH 3.0-6.5). When pools start to dry up in summer, the fish constructs a small burrow in which it aestivates until heavy rains fall in winter.	No/Marginal	Would Not Occur. Locally extinct.	No impact.
Pouched Lamprey *Geotria australis*	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.	No	Would Not Occur.	No impact.
White-bellied Frog *Geocrinia alba*	S1	EN	Occurs only in the Karradale-Witchcliffe area where it persists along creeklines within agricultural landscapes, provided suitable riparian habitat remains intact.	No	Would Not Occur.	No impact.

Species	Conservation Status		Habitat Preferences	Habitat Present	Likelihood of Occurrence	Possible Impacts of Proposed Development Initiatives
	WC Act/ DBCA Priority	*EPBC Act*				
Short-nosed Snake *Elapognathus minor*	P2	-	Restricted to the humid coastal plains of the deep south west. Inhabits heaths edging swamps though also known to inhabit wet sclerophyll forest. Shelters in low dense vegetation such as tussocks and sedges.	Yes	Possibly Occurs. Dense woodland areas only, outside of proposed development areas	No impact anticipated.
Malleefowl *Leipoa ocellata*	S3	VU	Mainly scrubs and thickets of mallee *Eucalyptus* spp., boree *Melaleuca lanceolata* and bowgada *Acacia linophylla*, also dense litter forming shrublands.	No	Would Not Occur. Regionally extinct.	No impact.
Australasian Bittern *Botaurus poiciloptilus*	S1	EN	Freshwater wetlands, occasionally estuarine; prefers heavy vegetation such as beds of tall dense *Typha, Baumea* and sedges in freshwater swamps.	Yes/Very Marginal	Possibly Occurs. May occur very occasionally in dense *Typha* during winter months?	No impact anticipated.
Black Bittern *Ixobrychus flavicollis*	P1	-	Freshwater pools, swamps and lagoons well screened with trees. Shelters in dense waterside vegetation.	Yes/Very Marginal	Possibly Occurs. May occur very occasionally in dense *Typha* during winter months?	No impact anticipated.
Little Bittern *Ixobrychus minutus*	P4	-	Dense vegetation surrounding/within freshwater pools, swamps and lagoons, well screened with trees. Shelters in dense beds of *Typha, Baumea* and tall rushes in freshwater swamps around lakes and along rivers.	Yes/Very Marginal	Possibly Occurs. May occur very occasionally in dense *Typha* during winter months?	No impact anticipated.
Blue-billed Duck *Oxyura australis*	P4	-	Well vegetated freshwater swamps, large dams and lakes, winters on more open water. Occasionally salt lakes and estuaries freshened by floodwaters.	No	Would Not Occur.	No impact.
Glossy Ibis Plegadis falcinellus	S5	Mig	Well vegetated wetlands, wet pastures, rice fields, floodwaters, floodplains, brackish or occasionally saline wetlands, mangroves, mudflats, occasionally dry grasslands.	No	Would Not Occur.	No impact.
Hooded Plover *Charadrius rubricollis*	P4	-	Broad sandy ocean beaches and bays, coastal and inland salt lakes.	No	Would Not Occur.	No impact.

Species	Conservation Status		Habitat Preferences	Habitat Present	Likelihood of Occurrence	Possible Impacts of Proposed Development Initiatives
	WC Act/ DBCA Priority	*EPBC Act*				
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	Would Not Occur.	No impact.
Eastern Osprey *Pandion haliaetus*	S5	Ma, Mig	Coasts, estuaries, bays, inlets, islands, and surrounding waters, coral atolls, reefs, lagoons, rock cliffs and stacks. Ascends larger rivers.	No	Possibly Occurs, Flyover only.	No impact.
Peregrine Falcon *Falco peregrinus*	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 very occasionally – no potential nest sites.	No impact anticipated.
Masked Owl (SW population) *Tyto n. novaehollandiae*	P3	-	Roosts and nests in heavy forest, hunts over open woodlands and farmlands.	Yes	Possibly Occurs. May forage in Park area – no roost/nest sites.	No impact anticipated.
Barking Owl (SW population) *Ninox connivens connivens*	P2	-	Dense vegetation, especially forest and thickets of waterside vegetation such as *melaleucas*. Roosts in tree hollows.	No/Marginal	Unlikely to Occur.	No impact.
Carnaby`s Black Cockatoo *Calyptorhynchus latirostris*	S2	EN	Forests, woodlands, heathlands, farms; feeds on *Banksia*, *Hakea* and Marri.	Yes	Possibly Occurs.	Loss/modification of a small number of habitat/foraging trees. No significant impact likely.
Baudin`s Black Cockatoo *Calyptorhynchus baudinii*	S2	VU	Mainly eucalypt forests where it feeds primarily on the marri seeds.	Yes	Possibly Occurs.	Loss/modification of a small number of habitat/foraging trees. No significant impact likely.
Forest Red-tailed Black Cockatoo *Calyptorhynchus banksia naso*	S3	VU	Eucalypt forests, feeds on marri, jarrah, blackbutt, karri, sheoak and snottygobble.	Yes	Possibly Occurs.	Loss/modification of a small number of habitat/foraging trees. No significant impact likely.
Muir's Corella *Cacatua pastinator pastinator*	S6	-	Farmland and river valleys, mainly partly cleared eucalypt forests.	Yes	Unlikely to Occur Locally extinct.	No impact.
Western Ground Parrot *Pezoporus flaviventris*	CR	CR	Inhabits low, dry or swampy near-coastal heathland. It usually occurs in habitat that has remained unburnt for long periods of time	No	Would Not Occur Locally extinct.	No impact.

Species	Conservation Status		Habitat Preferences	Habitat Present	Likelihood of Occurrence	Possible Impacts of Proposed Development Initiatives
	WC Act/ DBCA Priority	*EPBC Act*				
Fork-tailed Swift *Apus pacificus*	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.	No impact.
Chuditch *Dasyurus geoffroii*	S3	VU	Forest, mallee shrublands, woodland and desert. The densest populations have been found in riparian jarrah forest.	Yes	Unlikely to Occur Locally extinct?	No impact anticipated.
South-western Brush-tailed Phascogale *Phascogale tapoatafa wambenger*	S6	-	Dry sclerophyll forests and open woodlands that contain hollow-bearing trees but a sparse ground cover.	Yes	Known to Occur but probably confined mainly to natural woodland areas only, outside of proposed development areas	No impact anticipated.
Quenda *Isoodon fusciventer*	P4	-	Dense scrubby, often swampy, vegetation with dense cover.	Yes	Known to Occur. but probably confined mainly to natural woodland areas with dense ground cover, outside of proposed development areas.	No impact anticipated.
Western Ringtail Possum *Pseudocheirus occidentalis*	S1	VU	Coastal peppermint, coastal peppermint-tuart, jarrah-marri associations, sheoak woodland, and eucalypt woodland and mallee.	Yes	Known to Occur.	Loss/modification of areas of habitat. Death/injury of individuals during clearing.
Quokka *Setonix brachyurus*	S3	VU	Currently restricted to densely vegetated coastal heaths, swamps, riverine habitats including tea-tree thickets on sandy soils along creek systems.	Yes	Would Not Occur. Locally extinct.	No impact.
Gilbert's Potoroo *Potorous gilbertii*	S1	CR	Long-unburnt, dense shrubland on the valley slopes.	No	Would Not Occur. Locally extinct.	No impact.
Woylie *Bettongia penicillata ogibyi*	S1	EN	Open sclerophyll forest and woodland with a low, dense, understorey of tussock grasses or woody scrub.	No	Would Not Occur Locally extinct.	No impact.
Western Brush Wallaby *Macropus irma*	P4	-	Open forest or woodland, particularly favouring open, seasonally wet flats with low grasses and open scrubby thickets.	Yes	Unlikely to Occur	No impact anticipated.
Western False Pipistrelle *Falsistrellus mackenziei*	P4	-	Wet sclerophyll forest dominated by karri and in high rainfall zones of the jarrah and marri forest.	Yes	Possibly Occurs. May forage in Park area but unlikely to roost.	No impact anticipated.

Species	Conservation Status		Habitat Preferences	Habitat Present	Likelihood of Occurrence	Possible Impacts of Proposed Development Initiatives
	WC Act/ DBCA Priority	*EPBC Act*				
Water Rat *Hydromys chrysogaster*	P4	-	Permanent water, fresh, brackish or marine.	No/Marginal	Unlikely to Occur	No impact anticipated.
Heath Mouse *Pseudomys shortridgei*	S1	EN	Occurs in species-rich and structurally complex heathland and woodland	No	Would Not Occur. Locally extinct.	No impact.

See Appendix A for conservation status codes

7. MANAGEMENT RECOMMENDATIONS

The fauna assessment results indicate that the primary considerations required during ongoing development planning and implementation should be focussed on the identified presence of habitat used by the western ringtail possum.

Impacts on fauna in general and on other species of conservation significance (besides the western ringtail possum) are, based on available information, considered to be negligible. This conclusion is primarily supported by the fact that areas of proposed development and tree removal are highly degraded and unlikely to support a diverse fauna assemblage.

The Park area contains some potential black cockatoo breeding habitat (i.e. trees with a DBH ≥50cm) but most contain no hollows or when present the possible hollows identified appeared as unlikely to be of a size large enough for use as nesting habitat. Black cockatoo foraging habitat is also present but is only represented by a relatively small number of scattered marri trees. Most of this potential breeding and foraging habitat will be retained and therefore no direct or indirect significant impact on black cockatoos is anticipated.

The south-western brush-tailed phascogale (Schedule 6) and quenda (Priority 4) were detected in the reserve areas near the Park. It is possible they also occur within the areas of remnant native vegetation in the Park itself but are unlikely to reside within the proposed development areas given they are already largely cleared and devoid of native ground cover.

A number of other specially protect and priority species are also considered as possibly occurring in the better quality bush area but are not considered likely to frequent the more development sections of the caravan park itself, except possibly on rare occasions.

The currently proposed development initiatives (new foreshore camping sites, chalets and the trimming or removal of unsafe trees) will have a direct impact on habitat in use or potentially in use by western ringtail possums and therefore management measures will need to be employed to primarily ensure individuals are not killed or injured when trees are trimmed or removed.

The western ringtail possum's federal conservation status has recently been upgraded to critically endangered by the DotEE which brings it in line with is status at a state level. Projects of the size proposed by the Shire at the Turner Caravan Park would not typically be referred to the DotEE for assessment under the *EPBC Act* as likely impacts would be considered to be of a low risk of being significant. Given the upgrading of the WRPs status it may now however be necessary to refer even smaller project to ensure compliance.

Based on the survey results the following recommendations are provided for guidance for the formulation of a management plan that should aim to reduce the impact on fauna and fauna habitat as much as reasonable and practicable and in particular impacts on western ringtail possums. It is recommended that:

- Planning for implementing the proposed development initiatives should aim to avoid the need to clear as much of the existing vegetation as possible.

- Standard DBCA clearing protocols should be employed during any clearing undertaken at the site. In particular during clearing operations, a suitably experienced "fauna spotter" should be employed to inspect logs, trees, dreys and hollows (where possible) before clearing to reduce likelihood of injury to fauna. Trees observed to contain dreys or hollows should be felled in a manner that reduces the likelihood that fauna present will be injured. Dreys and 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.

- 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.

- Native fauna injured during clearing or normal site operations should be taken to a designated veterinary clinic or a DBCA nominated wildlife carer.

- 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.

- Any proposed revegetation/rehabilitation at the site should utilise local seed stock that includes peppermints (*Agonis flexuosa*) and 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 also be taken into consideration.

- The need to refer the proposed development initiatives to the DoTEE for assessment to ensure compliance with the *EPBC Act* should be considered by the Shire given the recent upgrade of the western ringtail possum's status to critically endangered at the federal level.

8. CONCLUSION

The fauna assessment within the subject site was undertaken for the purposes of delineating and characterising the fauna habitats and faunal assemblages present and to identify potential impacts of the proposed development initiatives. Targeted searches for western ringtail possums and a black cockatoo habitat assessment were also carried out.

With respect to native vertebrate fauna, 20 mammal (including nine bat species), 107 bird, 28 reptile and 11 frog species have previously been recorded in the wider area, some of which have the potential to occur in or utilise sections of the subject site at times. Nine species of introduced animals could also frequent the area.

Of the 166 native vertebrate animals that are listed as potentially occurring, six are considered to be endangered/vulnerable or in need of special protection under State and/or Federal law (the three black cockatoo species, peregrine falcon, western ringtail possum and south-western brush-tailed phascogale (Schedule 6). In addition, four DBCA priority species are also listed as potentially occurring (short-nosed snake, masked owl, quenda and western false pipistrelle).

Three species were confirmed as present during the fauna survey south-western brush-tailed phascogale, western ringtail possum and quenda. Black cockatoo foraging activity was also recorded but the specific species responsible could not be determined.

Constraints on development within the study area will largely be centred on the presence of habitat used or potentially used by the western ringtail possum. The potential impacts on this species and/or its habitat will need to be taken into consideration during the ongoing planning and construction phases of the proposed development initiatives and tree trimming or removal.

A series of other recommendations aimed at mitigating and minimising potential impacts on western ringtail possum (and fauna and fauna habitat in general) are provided in Section 7. These should be taken into consideration during planning and development and implemented if considered reasonable and practicable.

The need to refer the proposed development initiatives to the DoTEE for assessment to ensure compliance with the *EPBC Act* should be considered by the Shire given the recent upgrade of the western ringtail possum's status to critically endangered at the federal level.

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FIGURES

Legend

- Subject Site
- National Park

0 820 1,640

Metres

Fauna Survey

Turner Caravan Park
Augusta

Subject Site & Surrounds

Drawn: G Harewood
Date: Jan 2018
Scale: 1:50,000
Projection/Coordinate System: UTM/MGA Zone 50

Figure: 1

Legend

Subject Site

0 50 100

Metres

Fauna Survey

Turner Caravan Park
Augusta

Air Photo

Drawn: G Harewood
Date: Jan 2018
Scale: 1:3,250
Projection/Coordinate System: UTM/MGA Zone 50

Figure: 2

Legend

- Subject Site
- Camera Trap Location
- Bat Call Recording Site

0 50 100
Metres

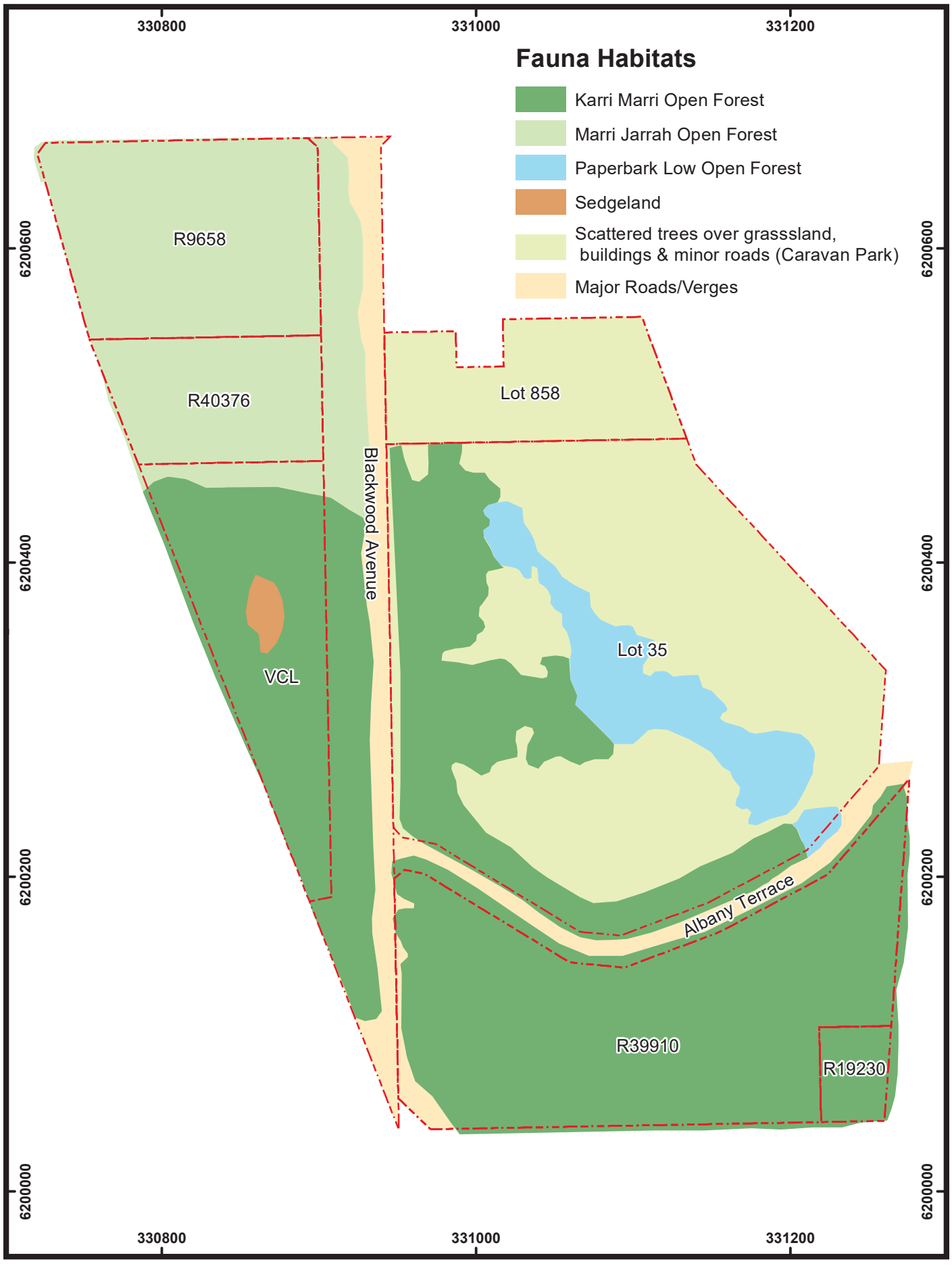
Fauna Survey

Turner Caravan Park
Augusta

Recording Locations

Drawn: G Harewood
Date: May 2018
Scale: 1:3,250
Projection/Coordinate System: UTM/MGA Zone 50

Figure: 3



Legend

Subject Site

0 50 100

Metres

Fauna Survey

Turner Caravan Park
Augusta

Fauna Habitats

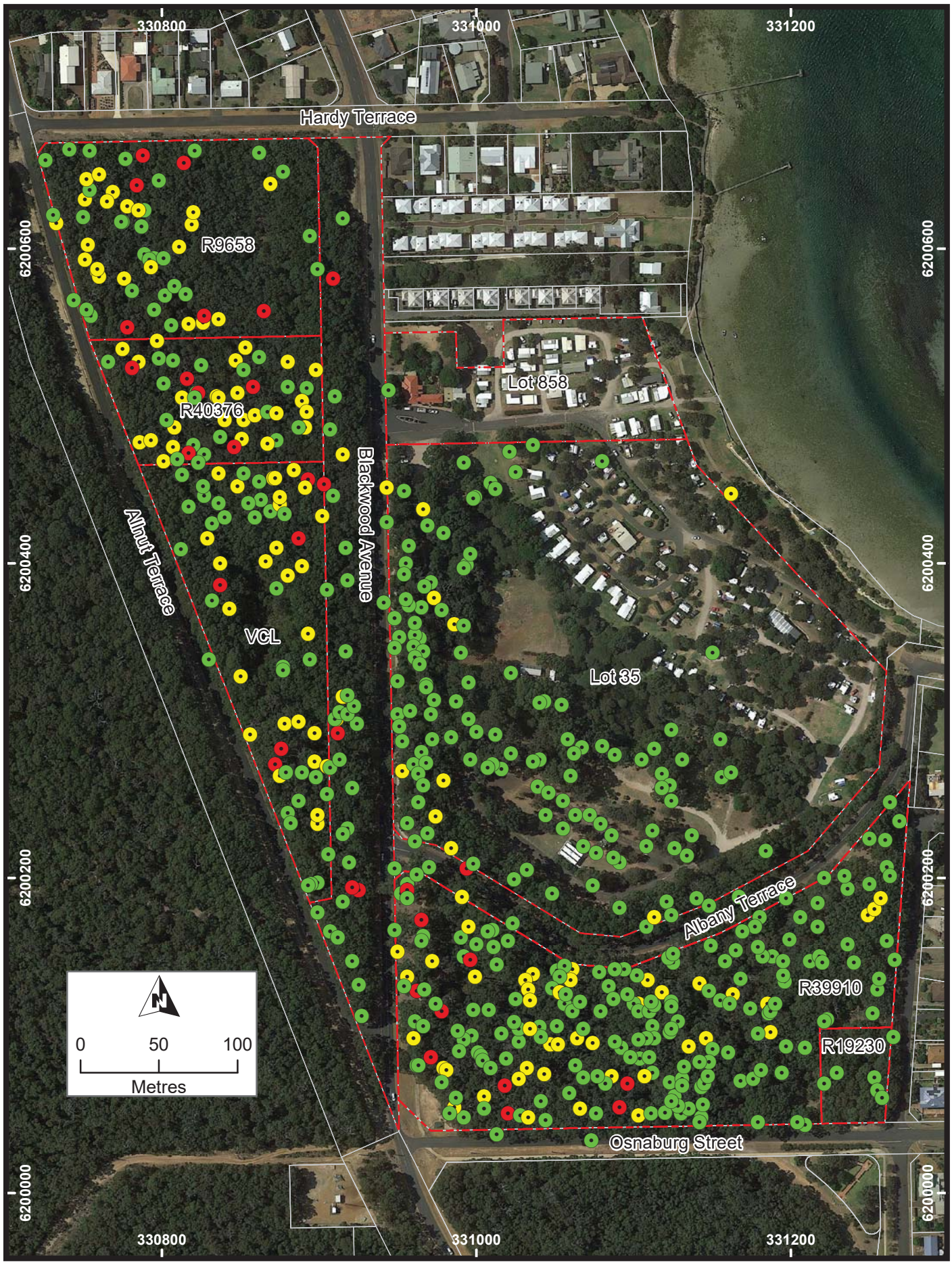
Drawn: G Harewood

Date: Jan 2018

Scale: 1:3,250

Projection/Coordinate System: UTM/MGA Zone 50

Figure: 4



Legend

- Subject Site
- Habitat Tree - One or more large hollows possibly suitable for black cockatoos
- Habitat Tree - One or more possible small/medium hollows
- Habitat Tree - No hollows seen

Fauna Survey

Turner Caravan Park
Augusta

Habitat Trees (DBH >50cm)

Drawn: G Harewood	
Date: May 2018	
Scale: 1:3,250	
Projection/Coordinate System: UTM/MGA Zone 50	Figure: 5

Legend

- Subject Site
- WRP Drey
- WRP Scats
- WRP (Camera Trap)
- WRP - Night 1
- CBP - Night 1
- WRP - Night 2
- CBP - Night 2
- Quenda
- SW Brushtailed Phascogale

Fauna Survey

Turner Caravan Park
Augusta

Significant Fauna Observations

Drawn: G Harewood
Date: May 2018
Scale: 1:3,250
Projection/Coordinate System: UTM/MGA Zone 50

Figure: 6

APPENDIX A

CONSERVATION CATEGORIES

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

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

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

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

Wildlife Conservation (Specially Protected Fauna) Notice 2017 Categories

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

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

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

Western Australian DBCA Priority Fauna Categories

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

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

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

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

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

IUCN Red List Threatened Species Categories

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

Categories are summarized below.

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

Fauna Observed or Potentially in Subject Site

Compiled by Greg Harewood - May 2018

Turner Caravan Park and Surrounds - Augusta, WA

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

A: Harewood (2018). Fauna Assessment. Turner Caravan park - Augusta. Unpublished report for Augusta Margaret River Shire.

B: Harewood, G. (2018). Fauna Survey - Carbunup Reserve, Carbunup. Unpublished report for the City of Busselton.

C: NGH/Harewood, G. (2015). Level 2 Fauna Survey Meelup Regional Park Unpublished report for City of Busselton.

C: ecologia Environmental Consultants (2001). Location 413 Smiths Beach Fauna Assessment Survey, Unpublished report for ATA Environmental.

D: ATA Environmental (2006). Location 413 Smiths Beach Fauna Assessment Survey, Unpublished report for Canal Rocks Properties.

E: Harewood (2009). Fauna Survey (Level 2). Gracetown. Unpublished report for Strategen.

F: Biota (2009). Milyeannup Wind Farm - Terrestrial Fauna Survey. Unpublished report for Verve Energy.

G: ENV Australia (2007). Busselton to Margaret River Transmission Line – Biological Assessment. Unpublished report for Western Power.

H: Ninox Wildlife Consulting (1989). Fauna Survey - Beenup Heavy Minerals Mine ERMP. Unpublished report for BHP UTAH.

I : Christensen, P., Annels, A., Liddelow, G. and Skinner,P. (1985). Vertebrate Fauna in The Southern Forests of Western Australia, A Survey. Forest Dept. of Western Australia, Bull. No. 94. Perth. (Borannup).

J: How, R.A., Dell, J. and Humphreys, W.F. (1987). The Ground Vertebrate Fauna of Coastal Areas between Busselton and Albany, Western Australia, Records of the WAM 13, 553-574 (Margaret River).

K: DBCA (2018). NatureMap Database search. “By Circle” Centre Point = 115° 09' 50" E, 34° 19' 29" S (plus 20km buffer). 25 April 2018.

Class **Family** *Species*	Common Name	Conservation Status	A	B	C	D	E	F	G	H	I	J	K
Amphibians													
Myobatrachidae Ground or Burrowing Frogs													
Crinia georgiana	Quacking Frog	LC			X			X	X	X			X
Crinia glauerti	Glauert`s Froglet	LC			X				X	X			X
Crinia pseudinsignifera	Bleating Froglet	LC								X			X
Geocrinia leai	Lea`s Frog	LC	X		X				X	X			X
Heleioporus eyrei	Moaning Frog	LC	X		X	X		X	X		X	X	X
Heleioporus inornatus	Whooping Frog	LC							X				

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

Class **Family** *Species*	Common Name	Conservation Status	A	B	C	D	E	F	G	H	I	J	K
Limnodynastes dorsalis	Banjo Frog	LC		X		X	X	X	X	X	X	X	X
Metacrinia nichollsi	Nicholls` Toadlet	LC	X						X				X
Pseudophryne guentheri	Güenther`s Toadlet	LC			X					X			X
Hylidae Tree or Water-Holding Frogs													
Litoria adelaidensis	Slender Tree Frog	LC			X				X	X			X
Litoria moorei	Motorbike Frog	LC						X	X				X
Reptiles													
Gekkonidae Geckoes													
Christinus marmoratus	Marbled Gecko			X	X	X	X	X	X	X	X	X	X
Pygopodidae Legless Lizards													
Aprasia pulchella	Pretty Worm Lizard			X	X	X						X	X
Pygopus lepidopodus	Southern Scaleyfoot						X			X	X		X
Agamidae Dragon Lizards													
Pogona minor	Western Bearded Dragon			X		X	X					X	

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

Class **Family** *Species*	Common Name	Conservation Status	A	B	C	D	E	F	G	H	I	J	K
Varanidae Monitor's or Goanna's													
Varanus rosenbergi	Heath Monitor				X	X	X	X	X				X

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

Class **Family** *Species*	Common Name	Conservation Status	A	B	C	D	E	F	G	H	I	J	K
Scincidae Skinks													
Acritoscincus trilineatum	South-western Cool Skink			X	X	X	X	X	X	X		X	
Cryptoblepharus buchananii	Fence Skink				X	X					X		
Ctenotus catenifer	Chain-striped Heath Ctenotus				X					X			X
Ctenotus labillardieri	Red-legged Skink					X		X	X	X	X	X	X
Egernia kingii	King's Skink		X	X	X	X			X				X
Egernia luctuosa	Western Swamp Skink								X				
Egernia napoleonis	Salmon-bellied Skink			X		X	X	X	X	X	X	X	X
Hemiergis gracilipes	Southwestern Mulch Skink												X
Hemiergis peronii tridactyla	Three-toed Mulch Skink			X	X	X	X	X	X			X	
Lerista distinguenda	South-western Four-toed Lerista				X	X							
Lerista elegans	West Coast Four-toed Lerista			X	X		X	X				X	X
Lerista microtis microtis	Southwestern Five-toed Lerista							X	X	X			
Menetia greyii	Dwarf Skink			X	X	X	X				X		
Morethia lineoocellata	Western Pale-flecked Morethia			X	X	X	X	X	X			X	X
Tiliqua rugosa rugosa	Western Bobtail			X	X	X	X	X	X	X	X	X	

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Class **Family** *Species*	Common Name	Conservation Status	A	B	C	D	E	F	G	H	I	J	K
Typhlopidae Blind Snakes													
Ramphotyphlops australis	Southern Blind Snake			X		X		X	X	X			
Boidae Pythons, Boas													
Morelia spilota imbricata	Southern Carpet Python					X	X						
Elapidae Elapid Snakes													
Echiopsis curta	Bardick				X	X		X				X	X
Elapognathus coronatus	Crowned Snake					X	X	X		X	X		X
Elapognathus minor	Short-nosed Snake	P2 LC											X
Notechis scutatus	Tiger Snake							X		X			X
Pseudonaja affinis	Dugite				X		X	X	X	X	X	X	X
Rhinoplocephalus bicolor	Square-nosed Snake									X			

Birds

Phasianidae Quails, Pheasants													
Coturnix pectoralis	Stubble Quail	LC											X
Coturnix ypsilophora	Brown Quail	LC								X			X

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Anatidae Geese, Swans, Ducks													
Anas gracilis	Grey Teal	LC		X					X				X
Anas superciliosa	Pacific Black Duck	LC	X	X	X				X	X			X
Chenonetta jubata	Australian Wood Duck	LC	X						X	X			X
Tadorna tadornoides	Australian Shelduck	LC		X				X	X	X			X
Ardeidae Herons, Egrets, Bitterns													
Ardea alba	Great Egret	CA JA LC											
Ardea pacifica	White-necked Heron	LC								X			X
Egretta novaehollandiae	White-faced Heron	LC		X					X	X			X
Nycticorax caledonicus	Rufous Night Heron	Bp LC			X								X
Threskiornithidae Iibises, Spoonbills													
Platalea flavipes	Yellow-billed Spoonbill	LC											X
Threskiornis molucca	Australian White Ibis	LC						X	X				
Threskiornis spinicollis	Straw-necked Ibis	LC						X	X	X			X

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

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Rallidae Rails, Crakes, Swamphens, Coots													
Fulica atra	Eurasian Coot	LC											X
Gallinula tenebrosa	Dusky Moorhen	Bh LC								X			
Gallirallus philippensis	Buff-banded Rail	LC											
Porphyrio porphyrio	Purple Swamphen	LC											X
Porzana pusilla	Baillon`s Crake	LC											X
Porzana tabuensis	Spotless Crake	LC											X
Turnicidae Button-quails													
Turnix varia	Painted Button-quail	Bp LC		X	X		X						
Laridae Gulls, Terns													
Larus novaehollandiae	Silver Gull	LC	X		X	X	X	X					

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Columbidae Pigeons, Doves													
Columba livia	Domestic Pigeon	Introduced											
Ocyphaps lophotes	Crested Pigeon	LC											X
Phaps chalcoptera	Common Bronzewing	Bh LC	X	X	X		X	X		X	X		X
Phaps elegans	Brush Bronzewing	Bh LC				X	X				X		X
Streptopelia senegalensis	Laughing Turtle-Dove	Introduced											X
Cacatuidae Cockatoos, Corellas													
Cacatua sanguinea	Little Corella	LC							X				
Calyptorhynchus banksii naso	Forest Red-tailed Black Cockatoo	S3 VU Bp LC		X	X				X	X			X
Calyptorhynchus baudinii	Baudin`s Cockatoo	S2 EN Bp EN A3cde		X	X	X	X	X	X	X	X		X
Calyptorhynchus latirostris	Carnaby`s Cockatoo	S2 EN Bp EN A2bcde		X	X			X					X
Eolophus roseicapilla	Galah	LC	X		X				X				

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Psittacidae Parrots													
Glossopsitta porphyrocephala	Purple-crowned Lorikeet	LC	X	X	X			X	X	X			
Neophema elegans	Elegant Parrot	LC				X	X			X			X
Platycercus icterotis icterotis	Western Rosella (Western ssp)	Bp LC		X	X	X	X	X	X	X	X		
Platycercus spurius	Red-capped Parrot	LC	X	X	X	X	X	X	X				X
Platycercus zonarius	Australian Ringneck Parrot	LC	X	X	X	X	X	X	X	X	X		
Polytelis anthopeplus	Regent Parrot	LC											
Cuculidae Parasitic Cuckoos													
Cacomantis flabelliformis	Fan-tailed Cuckoo	LC			X		X		X	X	X		X
Chrysococcyx basalis	Horsfield`s Bronze Cuckoo	LC					X	X		X	X		
Chrysococcyx lucidus	Shining Bronze Cuckoo	LC			X		X	X		X			
Cuculus pallidus	Pallid Cuckoo	LC			X					X			
Strigidae Hawk Owls													
Ninox novaeseelandiae	Boobook Owl	LC	X		X	X	X				X		

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Tytonidae Barn Owls													
Tyto alba	Barn Owl	LC									X		
Tyto n. novaehollandiae	Masked Owl (SW pop.)	P3 Bp											
Podargidae Frogmouths													
Podargus strigoides	Tawny Frogmouth	LC		X		X				X	X		X
Caprimulgidae Nightjars													
Eurostopodus argus	Spotted Nightjar	LC											
Aegothelidae Owlet-nightjars													
Aegotheles cristatus	Australian Owlet-nightjar	LC			X					X			
Halcyonidae Tree Kingfishers													
Dacelo novaeguineae	Laughing Kookaburra	Introduced	X	X	X	X	X	X	X	X	X		X
Todiramphus sanctus	Sacred Kingfisher	LC			X					X	X		X
Meropidae Bee-eaters													
Merops ornatus	Rainbow Bee-eater	JA LC		X	X		X	X	X				X

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Climacteridae Treecreepers													
Climacteris rufa	Rufous Treecreeper	Bh			X								
Maluridae Fairy Wrens, GrassWrens													
Malurus elegans	Red-winged Fairy-wren	Be LC	X	X				X	X	X	X		X
Malurus splendens	Splendid Fairy-wren	Bh LC		X	X	X	X	X	X	X	X		X
Stipiturus malachurus	Southern Emu-wren	Bh LC			X	X	X			X	X		X
Pardalotidae Pardalotes, Bristlebirds, Scrubwrens, Gerygones, Thornbills													
Acanthiza apicalis	Broad-tailed Thornbill	Bh LC	X	X	X	X	X	X	X	X	X		X
Acanthiza chrysorrhoa	Yellow-rumped Thornbill	Bh LC		X	X			X	X	X			X
Acanthiza inornata	Western Thornbill	Bh LC			X	X				X			X
Gerygone fusca	Western Gerygone	LC	X	X	X		X	X	X	X			X
Pardalotus punctatus	Spotted Pardalote	LC		X				X		X			X
Pardalotus striatus	Striated Pardalote	LC			X			X	X	X			X
Sericornis frontalis	White-browed Scrubwren	Bh LC	X	X	X	X	X	X	X	X	X		X
Smicrornis brevirostris	Weebill	Bh LC			X				X				

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Meliphagidae Honeyeaters, Chats													
Acanthorhynchus superciliosus	Western Spinebill	LC		X	X	X				X			X
Anthochaera carunculata	Red Wattlebird	LC	X	X	X	X	X	X	X	X	X		X
Anthochaera lunulata	Western Little Wattlebird	Bp						X		X			X
Lichenostomus virescens	Singing Honeyeater	LC				X		X					
Lichmera indistincta	Brown Honeyeater	LC	X	X	X	X				X			X
Melithreptus chloropsis	Gilbert's Honeyeater	LC		X						X	X		X
Phylidonyris melanops	Tawny-crowned Honeyeater	Bp LC								X			
Phylidonyris nigra	White-cheeked Honeyeater	Bp LC								X			
Phylidonyris novaehollandiae	New Holland Honeyeater	Bp LC	X	X	X	X	X	X		X	X		X
Petroicidae Australian Robins													
Eopsaltria australis	Western Yellow Robin	Bh LC		X	X			X	X				X
Eopsaltria georgiana	White-breasted Robin	Bh LC		X	X	X	X	X	X	X	X		X
Petroica multicolor	Scarlet Robin	Bh LC			X	X		X	X	X	X		
Neosittidae Sitellas													
Daphoenositta chrysoptera	Varied Sittella	Bh LC			X				X	X			X

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Pachycephalidae Crested Shrike-tit, Crested Bellbird, Shrike Thrushes, Whistlers													
Colluricincla harmonica	Grey Shrike-thrush	Bh LC		X	X		X	X	X	X			X
Falcunculus frontatus leucogaster	Western Shrike-tit	Be											X
Pachycephala pectoralis	Golden Whistler	Bh LC		X	X	X	X	X	X	X	X		
Pachycephala rufiventris	Rufous Whistler	LC								X	X		X
Dicruridae Monarchs, Magpie Lark, Flycatchers, Fantails, Drongo													
Grallina cyanoleuca	Magpie-lark	LC							X	X	X		X
Rhipidura fuliginosa	Grey Fantail	LC	X	X	X	X	X	X	X	X	X		
Rhipidura leucophrys	Willie Wagtail	LC	X	X	X	X	X	X	X	X	X		X
Campephagidae Cuckoo-shrikes, Trillers													
Coracina novaehollandiae	Black-faced Cuckoo-shrike	LC		X	X	X	X	X	X	X	X		X
Lalage sueurii	White-winged Triller	LC								X			

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Artamidae Woodswallows, Butcherbirds, Currawongs													
Artamus cinereus	Black-faced Woodswallow	Bp LC							X	X			X
Artamus cyanopterus	Dusky Woodswallow	Bp LC					X				X		X
Cracticus tibicen	Australian Magpie	LC	X	X	X	X	X	X	X	X	X		X
Cracticus torquatus	Grey Butcherbird	LC	X	X	X	X		X	X	X			X
Strepera versicolor	Grey Currawong	Bp LC						X		X	X		X
Corvidae Ravens, Crows													
Corvus coronoides	Australian Raven	LC	X	X	X	X	X	X	X	X	X		X
Motacillidae Old World Pipits, Wagtails													
Anthus novaeseelandiae	Australian Pipit	LC					X	X	X	X	X		
Passeridae Grass Finches, Mannikins, Sparrows													
Stagonopleura oculata	Red-eared Firetail	LC		X						X			X
Dicaeidae Flowerpeckers													
Dicaeum hirundinaceum	Mistletoebird	LC											

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Hirundinidae Swallows, Martins													
Hirundo neoxena	Welcome Swallow	LC			X	X	X	X	X	X			X
Hirundo nigricans	Tree Martin	LC			X			X	X	X			
Sylviidae Old World Warblers													
Cincloramphus cruralis	Brown Songlark	LC								X			
Cincloramphus mathewsi	Rufous Songlark	LC								X			
Zosteropidae White-eyes													
Zosterops lateralis	Silvereye	LC	X	X	X	X	X	X	X	X	X		X

Mammals

Tachyglossidae Echidnas													
Tachyglossus aculeatus	Echidna	LC			X					X			
Dasyuridae Carnivorous Marsupials													
Antechinus flavipes	Yellow-footed Antechinus, Mardo	LC	X										
Phascogale tapoatafa wambenger	Sth-west Brush-tailed Phascogale	S6	X	X									X
Sminthopsis griseoventer	Grey-bellied Dunnart	LC					X	X	X	X	X		X

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Peramelidae Bandicoots													
Isoodon fusciventer	Quenda	P4 LC	X		X		X		X	X	X		X
Phalangeridae Brushtail Possums, Cuscuses													
Trichosurus vulpecula	Common Brushtail Possum	LC	X	X	X	X			X		X		X
Burramyidae Pygmy Possums													
Cercartetus concinnus	Western Pygmy-possum	LC			X	X							X
Tarsipedidae Honey Possum													
Tarsipes rostratus	Honey Possum	LC			X	X	X			X			X
Pseudocheiridae Ringtail Posssums													
Pseudocheirus occidentalis	Western Ringtail Possum	S1 CR CR A2bce+3bce+4bc	X	X	X	X	X	X					X
Macropodidae Kangaroos, Wallabies													
Macropus fuliginosus	Western Grey Kangaroo	LC	X	X	X	X	X	X	X	X	X		X
Molossidae Freetail Bats													
Mormopterus planiceps	South Western Freetail Bat	LC		X	X	X			X				
Tadarida australis	White-striped Freetail-bat	LC		X	X	X			X				

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Vespertilionidae Ordinary Bats													
Chalinolobus gouldii	Gould`s Wattled Bat	LC		X	X	X		X	X		X		X
Chalinolobus morio	Chocolate Wattled Bat	LC		X	X	X	X	X	X	X		X	X
Falsistrellus mackenziei	Western False Pipistrelle	P4 NT			X		X	X	X		X		
Nyctophilus geoffroyi	Lesser Long-eared Bat	LC	X	X	X		X	X	X	X			X
Nyctophilus gouldi	Gould`s Long-eared Bat	LC	X	X	X								
Nyctophilus major major	Western Long-eared Bat	LC	X	X					X				
Vespadelus regulus	Southern Forest Bat	LC	X	X	X	X	X	X	X	X	X		X
Muridae Rats, Mice													
Mus musculus	House Mouse	Introduced	X	X	X	X	X	X		X	X		X
Rattus fuscipes	Western Bush Rat	LC	X			X	X	X	X	X	X	X	X
Rattus rattus	Black Rat	Introduced	X	X	X			X	X		X		X
Canidae Dogs, Foxes													
Canis lupus	Dog	Introduced				X	X						X
Vulpes vulpes	Red Fox	Introduced	X	X	X	X		X	X	X	X		X

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Felidae Cats													
Felis catus	Cat	Introduced				X	X			X	X		X
Leporidae Rabbits, Hares													
Oryctolagus cuniculus	Rabbit	Introduced	X	X	X	X	X	X	X	X	X		

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

APPENDIX C

DBCA NATUREMAP & PROTECTED MATTERS SEARCH TOOL RESULTS

NatureMap
Mapping Western Australia's biodiversity

NatureMap - Augusta

Created By Greg Harewood on 25/04/2018

Kingdom Animalia
Current Names Only Yes
Core Datasets Only Yes
Method 'By Circle'
Centre 115° 09' 50" E,34° 19' 29" S
Buffer 20km
Group By Species Group

Species Group	Species	Records
Amphibian	11	168
Bird	180	5795
Fish	163	395
Invertebrate	107	522
Mammal	44	385
Reptile	31	294
TOTAL	**536**	**7559**

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
Amphibian					
1.	25398	*Crinia georgiana (Quacking Frog)*			
2.	25399	*Crinia glauerti (Clicking Frog)*			
3.	25401	*Crinia pseudinsignifera (Bleating Froglet)*			
4.	25403	*Geocrinia alba (White-bellied Frog)*		T	
5.	25404	*Geocrinia leai (Ticking Frog)*			
6.	25410	*Heleioporus eyrei (Moaning Frog)*			
7.	25415	*Limnodynastes dorsalis (Western Banjo Frog)*			
8.	25378	*Litoria adelaidensis (Slender Tree Frog)*			
9.	25388	*Litoria moorei (Motorbike Frog)*			
10.	25419	*Metacrinia nichollsi (Forest Toadlet)*			
11.	25433	*Pseudophryne guentheri (Crawling Toadlet)*			
Bird					
12.	24260	*Acanthiza apicalis (Broad-tailed Thornbill, Inland Thornbill)*			
13.	24261	*Acanthiza chrysorrhoa (Yellow-rumped Thornbill)*			
14.	24262	*Acanthiza inornata (Western Thornbill)*			
15.	24560	*Acanthorhynchus superciliosus (Western Spinebill)*			
16.	25535	*Accipiter cirrocephalus (Collared Sparrowhawk)*			
17.	25536	*Accipiter fasciatus (Brown Goshawk)*			
18.	25755	*Acrocephalus australis (Australian Reed Warbler)*			
19.	41323	*Actitis hypoleucos (Common Sandpiper)*		IA	
20.	24312	*Anas gracilis (Grey Teal)*			
21.	24315	*Anas rhynchotis (Australasian Shoveler)*			
22.	24316	*Anas superciliosa (Pacific Black Duck)*			
23.	47414	*Anhinga novaehollandiae (Australasian Darter)*			
24.	24561	*Anthochaera carunculata (Red Wattlebird)*			
25.	24562	*Anthochaera lunulata (Western Little Wattlebird)*			
26.	24285	*Aquila audax (Wedge-tailed Eagle)*			
27.	25558	*Ardea ibis (Cattle Egret)*			
28.	41324	*Ardea modesta (great egret, white egret)*			
29.	24340	*Ardea novaehollandiae (White-faced Heron)*			
30.	24341	*Ardea pacifica (White-necked Heron)*			
31.	41326	*Ardenna carneipes (Flesh-footed Shearwater, Fleshy-footed Shearwater)*		T	
32.	41328	*Ardenna tenuirostris (Short-tailed Shearwater)*		IA	
33.	25736	*Arenaria interpres (Ruddy Turnstone)*		IA	
34.	25566	*Artamus cinereus (Black-faced Woodswallow)*			
35.	24353	*Artamus cyanopterus (Dusky Woodswallow)*			
36.	24318	*Aythya australis (Hardhead)*			
37.		*Barnardius zonarius*			
38.	24319	*Biziura lobata (Musk Duck)*			
39.	24724	*Cacatua pastinator subsp. pastinator (Muir's Corella, Muir's Corella (Western Corella*			

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
		SW WA))		S	
40.	25598	*Cacomantis flabelliformis (Fan-tailed Cuckoo)*			
41.	24427	*Cacomantis flabelliformis subsp. flabelliformis (Fan-tailed Cuckoo)*			
42.	42307	*Cacomantis pallidus (Pallid Cuckoo)*			
43.	24780	*Calidris alba (Sanderling)*		IA	
44.	24788	*Calidris ruficollis (Red-necked Stint)*		IA	
45.	24789	*Calidris subminuta (Long-toed Stint)*		IA	
46.	25717	*Calyptorhynchus banksii (Red-tailed Black-Cockatoo)*			
47.	24731	*Calyptorhynchus banksii subsp. naso (Forest Red-tailed Black Cockatoo)*		T	
48.	24733	*Calyptorhynchus baudinii (Baudin's Cockatoo, White-tailed Long-billed Black Cockatoo)*		T	
49.	24734	*Calyptorhynchus latirostris (Carnaby's Cockatoo, White-tailed Short-billed Black Cockatoo)*		T	
50.	48400	*Calyptorhynchus sp. (white-tailed black cockatoo)*		T	
51.	25575	*Charadrius leschenaultii (Greater Sand Plover)*		IA	
52.	24377	*Charadrius ruficapillus (Red-capped Plover)*			
53.	24321	*Chenonetta jubata (Australian Wood Duck, Wood Duck)*			
54.		*Chroicocephalus novaehollandiae*			
55.	24288	*Circus approximans (Swamp Harrier)*			
56.	24774	*Cladorhynchus leucocephalus (Banded Stilt)*			
57.	25675	*Colluricincla harmonica (Grey Shrike-thrush)*			
58.	24613	*Colluricincla harmonica subsp. rufiventris (Grey Shrike-thrush)*			
59.	25568	*Coracina novaehollandiae (Black-faced Cuckoo-shrike)*			
60.	25592	*Corvus coronoides (Australian Raven)*			
61.	24671	*Coturnix pectoralis (Stubble Quail)*			
62.	25701	*Coturnix ypsilophora (Brown Quail)*			
63.	25595	*Cracticus tibicen (Australian Magpie)*			
64.	25596	*Cracticus torquatus (Grey Butcherbird)*			
65.	24322	*Cygnus atratus (Black Swan)*			
66.	30901	*Dacelo novaeguineae (Laughing Kookaburra)*	Y		
67.	25673	*Daphoenositta chrysoptera (Varied Sittella)*			
68.	25618	*Diomedea exulans (Wandering Albatross)*		T	
69.	30836	*Diomedea exulans subsp. exulans (Snowy Albatross)*		T	
70.	24470	*Dromaius novaehollandiae (Emu)*			
71.		*Egretta garzetta*			
72.		*Egretta novaehollandiae*			
73.		*Elanus axillaris*			
74.	47937	*Elseyornis melanops (Black-fronted Dotterel)*			
75.		*Eolophus roseicapillus*			
76.	24651	*Eopsaltria australis subsp. griseogularis (Western Yellow Robin)*			
77.	24652	*Eopsaltria georgiana (White-breasted Robin)*			
78.	24567	*Epthianura albifrons (White-fronted Chat)*			
79.	24818	*Eudyptula minor subsp. novaehollandiae (Little Penguin)*			
80.	25621	*Falco berigora (Brown Falcon)*			
81.	25622	*Falco cenchroides (Australian Kestrel, Nankeen Kestrel)*			
82.	25623	*Falco longipennis (Australian Hobby)*			
83.	25624	*Falco peregrinus (Peregrine Falcon)*		S	
84.	25677	*Falcunculus frontatus (Crested Shrike-tit)*			
85.	24616	*Falcunculus frontatus subsp. leucogaster (Western Shrike-tit, Crested Shrike-tit)*			
86.	25727	*Fulica atra (Eurasian Coot)*			
87.	25530	*Gerygone fusca (Western Gerygone)*			
88.	47962	*Glyciphila melanops (Tawny-crowned Honeyeater)*			
89.	24443	*Grallina cyanoleuca (Magpie-lark)*			
90.	25627	*Haematopus fuliginosus (Sooty Oystercatcher)*			
91.	24487	*Haematopus longirostris (Pied Oystercatcher)*			
92.	24293	*Haliaeetus leucogaster (White-bellied Sea-Eagle)*			
93.	24295	*Haliastur sphenurus (Whistling Kite)*			
94.	24296	*Hamirostra isura (Square-tailed Kite)*			
95.	47965	*Hieraaetus morphnoides (Little Eagle)*			
96.	25734	*Himantopus himantopus (Black-winged Stilt)*			
97.	24491	*Hirundo neoxena (Welcome Swallow)*			
98.	48587	*Hydroprogne caspia (Caspian Tern)*		IA	
99.	25562	*Ixobrychus flavicollis (Black Bittern)*			
100.	24510	*Larus dominicanus (Kelp Gull)*			
101.	25638	*Larus pacificus (Pacific Gull)*			
102.	24512	*Larus pacificus subsp. georgii (Pacific Gull)*			
103.	24557	*Leipoa ocellata (Malleefowl)*		T	
104.	25661	*Lichmera indistincta (Brown Honeyeater)*			
105.		*Lophoictinia isura*			
106.	24690	*Macronectes giganteus (Southern Giant Petrel)*		IA	

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
107.	25650	*Malurus elegans (Red-winged Fairy-wren)*			
108.	25654	*Malurus splendens (Splendid Fairy-wren)*			
109.	25758	*Megalurus gramineus (Little Grassbird)*			
110.	24587	*Melithreptus chloropsis (Western White-naped Honeyeater)*			
111.	24598	*Merops ornatus (Rainbow Bee-eater)*			
112.		*Microcarbo melanoleucos*			
113.	25542	*Milvus migrans (Black Kite)*			
114.	48008	*Morus serrator (Australasian Gannet)*			
115.	25610	*Myiagra inquieta (Restless Flycatcher)*			
116.	24738	*Neophema elegans (Elegant Parrot)*			
117.	24739	*Neophema petrophila (Rock Parrot)*			
118.	25747	*Ninox connivens (Barking Owl)*			
119.	25742	*Numenius phaeopus (Whimbrel)*		IA	
120.	25564	*Nycticorax caledonicus (Rufous Night Heron)*			
121.	24407	*Ocyphaps lophotes (Crested Pigeon)*			
122.	41347	*Onychoprion anaethetus (Bridled Tern)*		IA	
123.	24328	*Oxyura australis (Blue-billed Duck)*		P4	
124.	25680	*Pachycephala rufiventris (Rufous Whistler)*			
125.	24692	*Pachyptila belcheri (Slender-billed Prion)*			
126.	24693	*Pachyptila desolata (Antarctic Prion)*			
127.	48591	*Pandion cristatus (Osprey, Eastern Osprey)*		IA	
128.	25681	*Pardalotus punctatus (Spotted Pardalote)*			
129.	25682	*Pardalotus striatus (Striated Pardalote)*			
130.	48057	*Pelagodroma marina (White-faced Storm Petrel)*			
131.	24648	*Pelecanus conspicillatus (Australian Pelican)*			
132.	48061	*Petrochelidon nigricans (Tree Martin)*			
133.	48066	*Petroica boodang (Scarlet Robin)*			
134.	24659	*Petroica goodenovii (Red-capped Robin)*			
135.	41348	*Pezoporus flaviventris (Western Ground Parrot)*		T	
136.	25697	*Phalacrocorax carbo (Great Cormorant)*			
137.	24664	*Phalacrocorax carbo subsp. novaehollandiae (Great Cormorant)*			
138.	24665	*Phalacrocorax fuscescens (Black-faced Cormorant)*			
139.	24666	*Phalacrocorax melanoleucos subsp. melanoleucos (Little Pied Cormorant)*			
140.	24667	*Phalacrocorax sulcirostris (Little Black Cormorant)*			
141.	25699	*Phalacrocorax varius (Pied Cormorant)*			
142.	24409	*Phaps chalcoptera (Common Bronzewing)*			
143.	25587	*Phaps elegans (Brush Bronzewing)*			
144.	48071	*Phylidonyris niger (White-cheeked Honeyeater)*			
145.	24596	*Phylidonyris novaehollandiae (New Holland Honeyeater)*			
146.	24841	*Platalea flavipes (Yellow-billed Spoonbill)*			
147.	24842	*Platalea regia (Royal Spoonbill)*			
148.	25720	*Platycercus icterotis (Western Rosella)*			
149.	24747	*Platycercus spurius (Red-capped Parrot)*			
150.	24843	*Plegadis falcinellus (Glossy Ibis)*		IA	
151.	24383	*Pluvialis squatarola (Grey Plover)*		IA	
152.	25703	*Podargus strigoides (Tawny Frogmouth)*			
153.	24679	*Podargus strigoides subsp. brachypterus (Tawny Frogmouth)*			
154.	24681	*Poliocephalus poliocephalus (Hoary-headed Grebe)*			
155.	25731	*Porphyrio porphyrio (Purple Swamphen)*			
156.	25732	*Porzana pusilla (Baillon's Crake)*			
157.	24771	*Porzana tabuensis (Spotless Crake)*			
158.	24703	*Pterodroma lessonii (White-headed Petrel)*			
159.	24706	*Pterodroma macroptera subsp. gouldi (Great-winged Petrel)*			
160.	25712	*Puffinus assimilis (Little Shearwater)*			
161.	24711	*Puffinus assimilis subsp. assimilis (Little Shearwater)*			
162.	24715	*Puffinus huttoni (Hutton's Shearwater)*		T	
163.	24716	*Puffinus pacificus (Wedge-tailed Shearwater)*		IA	
164.		*Purpureicephalus spurius*			
165.	24776	*Recurvirostra novaehollandiae (Red-necked Avocet)*			
166.	48096	*Rhipidura albiscapa (Grey Fantail)*			
167.	25614	*Rhipidura leucophrys (Willie Wagtail)*			
168.	25534	*Sericornis frontalis (White-browed Scrubwren)*			
169.	24645	*Stagonopleura oculata (Red-eared Firetail)*			
170.	48116	*Stercorarius antarcticus (Brown Skua)*		P4	
171.	24522	*Sterna bergii (Crested Tern)*			
172.	48594	*Sternula nereis (Fairy Tern)*			
173.	25655	*Stipiturus malachurus (Southern Emu-wren)*			
174.	24554	*Stipiturus malachurus subsp. westernensis (Southern Emu-wren)*			
175.	25597	*Strepera versicolor (Grey Currawong)*			
176.	25590	*Streptopelia senegalensis (Laughing Turtle-Dove)*	Y		

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
177.	25705	*Tachybaptus novaehollandiae (Australasian Grebe, Black-throated Grebe)*			
178.	24331	*Tadorna tadornoides (Australian Shelduck, Mountain Duck)*			
179.	34134	*Thalassarche carteri (Indian Yellow-nosed Albatross)*		T	
180.	34135	*Thalassarche cauta (Shy Albatross)*		T	
181.	34007	*Thalassarche chlororhynchos (Atlantic Yellow-nosed Albatross)*		T	
182.	44607	*Thalassarche melanophris (Black-browed Albatross)*		T	
183.	48597	*Thalasseus bergii (Crested Tern)*		IA	
184.	48135	*Thinornis rubricollis (Hooded Plover, Hooded Dotterel)*		P4	
185.	24845	*Threskiornis spinicollis (Straw-necked Ibis)*			
186.	25549	*Todiramphus sanctus (Sacred Kingfisher)*			
187.	24808	*Tringa nebularia (Common Greenshank, greenshank)*		IA	
188.	24809	*Tringa stagnatilis (Marsh Sandpiper, little greenshank)*		IA	
189.	24855	*Tyto novaehollandiae subsp. novaehollandiae (Masked Owl (southwest))*		P3	
190.	24386	*Vanellus tricolor (Banded Lapwing)*			
191.	25765	*Zosterops lateralis (Grey-breasted White-eye, Silvereye)*			

Fish

192.		*? ?*			
193.		*Acanthaluteres brownii*			
194.		*Acanthaluteres spilomelanurus*			
195.		*Acanthaluteres vittiger*			
196.		*Acanthistius serratus*			
197.		*Acentrogobius bifrenatus*			
198.		*Achoerodus gouldii*			
199.		*Aetapcus maculatus*			
200.		*Afurcagobius suppositus*			
201.		*Aldrichetta forsteri*			
202.		*Ammotretis elongatus*			
203.		*Ammotretis rostratus*			
204.		*Anoplocapros lenticularis*			
205.		*Arripis truttacea*			
206.		*Atherinosoma elongata*			
207.		*Atherinosoma presbyteroides*			
208.		*Atherinosoma wallacei*			
209.		*Aulohalaelurus labiosus*			
210.		*Austrolabrus maculatus*			
211.		*Bodianus frenchii*			
212.		*Bostockia porosa*			
213.		*Caesioperca rasor*			
214.		*Callogobius depressus*			
215.		*Callogobius sp.*			
216.		*Caprichthys gymnura*			
217.		*Carangoides ferdau*			
218.		*Carcharhinus sp.*			
219.		*Centropogon australis*			
220.		*Cheilodactylus gibbosus*			
221.		*Chelidonichthys kumu*			
222.		*Chelmonops curiosus*			
223.		*Chromis klunzingeri*			
224.		*Cirrhimuraena calamus*			
225.		*Cnidoglanis macrocephalus*			
226.		*Cochleoceps bicolor*			
227.		*Cochleoceps sp.*			
228.		*Conger wilsoni*			
229.		*Contusus brevicaudus*			
230.		*Coris auricularis*			
231.		*Cristiceps australis*			
232.		*Dactylophora nigricans*			
233.		*Dasyatis brevicaudata*			
234.		*Dinolestes lewini*			
235.		*Dinolestes sp.*			Y
236.		*Diodon nicthemerus*			
237.		*Dipulus hutchinsi*			
238.		*Dotalabrus alleni*			
239.		*Edelia vittata*			
240.		*Elops hawaiensis*			
241.		*Engraulis australis*			
242.		*Enoplosus armatus*			
243.		*Epinephelides armatus*			
244.		*Eupetrichthys angustipes*			
245.		*Eviota bimaculata*			

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
246.		*Favonigobius lateralis*			
247.		*Furgaleus macki*			
248.	34028	*Galaxias occidentalis (Western Minnow)*			
249.	34026	*Galaxiella munda (mud minnow, western dwarf galaxias)*		T	
250.	34027	*Galaxiella nigrostriata (Black-stripe Minnow, black-striped dwarf galaxias)*		T	
251.		*Gambusia affinis*			
252.	34030	*Geotria australis (Pouched Lamprey)*		P1	
253.		*Girella tephraeops*			
254.		*Girella zebra*			
255.		*Gonorynchus greyi*			
256.		*Gymnapistes marmoratus*			
257.		*Gymnothorax sp.*			
258.		*Gymnothorax woodwardi*			
259.		*Haletta semifasciata*			
260.		*Halichoeres sp.*			
261.		*Helcogramma decurrens*			
262.		*Heteroclinus milwardi (ms)*			
263.		*Heteroclinus roseus*			
264.		*Heteroclinus sp.*			
265.		*Heterodontus portusjacksoni*			
266.		*Hippocampus sp.*			
267.		*Hyperlophus vittatus*			
268.		*Hypnos monopterygium*			
269.		*Hypoplectrodes nigroruber*			
270.		*Hypoplectrodes wilsoni*			
271.		*Hyporhamphus melanochir*			
272.		*Kyphosus cornelii*			
273.		*Lactoria concatenatus*			
274.		*Lepidoblennius marmoratus*			
275.	47983	*Lepidogalaxias salamandroides (Salamanderfish)*		T	
276.		*Lotella rhacinus*			
277.		*Meuschenia flavolineata*			
278.		*Meuschenia freycineti*			
279.		*Meuschenia galii*			
280.		*Microcanthus strigatus*			
281.		*Mitotichthys meraculus*			
282.		*Mugil cephalus*			
283.		*Mugil sp.*			
284.		*Muraenichthys australis*			
285.		*Muraenichthys sp.*			
286.		*Mustelus antarcticus*			
287.	34033	*Nannatherina balstoni (Balston's Pygmy Perch)*		T	
288.		*Nannoperca vittata*			
289.		*Neatypus obliquus*			
290.		*Neosebastes pandus*			
291.		*Notolabrus parilus*			
292.		*Odax acroptilus*			
293.		*Omegophora cyanopunctata*			
294.		*Ophiclinus gracilis*			
295.		*Ophiclinus pectoralis*			
296.		*Ophisurus serpens*			
297.		*Ophthalmolepis lineolatus*			
298.		*Orectolobus ornatus*			
299.		*Pagrus auratus*			
300.		*Parablennius postoculomaculatus*			
301.		*Paraplesiops meleagris*			
302.		*Parapriacanthus elongatus*			
303.		*Parma sp.*			
304.		*Parvicrepis sp. 1*			
305.		*Pelates sexlineatus*			
306.		*Pempheris klunzingeri*			
307.		*Pempheris multiradiata*			
308.		*Phyllopteryx taeniolatus*			
309.		*Pictilabrus laticlavius*			
310.		*Pictilabrus sp.*			
311.		*Pictilabrus viridis*			
312.		*Platycephalus arenarius*			
313.		*Platycephalus sp.*			
314.		*Pseudocaranx dentex*			
315.		*Pseudogobius olorum*			

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
316.		*Pseudolabrus biserialis*			
317.		*Pseudophycis breviuscula*			
318.		*Pseudorhombus jenynsii*			
319.		*Pugnaso curtirostris*			
320.		*Rhabdosargus sarba*			
321.		*Schuettea woodwardi*			
322.		*Scobinichthys granulatus*			
323.		*Scomber australasicus*			
324.		*Scorpaena n. sp.*			
325.		*Scorpaena n. sp. A*			
326.		*Scorpaenodes steenei*			
327.		*Scorpanea n. sp. A*			Y
328.		*Shark? sp.*			
329.		*Sillaginodes punctata*			
330.		*Sillago bassensis*			
331.		*Sillago schomburgkii*			
332.		*Sillago sp.*			
333.		*Siphonognathus beddomei*			
334.		*Siphonognathus caninus*			
335.		*Siphonognathus sp.*			Y
336.		*Sphyraena novaehollandiae*			
337.		*Spratelloides robustus*			
338.		*Sticharium dorsale*			
339.		*Sutorectus tentaculatus*			
340.		*Synchiropus papilio*			
341.		*Tandanus bostocki*			
342.		*Threpterius maculosus*			
343.		*Thysanophrys cirronasus*			
344.		*Tilodon sexfasciatum*			
345.		*Torquigener pleurogramma*			
346.		*Trachichthys australis*			
347.		*Trachinops brauni*			
348.		*Trachinops noarlungae*			
349.		*Trachurus novaezelandiae*			
350.		*Trinorfolkia incisa*			
351.		*Trygonorrhina fasciata*			
352.		*Vincentia punctata*			
353.		*Zephyrichthys barryi*			
354.		*Zeus faber*			

Invertebrate

355.		*Acariformes sp.*			
356.		*Adoxotoma sexmaculata*			Y
357.		*Aeshnidae sp.*			
358.		*Amphisopodidae sp.*			
359.		*Ancylidae sp.*			
360.		*Arachnura higginsi*			
361.		*Araneus cyphoxis*			
362.		*Archaeosynthemis occidentalis*			
363.		*Artoria cingulipes*			
364.		*Artoria taeniifera*			
365.		*Austracantha minax*			
366.		*Australomimetus diabolicus*			
367.	34110	*Austroassiminea letha (Cape Leeuwin Freshwater Snail)*		T	
368.		*Baiami montana*			
369.		*Baiami tegenarioides*			
370.		*Baiami torbayensis*			
371.		*Bennelongia australis*			
372.		*Caenidae sp.*			
373.		*Calliuncus labyrinthus*			Y
374.		*Calymmachernes angulatus*			
375.		*Ceinidae sp.*			
376.		*Ceratopogonidae sp.*			
377.		*Cercophonius granulosus*			
378.		*Cercophonius sulcatus*			
379.	33939	*Cherax cainii (Marron)*			
380.		*Cherax crassimanus*			
381.		*Cherax destructor*			
382.		*Cherax preissii*			
383.		*Cherax quinquecarinatus*			
384.		*Chironominae sp.*			

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
385.		*Conicochernes crassus*			
386.		*Corduliidae sp.*			
387.		*Corixidae sp.*			
388.		*Cormocephalus hartmeyeri*			
389.		*Cormocephalus novaehollandiae*			
390.		*Cormocephalus turneri*			
391.		*Culicidae sp.*			
392.		*Curculionidae sp.*			
393.		*Dytiscidae sp.*			
394.		*Ecnomidae sp.*			
395.		*Eodelena lapidicola*			
396.		*Ephydridae sp.*			
397.		*Gelastocoridae sp.*			
398.		*Geogarypus taylori*			
399.		*Gomphidae sp.*			
400.		*Gripopterygidae sp.*			
401.		*Gyrinidae sp.*			
402.		*Hebridae sp.*			
403.		*Hemicorduliidae sp.*			
404.		*Hydraenidae sp.*			
405.		*Hydrometridae sp.*			
406.		*Hydrophilidae sp.*			
407.		*Hydroptilidae sp.*			
408.		*Hyriidae sp.*			
409.		*Isopeda leishmanni*			
410.		*Ixodes australiensis*			
411.		*Janiridae sp.*			
412.		*Kangarosa properipes*			
413.		*Lagynochthonius australicus*			
414.		*Lampona cylindrata*			
415.		*Latrodectus hasseltii*			
416.		*Leptoceridae sp.*			
417.		*Leptophlebiidae sp.*			
418.		*Libellulidae sp.*			
419.		*Limnocythere mowbrayensis*			
420.		*Lymnaeidae sp.*			
421.		*Megapodagrionidae sp.*			
422.		*Mesoveliidae sp.*			
423.		*Nematoda sp.*			
424.		*Nepidae sp.*			
425.		*Nicodamus mainae*			
426.		*Notonectidae sp.*			
427.		*Nunciella aspera*			
428.		*Oligochaeta sp.*			
429.		*Orthocladiinae sp.*			
430.		*Palaemonidae sp.*			
431.		*Parastacidae sp.*			
432.		*Pentasteron intermedium*			
433.		*Perthiidae sp.*			
434.		*Pholcus phalangioides*			
435.		*Planorbidae sp.*			
436.		*Podykipus collinus*			
437.		*Pomatiopsidae sp.*			
438.		*Protochelifer cavernarum*			
439.		*Pseudotyrannochthonius giganteus*			
440.		*Raveniella peckorum*			
441.		*Richardsonianidae sp.*			
442.		*Sarscypridopsis aculeata*			
443.		*Scirtidae sp.*			
444.		*Scytodes thoracica*			
445.		*Simuliidae sp.*			
446.		*Siphonotus flavomarginatus*			
447.		*Sphaeriidae sp.*			
448.		*Staphylinidae sp.*			
449.		*Storosa tetrica*			
450.		*Stratiomyidae sp.*			
451.		*Syrphidae sp.*			
452.		*Tanypodinae sp.*			
453.		*Taphiassa robertsi*			
454.		*Telephlebiidae sp.*			

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
455.		*Temnocephalidea sp.*			
456.		*Tipulidae sp.*			
457.		*Urodacus novaehollandiae*			
458.		*Veliidae sp.*			
459.		*Venator immansueta*			
460.	34113	*Westralunio carteri (Carter's Freshwater Mussel)*		T	
461.		*Zephyrarchaea janineae*			
Mammal					
462.	24208	*Arctocephalus forsteri (New Zealand Fur Seal, long-nosed fur-seal)*		S	
463.	24209	*Arctocephalus tropicalis (Subantarctic fur-seal)*		T	
464.		*Balaenoptera sp.*			
465.	24162	*Bettongia penicillata subsp. ogilbyi (Woylie, Brush-tailed Bettong)*		T	
466.	24251	*Bos taurus (European Cattle)*	Y		
467.	24039	*Canis lupus subsp. dingo (Dingo)*	Y		
468.	24086	*Cercartetus concinnus (Western Pygmy-possum, Mundarda)*			
469.	24186	*Chalinolobus gouldii (Gould's Wattled Bat)*			
470.	24187	*Chalinolobus morio (Chocolate Wattled Bat)*			
471.	24092	*Dasyurus geoffroii (Chuditch, Western Quoll)*		T	
472.	24043	*Eubalaena australis (Southern Right Whale)*		T	
473.	24041	*Felis catus (Cat)*	Y		
474.	24055	*Globicephala melas (Long-finned Pilot Whale)*			
475.	24056	*Grampus griseus (Risso's Dolphin)*			
476.	24215	*Hydromys chrysogaster (Water-rat, Rakali)*		P4	
477.	48588	*Isoodon fusciventer (Quenda, southwestern brown bandicoot)*		P4	
478.	24132	*Macropus fuliginosus (Western Grey Kangaroo)*			
479.	24051	*Megaptera novaeangliae (Humpback Whale)*		S	
480.	24076	*Mesoplodon bowdoini (Andrew's Beaked Whale)*			
481.	24078	*Mesoplodon grayi (Gray's Beaked Whale)*			
482.	24223	*Mus musculus (House Mouse)*	Y		
483.	48022	*Notamacropus irma (Western Brush Wallaby)*		P4	
484.	24194	*Nyctophilus geoffroyi (Lesser Long-eared Bat)*			
485.	48070	*Phascogale tapoatafa subsp. wambenger (South-western Brush-tailed Phascogale, Wambenger)*		S	
486.	24073	*Physeter macrocephalus (Sperm Whale)*		T	
487.	24163	*Potorous gilbertii (Gilbert's Potoroo)*		T	
488.	24166	*Pseudocheirus occidentalis (Western Ringtail Possum, ngwayir)*		T	
489.	24236	*Pseudomys fieldi (Shark Bay Mouse, Djoongari)*		T	
490.	24241	*Pseudomys shortridgei (Heath Mouse, Heath Rat, Dayang)*		T	
491.	24063	*Pseudorca crassidens (False Killer Whale)*			
492.	24243	*Rattus fuscipes (Western Bush Rat)*			
493.	24245	*Rattus rattus (Black Rat)*	Y		
494.	24145	*Setonix brachyurus (Quokka)*		T	
495.	24109	*Sminthopsis dolichura (Little long-tailed Dunnart)*			
496.	24111	*Sminthopsis gilberti (Gilbert's Dunnart)*			
497.	25515	*Sminthopsis griseoventer (Grey-bellied Dunnart)*			
498.	48111	*Stenella attenuata (Spotted Dolphin)*			
499.	48113	*Stenella coeruleoalba (Striped Dophin)*			
500.	24167	*Tarsipes rostratus (Honey Possum, Noolbenger)*			
501.	24158	*Trichosurus vulpecula subsp. vulpecula (Common Brushtail Possum)*			
502.	30954	*Tursiops aduncus (Indo-Pacific Bottlenose Dolphin)*			
503.	24069	*Tursiops truncatus (Bottlenose Dolphin)*			
504.	24206	*Vespadelus regulus (Southern Forest Bat)*			
505.	24040	*Vulpes vulpes (Red Fox)*	Y		
Reptile					
506.	42368	*Acritoscincus trilineatus (Western Three-lined Skink)*			
507.	24990	*Aprasia pulchella (Granite Worm-lizard)*			
508.	25335	*Caretta caretta (Loggerhead Turtle)*		T	
509.	43380	*Chelodina colliei (South-western Snake-necked Turtle)*			
510.	24980	*Christinus marmoratus (Marbled Gecko)*			
511.	30899	*Ctenophorus adelaidensis (Southern Heath Dragon, Western Heath Dragon)*			
512.	25027	*Ctenotus australis*			
513.	25031	*Ctenotus catenifer*			
514.	25049	*Ctenotus labillardieri*			
515.	25346	*Dermochelys coriacea (Leatherback Turtle)*		T	
516.	25251	*Echiopsis curta (Bardick)*			
517.	25096	*Egernia kingii (King's Skink)*			
518.	25100	*Egernia napoleonis*			
519.	25250	*Elapognathus coronatus (Crowned Snake)*			
520.	25290	*Elapognathus minor (Short-nosed Snake)*		P2	

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
521.	30919	*Hemiergis gracilipes (skink)*			
522.	25118	*Hemiergis peronii subsp. tridactyla*			
523.	25133	*Lerista elegans*			
524.	25483	*Lerista microtis*			
525.	25154	*Lerista microtis subsp. microtis*			
526.	25240	*Morelia spilota subsp. imbricata (Carpet Python)*			
527.	25322	*Morelia spilota subsp. variegata (Carpet Python)*			
528.	25191	*Morethia lineoocellata*			
529.	25252	*Notechis scutatus (Tiger Snake)*			
530.	25255	*Parasuta nigriceps*			
531.	24907	*Pogona minor subsp. minor (Dwarf Bearded Dragon)*			
532.	25511	*Pseudonaja affinis (Dugite)*			
533.	25259	*Pseudonaja affinis subsp. affinis (Dugite)*			
534.	25008	*Pygopus lepidopodus (Common Scaly Foot)*			
535.	25207	*Tiliqua rugosa subsp. rugosa*			
536.	25225	*Varanus rosenbergi (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 wholely 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.

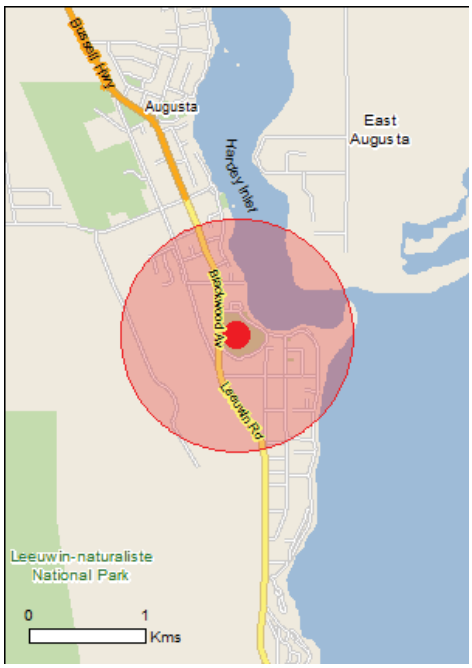
EPBC Act Protected Matters Report

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: 20/05/18 18:46:45



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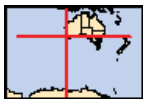


Summary

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:	1
Listed Threatened Species:	47
Listed Migratory Species:	45

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:	1
Commonwealth Heritage Places:	None
Listed Marine Species:	67
Whales and Other Cetaceans:	12
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Commonwealth Reserves Marine:	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:	None
Regional Forest Agreements:	1
Invasive Species:	19
Nationally Important Wetlands:	None
Key Ecological Features (Marine)	None

Details

Matters of National Environmental Significance

Listed Threatened Ecological Communities [Resource Information]

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

Name	Status	Type of Presence
Subtropical and Temperate Coastal Saltmarsh	Vulnerable	Community likely to occur within area

Listed Threatened Species [Resource Information]

Name	Status	Type of Presence
Birds		
Anous tenuirostris melanops Australian Lesser Noddy [26000]	Vulnerable	Species or species habitat may occur within area
Botaurus poiciloptilus Australasian Bittern [1001]	Endangered	Species or species habitat likely to occur within area
Calidris canutus Red Knot, Knot [855]	Endangered	Species or species habitat may occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat likely to occur within area
Calidris tenuirostris Great Knot [862]	Critically Endangered	Species or species habitat known to 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 known to occur within area
Calyptorhynchus latirostris Carnaby's Cockatoo, Short-billed Black-Cockatoo [59523]	Endangered	Species or species habitat likely to occur within area
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat known to occur within area
Diomedea amsterdamensis Amsterdam Albatross [64405]	Endangered	Species or species habitat may occur within area
Diomedea dabbenena Tristan Albatross [66471]	Endangered	Species or species habitat may occur within area

Name	Status	Type of Presence
Diomedea epomophora Southern Royal Albatross [89221]	Vulnerable	Species or species habitat likely to occur within area
Diomedea exulans Wandering Albatross [89223]	Vulnerable	Species or species habitat likely to occur within area
Diomedea sanfordi Northern Royal Albatross [64456]	Endangered	Species or species habitat likely to occur within area
Limosa lapponica baueri Bar-tailed Godwit (baueri), Western Alaskan Bar-tailed Godwit [86380]	Vulnerable	Species or species habitat may occur within area
Limosa lapponica menzbieri Northern Siberian Bar-tailed Godwit, Bar-tailed Godwit (menzbieri) [86432]	Critically Endangered	Species or species habitat may occur within area
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area
Macronectes halli Northern Giant Petrel [1061]	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
Pachyptila turtur subantarctica Fairy Prion (southern) [64445]	Vulnerable	Species or species habitat likely to occur within area
Phoebetria fusca Sooty Albatross [1075]	Vulnerable	Species or species habitat may occur within area
Sternula nereis nereis Australian Fairy Tern [82950]	Vulnerable	Breeding likely to occur within area
Thalassarche cauta cauta Shy Albatross, Tasmanian Shy Albatross [82345]	Vulnerable	Species or species habitat likely to occur within area
Thalassarche cauta steadi White-capped Albatross [82344]	Vulnerable	Species or species habitat likely to occur within area
Thalassarche impavida Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area
Thalassarche melanophris Black-browed Albatross [66472]	Vulnerable	Species or species habitat may occur within area
Fish		
Galaxiella nigrostriata Blackstriped Dwarf Galaxias, Black-stripe Minnow [88677]	Endangered	Species or species habitat likely to occur within area
Nannatherina balstoni Balston's Pygmy Perch [66698]	Vulnerable	Species or species habitat likely to occur within area
Mammals		
Balaenoptera musculus Blue Whale [36]	Endangered	Species or species habitat likely to occur within area

Name	Status	Type of Presence
Dasyurus geoffroii Chuditch, Western Quoll [330]	Vulnerable	Species or species habitat likely to occur within area
Eubalaena australis Southern Right Whale [40]	Endangered	Breeding known to occur within area
Megaptera novaeangliae Humpback Whale [38]	Vulnerable	Congregation or aggregation known to occur within area
Neophoca cinerea Australian Sea-lion, Australian Sea Lion [22]	Vulnerable	Species or species habitat may 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
Plants		
Banksia nivea subsp. uliginosa Swamp Honeypot [82766]	Endangered	Species or species habitat likely to occur within area
Caladenia lodgeana Lodge's Spider-orchid [68664]	Critically Endangered	Species or species habitat known to occur within area
Calectasia cyanea Blue Tinsel Lily [7669]	Critically Endangered	Species or species habitat may occur within area
Kennedia lateritia Augusta Kennedia [45985]	Endangered	Species or species habitat likely to occur within area
Sphenotoma drummondii Mountain Paper-heath [21160]	Endangered	Species or species habitat may occur within area
Reptiles		
Caretta caretta Loggerhead Turtle [1763]	Endangered	Breeding likely to occur within area
Chelonia mydas Green Turtle [1765]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Breeding likely to occur within area
Natator depressus Flatback Turtle [59257]	Vulnerable	Species or species habitat known to occur within area
Sharks		
Carcharias taurus (west coast population) Grey Nurse Shark (west coast population) [68752]	Vulnerable	Species or species habitat known to occur within area
Carcharodon carcharias White Shark, Great White Shark [64470]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
Rhincodon typus Whale Shark [66680]	Vulnerable	Species or species habitat may occur within area

Listed Migratory Species [Resource Information]		
* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.		
Name	Threatened	Type of Presence
Migratory Marine Birds		
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Ardenna carneipes Flesh-footed Shearwater, Fleshy-footed Shearwater [82404]		Foraging, feeding or related behaviour likely to occur within area
Diomedea amsterdamensis Amsterdam Albatross [64405]	Endangered	Species or species habitat may occur within area
Diomedea dabbenena Tristan Albatross [66471]	Endangered	Species or species habitat may occur within area
Diomedea epomophora Southern Royal Albatross [89221]	Vulnerable	Species or species habitat likely to occur within area
Diomedea exulans Wandering Albatross [89223]	Vulnerable	Species or species habitat likely to occur within area
Diomedea sanfordi Northern Royal Albatross [64456]	Endangered	Species or species habitat likely to occur within area
Hydroprogne caspia Caspian Tern [808]		Foraging, feeding or related behaviour known to occur within area
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area
Macronectes halli Northern Giant Petrel [1061]	Vulnerable	Species or species habitat may occur within area
Phoebetria fusca Sooty Albatross [1075]	Vulnerable	Species or species habitat may occur within area
Thalassarche cauta Tasmanian Shy Albatross [89224]	Vulnerable*	Species or species habitat likely to occur within area
Thalassarche impavida Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area
Thalassarche melanophris Black-browed Albatross [66472]	Vulnerable	Species or species habitat may occur within area
Thalassarche steadi White-capped Albatross [64462]	Vulnerable*	Species or species habitat likely to occur within area
Migratory Marine Species		
Balaena glacialis australis Southern Right Whale [75529]	Endangered*	Breeding known to occur within area
Balaenoptera edeni Bryde's Whale [35]		Species or species habitat may occur within area

Name	Threatened	Type of Presence
Balaenoptera musculus Blue Whale [36]	Endangered	Species or species habitat likely to occur within area
Caperea marginata Pygmy Right Whale [39]		Species or species habitat may occur within area
Carcharodon carcharias White Shark, Great White Shark [64470]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
Caretta caretta Loggerhead Turtle [1763]	Endangered	Breeding likely to occur within area
Chelonia mydas Green Turtle [1765]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Breeding likely to occur within area
Lagenorhynchus obscurus Dusky Dolphin [43]		Species or species habitat may occur within area
Lamna nasus Porbeagle, Mackerel Shark [83288]		Species or species habitat may occur within area
Manta alfredi Reef Manta Ray, Coastal Manta Ray, Inshore Manta Ray, Prince Alfred's Ray, Resident Manta Ray [84994]		Species or species habitat may occur within area
Manta birostris Giant Manta Ray, Chevron Manta Ray, Pacific Manta Ray, Pelagic Manta Ray, Oceanic Manta Ray [84995]		Species or species habitat may occur within area
Megaptera novaeangliae Humpback Whale [38]	Vulnerable	Congregation or aggregation known to occur within area
Natator depressus Flatback Turtle [59257]	Vulnerable	Species or species habitat known to occur within area
Orcinus orca Killer Whale, Orca [46]		Species or species habitat may occur within area
Rhincodon typus Whale Shark [66680]	Vulnerable	Species or species habitat may occur within area
Migratory Wetlands Species		
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat known to occur within area
Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat known to occur within area
Calidris alba Sanderling [875]		Species or species habitat known to occur within area
Calidris canutus Red Knot, Knot [855]	Endangered	Species or species habitat may occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species

Name	Threatened	Type of Presence
		habitat likely to occur within area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area
Calidris ruficollis Red-necked Stint [860]		Species or species habitat known to occur within area
Calidris tenuirostris Great Knot [862]	Critically Endangered	Species or species habitat known to occur within area
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat known to occur within area
Limosa lapponica Bar-tailed Godwit [844]		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 known to occur within area
Pluvialis fulva Pacific Golden Plover [25545]		Species or species habitat likely to occur within area
Tringa nebularia Common Greenshank, Greenshank [832]		Species or species habitat may occur within area

Other Matters Protected by the EPBC Act

Commonwealth Land [Resource Information]

The Commonwealth area listed below may indicate the presence of Commonwealth land in this vicinity. Due to the unreliability of the data source, all proposals should be checked as to whether it impacts on a Commonwealth area, before making a definitive decision. Contact the State or Territory government land department for further information.

Name
Commonwealth Land -

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 known to occur within area
Anous tenuirostris melanops Australian Lesser Noddy [26000]	Vulnerable	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 known to occur within area

Name	Threatened	Type of Presence
Ardea ibis Cattle Egret [59542]		Species or species habitat may occur within area
Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat known to occur within area
Calidris alba Sanderling [875]		Species or species habitat known to occur within area
Calidris canutus Red Knot, Knot [855]	Endangered	Species or species habitat may occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat likely to occur within area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area
Calidris ruficollis Red-necked Stint [860]		Species or species habitat known to occur within area
Calidris tenuirostris Great Knot [862]	Critically Endangered	Species or species habitat known to occur within area
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat known to occur within area
Charadrius ruficapillus Red-capped Plover [881]		Species or species habitat known to occur within area
Diomedea amsterdamensis Amsterdam Albatross [64405]	Endangered	Species or species habitat may occur within area
Diomedea dabbenena Tristan Albatross [66471]	Endangered	Species or species habitat may occur within area
Diomedea epomophora Southern Royal Albatross [89221]	Vulnerable	Species or species habitat likely to occur within area
Diomedea exulans Wandering Albatross [89223]	Vulnerable	Species or species habitat likely to occur within area
Diomedea sanfordi Northern Royal Albatross [64456]	Endangered	Species or species habitat likely to occur within area
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat known to occur within area
Limosa lapponica Bar-tailed Godwit [844]		Species or species habitat may occur within area
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area

Name	Threatened	Type of Presence
Macronectes halli Northern Giant Petrel [1061]	Vulnerable	Species or species habitat may occur within area
Merops ornatus Rainbow Bee-eater [670]		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
Pachyptila turtur Fairy Prion [1066]		Species or species habitat likely to occur within area
Pandion haliaetus Osprey [952]		Species or species habitat known to occur within area
Phoebetria fusca Sooty Albatross [1075]	Vulnerable	Species or species habitat may occur within area
Pluvialis fulva Pacific Golden Plover [25545]		Species or species habitat likely to occur within area
Puffinus carneipes Flesh-footed Shearwater, Fleshy-footed Shearwater [1043]		Foraging, feeding or related behaviour likely to occur within area
Sterna caspia Caspian Tern [59467]		Foraging, feeding or related behaviour known to occur within area
Thalassarche cauta Tasmanian Shy Albatross [89224]	Vulnerable*	Species or species habitat likely to occur within area
Thalassarche impavida Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area
Thalassarche melanophris Black-browed Albatross [66472]	Vulnerable	Species or species habitat may occur within area
Thalassarche steadi White-capped Albatross [64462]	Vulnerable*	Species or species habitat likely to occur within area
Thinornis rubricollis Hooded Plover [59510]		Breeding known to occur within area
Tringa nebularia Common Greenshank, Greenshank [832]		Species or species habitat may occur within area
Fish		
Acentronura australe Southern Pygmy Pipehorse [66185]		Species or species habitat may occur within area
Campichthys galei Gale's Pipefish [66191]		Species or species habitat may occur within area
Heraldia nocturna Upside-down Pipefish, Eastern Upside-down Pipefish, Eastern Upside-down Pipefish [66227]		Species or species habitat may occur within area

Name	Threatened	Type of Presence
Hippocampus angustus Western Spiny Seahorse, Narrow-bellied Seahorse [66234]		Species or species habitat may occur within area
Hippocampus breviceps Short-head Seahorse, Short-snouted Seahorse [66235]		Species or species habitat may occur within area
Hippocampus subelongatus West Australian Seahorse [66722]		Species or species habitat may occur within area
Histiogamphelus cristatus Rhino Pipefish, Macleay's Crested Pipefish, Ring-back Pipefish [66243]		Species or species habitat may occur within area
Lissocampus caudalis Australian Smooth Pipefish, Smooth Pipefish [66249]		Species or species habitat may occur within area
Lissocampus fatiloquus Prophet's Pipefish [66250]		Species or species habitat may occur within area
Lissocampus runa Javelin Pipefish [66251]		Species or species habitat may occur within area
Maroubra perserrata Sawtooth Pipefish [66252]		Species or species habitat may occur within area
Mitotichthys meraculus Western Crested Pipefish [66259]		Species or species habitat may occur within area
Nannocampus subosseus Bonyhead Pipefish, Bony-headed Pipefish [66264]		Species or species habitat may occur within area
Phycodurus eques Leafy Seadragon [66267]		Species or species habitat may occur within area
Phyllopteryx taeniolatus Common Seadragon, Weedy Seadragon [66268]		Species or species habitat may occur within area
Pugnaso curtirostris Pugnose Pipefish, Pug-nosed Pipefish [66269]		Species or species habitat may occur within area
Solegnathus lettiensis Gunther's Pipehorse, Indonesian Pipefish [66273]		Species or species habitat may occur within area
Stigmatopora argus Spotted Pipefish, Gulf Pipefish, Peacock Pipefish [66276]		Species or species habitat may occur within area
Stigmatopora nigra Widebody Pipefish, Wide-bodied Pipefish, Black Pipefish [66277]		Species or species habitat may occur within area
Stigmatopora olivacea a pipefish [74966]		Species or species habitat may occur within area
Urocampus carinirostris Hairy Pipefish [66282]		Species or species habitat may occur within area

Name	Threatened	Type of Presence
Vanacampus margaritifer Mother-of-pearl Pipefish [66283]		Species or species habitat may occur within area
Vanacampus phillipi Port Phillip Pipefish [66284]		Species or species habitat may occur within area
Vanacampus poecilolaemus Longsnout Pipefish, Australian Long-snout Pipefish, Long-snouted Pipefish [66285]		Species or species habitat may occur within area
Mammals		
Arctocephalus forsteri Long-nosed Fur-seal, New Zealand Fur-seal [20]		Species or species habitat likely to occur within area
Neophoca cinerea Australian Sea-lion, Australian Sea Lion [22]	Vulnerable	Species or species habitat may occur within area
Reptiles		
Caretta caretta Loggerhead Turtle [1763]	Endangered	Breeding likely to occur within area
Chelonia mydas Green Turtle [1765]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Breeding likely to occur within area
Natator depressus Flatback Turtle [59257]	Vulnerable	Species or species habitat known to occur within area

Whales and other Cetaceans [Resource Information]

Name	Status	Type of Presence
Mammals		
Balaenoptera acutorostrata Minke Whale [33]		Species or species habitat may occur within area
Balaenoptera edeni Bryde's Whale [35]		Species or species habitat may occur within area
Balaenoptera musculus Blue Whale [36]	Endangered	Species or species habitat likely to occur within area
Caperea marginata Pygmy Right Whale [39]		Species or species habitat may occur within area
Delphinus delphis Common Dophin, Short-beaked Common Dolphin [60]		Species or species habitat may occur within area
Eubalaena australis Southern Right Whale [40]	Endangered	Breeding known to occur within area
Grampus griseus Risso's Dolphin, Grampus [64]		Species or species habitat may occur within area
Lagenorhynchus obscurus Dusky Dolphin [43]		Species or species habitat may occur within area

Name	Status	Type of Presence
Megaptera novaeangliae Humpback Whale [38]	Vulnerable	Congregation or aggregation known to occur within area
Orcinus orca Killer Whale, Orca [46]		Species or species habitat may occur within area
Tursiops aduncus Indian Ocean Bottlenose Dolphin, Spotted Bottlenose Dolphin [68418]		Species or species habitat likely to occur within area
Tursiops truncatus s. str. Bottlenose Dolphin [68417]		Species or species habitat may occur within area

Extra Information

Regional Forest Agreements [Resource Information]

Note that all areas with completed RFAs have been included.

Name	State
South West WA RFA	Western Australia

Invasive Species [Resource Information]

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

Name	Status	Type of Presence
Birds		
Anas platyrhynchos Mallard [974]		Species or species habitat likely to occur within area
Columba livia Rock Pigeon, Rock Dove, Domestic Pigeon [803]		Species or species habitat likely to occur within area
Streptopelia chinensis Spotted Turtle-Dove [780]		Species or species habitat likely to occur within area
Streptopelia senegalensis Laughing Turtle-dove, Laughing Dove [781]		Species or species habitat likely to occur within area
Mammals		
Bos taurus Domestic Cattle [16]		Species or species habitat likely to occur within area
Canis lupus familiaris Domestic Dog [82654]		Species or species habitat likely to occur within area
Felis catus Cat, House Cat, Domestic Cat [19]		Species or species habitat likely to occur within area
Feral deer Feral deer species in Australia [85733]		Species or species

Name	Status	Type of Presence
		habitat likely to occur within area
Mus musculus House Mouse [120]		Species or species habitat likely to occur within area
Oryctolagus cuniculus Rabbit, European Rabbit [128]		Species or species habitat likely to occur within area
Rattus rattus Black Rat, Ship Rat [84]		Species or species habitat likely to occur within area
Sus scrofa Pig [6]		Species or species habitat likely to occur within area
Vulpes vulpes Red Fox, Fox [18]		Species or species habitat likely to occur within area
Plants		
Asparagus aethiopicus Asparagus Fern, Ground Asparagus, Basket Fern, Sprengi's Fern, Bushy Asparagus, Emerald Asparagus [62425]		Species or species habitat likely to occur within area
Asparagus asparagoides Bridal Creeper, Bridal Veil Creeper, Smilax, Florist's Smilax, Smilax Asparagus [22473]		Species or species habitat likely to occur within area
Cenchrus ciliaris Buffel-grass, Black Buffel-grass [20213]		Species or species habitat may occur within area
Genista sp. X Genista monspessulana Broom [67538]		Species or species habitat may occur within area
Pinus radiata Radiata Pine Monterey Pine, Insignis Pine, Wilding Pine [20780]		Species or species habitat may occur within area
Rubus fruticosus aggregate Blackberry, European Blackberry [68406]		Species or species habitat likely to occur within area

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

-34.3247 115.16376

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.

Department of the Environment
GPO Box 787
Canberra ACT 2601 Australia
+61 2 6274 1111

APPENDIX D

HABITAT TREE DETAILS

Habitat trees (DBH >50cm)
Datum = GDA94
Entrance Size Ranges - Small = >5cm, Medium = 5 -10cm, Large = >10cm

Waypoint Number	Zone	mE	mN	Tree Species	Tree Height (m)	DBH (cm)	Number of Hollows	Estimated Hollow Entrance Size Range (cm)	Occupancy	Chew Marks	Potential Cockatoo Nest Hollow	Comments
wpt002	50H	330992	6200464	Karri	20+	>50	0					
wpt003	50H	330979	6200419	Karri	20+	>50	0					
wpt004	50H	330999	6200442	Karri	20+	>50	0					
wpt005	50H	330998	6200441	Karri	20+	>50	0					
wpt006	50H	331009	6200451	Karri	5-10	>50	0					
wpt007	50H	331012	6200447	Karri	5-10	>50	0					
wpt008	50H	331025	6200458	Karri	20+	>50	0					
wpt009	50H	331021	6200471	Karri	20+	>50	0					
wpt014	50H	330944	6200510	Marri	15-20	>50	0					
wpt019	50H	331036	6200475	Karri	5-10	>50	0					
wpt020	50H	331080	6200465	Karri	5-10	>50	0					
wpt021	50H	331162	6200444	Karri	15-20	>50	2+	Small-Medium	No Signs	No Signs	No	Internal dimensions of hollows unknown
wpt022	50H	331150	6200343	Karri	15-20	>50	0					
wpt023	50H	331124	6200294	Karri	15-20	>50	0					
wpt024	50H	331131	6200275	Unknown Euc	15-20	>50	0					
wpt025	50H	331113	6200282	Karri	20+	>50	0					
wpt026	50H	331105	6200275	Karri	20+	>50	0					
wpt027	50H	331118	6200266	Karri	20+	>50	0					
wpt028	50H	331123	6200259	Karri	20+	>50	0					
wpt029	50H	331156	6200264	Marri	15-20	>50	0					
wpt030	50H	331162	6200267	Marri	15-20	>50	0					
wpt031	50H	331155	6200288	Marri	15-20	>50	0					
wpt033	50H	331184	6200217	Karri	20+	>50	0					
wpt034	50H	331134	6200214	Marri	15-20	>50	0					
wpt035	50H	331126	6200219	Blackbutt	15-20	>50	0					
wpt036	50H	331137	6200227	Marri	5-10	>50	0					
wpt037	50H	331124	6200249	Karri	20+	>50	0					
wpt038	50H	331118	6200257	Karri	15-20	>50	0					
wpt039	50H	331112	6200230	Marri	15-20	>50	0					
wpt040	50H	331088	6200278	Karri	15-20	>50	0					
wpt041	50H	331080	6200284	Karri	20+	>50	0					

Waypoint Number	Zone	mE	mN	Tree Species	Tree Height (m)	DBH (cm)	Number of Hollows	Estimated Hollow Entrance Size Range (cm)	Occupancy	Chew Marks	Potential Cockatoo Nest Hollow	Comments
wpt042	50H	331067	6200283	Karri	20+	>50	0					
wpt043	50H	331058	6200288	Karri	20+	>50	0					
wpt044	50H	331062	6200279	Karri	20+	>50	0					
wpt045	50H	331060	6200265	Karri	20+	>50	0					
wpt046	50H	331040	6200275	Marri	20+	>50	0					
wpt047	50H	331036	6200274	Karri	20+	>50	0					
wpt048	50H	331054	6200310	Marri	15-20	>50	0					
wpt049	50H	331043	6200312	Karri	15-20	>50	0					
wpt050	50H	331040	6200311	Karri	20+	>50	0					
wpt051	50H	331022	6200279	Marri	20+	>50	0					
wpt052	50H	331016	6200269	Karri	20+	>50	0					
wpt053	50H	331012	6200291	Marri	20+	>50	0					
wpt054	50H	331000	6200293	Marri	15-20	>50	0					
wpt055	50H	330996	6200275	Karri	15-20	>50	0					
wpt056	50H	331010	6200272	Karri	20+	>50	0					
wpt057	50H	331007	6200270	Karri	20+	>50	0					
wpt058	50H	330984	6200289	Karri	20+	>50	0					
wpt059	50H	330995	6200301	Karri	20+	>50	0					
wpt060	50H	330987	6200312	Karri	20+	>50	0					
wpt061	50H	330995	6200324	Marri	20+	>50	0					
wpt062	50H	331022	6200330	Marri	20+	>50	0					
wpt063	50H	330994	6200399	Marri	15-20	>50	0					
wpt064	50H	330992	6200397	Marri	20+	>50	0					
wpt065	50H	330996	6200406	Marri	15-20	>50	0					
wpt066	50H	330971	6200388	Marri	15-20	>50	0					
wpt067	50H	330973	6200378	Dead Marri	20+	>50	2+	Small	No Signs	No Signs	No	Internal dimensions of hollows unknown
wpt068	50H	330978	6200370	Marri	15-20	>50	0					
wpt069	50H	330986	6200361	Marri	15-20	>50	2+	Small	No Signs	No Signs	No	Internal dimensions of hollows unknown
wpt070	50H	330992	6200360	Blackbutt	15-20	>50	0					
wpt071	50H	330990	6200343	Blackbutt	20+	>50	0					
wpt072	50H	330965	6200372	Marri	15-20	>50	0					
wpt073	50H	330969	6200424	Marri	15-20	>50	0					
wpt074	50H	330966	6200434	Marri	15-20	>50	2+	Small	No Signs	No Signs	No	Internal dimensions of hollows unknown

Waypoint Number	Zone	mE	mN	Tree Species	Tree Height (m)	DBH (cm)	Number of Hollows	Estimated Hollow Entrance Size Range (cm)	Occupancy	Chew Marks	Potential Cockatoo Nest Hollow	Comments
wpt075	50H	330907	6200485	Karri	15-20	>50	0					
wpt076	50H	330943	6200448	Marri	15-20	>50	2+	Small	No Signs	No Signs	No	Internal dimensions of hollows unknown
wpt077	50H	330954	6200446	Karri	20+	>50	0					
wpt078	50H	330964	6200352	Marri	20+	>50	0					
wpt079	50H	330961	6200354	Karri	20+	>50	0					
wpt080	50H	330960	6200347	Marri	15-20	>50	0					
wpt081	50H	330966	6200344	Marri	15-20	>50	0					
wpt082	50H	330961	6200340	Marri	15-20	>50	0					
wpt083	50H	330964	6200336	Marri	15-20	>50	0					
wpt084	50H	330968	6200323	Dead Marri	15-20	>50	0					
wpt085	50H	330968	6200321	Marri	20+	>50	0					
wpt086	50H	330973	6200313	Marri	20+	>50	0					
wpt087	50H	330971	6200304	Marri	15-20	>50	0					
wpt088	50H	330972	6200288	Karri	15-20	>50	0					
wpt089	50H	330953	6200287	Marri	20+	>50	0					
wpt090	50H	330950	6200304	Marri	15-20	>50	0					
wpt091	50H	330951	6200296	Karri	20+	>50	0					
wpt092	50H	330958	6200306	Karri	15-20	>50	0					
wpt093	50H	330950	6200325	Marri	20+	>50	0					
wpt094	50H	330941	6200375	Marri	15-20	>50	0					
wpt095	50H	330943	6200426	Marri	15-20	>50	0					
wpt096	50H	330957	6200411	Marri	15-20	>50	0					
wpt097	50H	330955	6200400	Karri	20+	>50	0					
wpt098	50H	330954	6200393	Karri	20+	>50	0					
wpt099	50H	330967	6200385	Marri	15-20	>50	0					
wpt100	50H	330957	6200373	Marri	15-20	>50	0					
wpt101	50H	330955	6200377	Blackbutt	15-20	>50	0					
wpt102	50H	330961	6200362	Marri	15-20	>50	0					
wpt103	50H	330948	6200365	Marri	15-20	>50	0					
wpt104	50H	330951	6200353	Marri	15-20	>50	0					
wpt105	50H	330948	6200346	Marri	15-20	>50	0					
wpt106	50H	330953	6200268	Karri	20+	>50	2+	Small-Medium	No Signs	No Signs	No	Internal dimensions of hollows unknown
wpt107	50H	330960	6200272	Karri	15-20	>50	0					

Waypoint Number	Zone	mE	mN	Tree Species	Tree Height (m)	DBH (cm)	Number of Hollows	Estimated Hollow Entrance Size Range (cm)	Occupancy	Chew Marks	Potential Cockatoo Nest Hollow	Comments
wpt108	50H	330965	6200280	Marri	15-20	>50	0					
wpt109	50H	330968	6200273	Karri	20+	>50	0					
wpt110	50H	330963	6200266	Karri	20+	>50	0					
wpt111	50H	330966	6200259	Marri	20+	>50	0					
wpt112	50H	330979	6200262	Karri	20+	>50	2+	Small	No Signs	No Signs	No	Internal dimensions of hollows unknown
wpt113	50H	330974	6200239	Karri	20+	>50	2+	Small-Medium	No Signs	No Signs	No	Internal dimensions of hollows unknown
wpt114	50H	330963	6200248	Marri	20+	>50	0					
wpt115	50H	330956	6200235	Karri	20+	>50	0					
wpt116	50H	330961	6200223	Marri	20+	>50	0					
wpt117	50H	330969	6200228	Marri	20+	>50	0					
wpt118	50H	330984	6200219	Karri	20+	>50	2+	Small-Medium	No Signs	No Signs	No	Internal dimensions of hollows unknown
wpt119	50H	330994	6200206	Marri	20+	>50	2+	Small-Large (cockatoo)	No Signs	No Signs	Yes	Internal dimensions of hollows unknown
wpt120	50H	330998	6200209	Karri	15-20	>50	0					
wpt121	50H	331024	6200199	Karri	15-20	>50	0					
wpt122	50H	331032	6200205	Karri	20+	>50	0					
wpt123	50H	331048	6200190	Karri	20+	>50	0					
wpt124	50H	331074	6200195	Karri	15-20	>50	0					
wpt125	50H	331091	6200181	Karri	20+	>50	0					
wpt126	50H	331108	6200169	Marri	15-20	>50	0					
wpt127	50H	331113	6200175	Marri	20+	>50	2+	Small	No Signs	No Signs	No	Internal dimensions of hollows unknown
wpt128	50H	331121	6200185	Karri	20+	>50	0					
wpt129	50H	331124	6200176	Karri	20+	>50	0					
wpt130	50H	331148	6200182	Karri	20+	>50	0					
wpt131	50H	331140	6200187	Marri	15-20	>50	0					
wpt132	50H	331167	6200188	Karri	20+	>50	0					
wpt133	50H	331091	6200210	Karri	5-10	>50	0					
wpt134	50H	331087	6200213	Karri	5-10	>50	0					
wpt135	50H	331076	6200216	Karri	5-10	>50	0					
wpt136	50H	331068	6200220	Karri	5-10	>50	0					
wpt137	50H	331055	6200231	Karri	5-10	>50	0					
wpt138	50H	331044	6200240	Karri	5-10	>50	0					
wpt139	50H	331039	6200258	Karri	5-10	>50	0					
wpt140	50H	331046	6200254	Karri	5-10	>50	0					

Waypoint Number	Zone	mE	mN	Tree Species	Tree Height (m)	DBH (cm)	Number of Hollows	Estimated Hollow Entrance Size Range (cm)	Occupancy	Chew Marks	Potential Cockatoo Nest Hollow	Comments
wpt141	50H	331055	6200249	Karri	5-10	>50	0					
wpt142	50H	331063	6200240	Karri	5-10	>50	0					
wpt143	50H	331072	6200240	Karri	5-10	>50	0					
wpt144	50H	331079	6200234	Karri	5-10	>50	0					
wpt145	50H	331086	6200227	Karri	5-10	>50	0					
wpt146	50H	331108	6200220	Karri	5-10	>50	0					
wpt147	50H	330910	6200506	Karri	20+	>50	0					
wpt148	50H	330898	6200523	Dead Unknown	0-5	>50	1	Large	No Signs	No Signs	No	Appears too low and shallow
wpt149	50H	330853	6200537	Marri	15-20	>50	2+	Small	No Signs	No Signs	No	Internal dimensions of hollows unknown
wpt150	50H	330836	6200555	Blackbutt	15-20	>50	2+	Medium	No Signs	No Signs	No	Internal dimensions of hollows unknown
wpt151	50H	330826	6200553	Blackbutt	15-20	>50	2+	Small	No Signs	No Signs	No	Internal dimensions of hollows unknown
wpt152	50H	330827	6200557	Marri	15-20	>50	2+	Small-Large (cockatoo)	No Signs	No Signs	Yes	Internal dimensions of hollows unknown
wpt153	50H	330817	6200552	Marri	15-20	>50	2+	Small	No Signs	No Signs	No	Internal dimensions of hollows unknown
wpt154	50H	330806	6200551	Jarrah	10-15	>50	0					
wpt155	50H	330797	6200541	Marri	15-20	>50	2+	Small	No Signs	No Signs	No	Internal dimensions of hollows unknown
wpt156	50H	330778	6200550	Marri	15-20	>50	2+	Small-Large (cockatoo)	No Signs	No Signs	Yes	Internal dimensions of hollows unknown
wpt157	50H	330755	6200557	Jarrah	15-20	>50	0					
wpt158	50H	330752	6200561	Jarrah	15-20	>50	0					
wpt159	50H	330744	6200567	Marri	15-20	>50	0					
wpt160	50H	330759	6200585	Jarrah	15-20	>50	2+	Small	No Signs	No Signs	No	Internal dimensions of hollows unknown
wpt161	50H	330760	6200582	Jarrah	15-20	>50	2+	Small	No Signs	No Signs	No	Internal dimensions of hollows unknown
wpt162	50H	330759	6200587	Marri	20+	>50	2+	Small-Medium	No Signs	No Signs	No	Internal dimensions of hollows unknown
wpt163	50H	330751	6200593	Marri	20+	>50	2+	Small-Medium	No Signs	No Signs	No	Internal dimensions of hollows unknown
wpt164	50H	330753	6200602	Marri	15-20	>50	2+	Small	No Signs	No Signs	No	Internal dimensions of hollows unknown
wpt165	50H	330733	6200616	Marri	20+	>50	2+	Small	No Signs	No Signs	No	Internal dimensions of hollows unknown
wpt166	50H	330731	6200621	Marri	20+	>50	0					
wpt167	50H	330750	6200620	Jarrah	15-20	>50	0					
wpt168	50H	330751	6200631	Marri	5-10	>50	1	Small	No Signs	No Signs	No	Internal dimensions of hollows unknown
wpt169	50H	330754	6200637	Jarrah	15-20	>50	0					
wpt170	50H	330752	6200644	Jarrah	15-20	>50	2+	Small	No Signs	No Signs	No	Internal dimensions of hollows unknown
wpt171	50H	330726	6200656	Marri	20+	>50	0					
wpt172	50H	330726	6200656	Marri	20+	>50	0					
wpt173	50H	330741	6200663	Marri	20+	>50	0					

Waypoint Number	Zone	mE	mN	Tree Species	Tree Height (m)	DBH (cm)	Number of Hollows	Estimated Hollow Entrance Size Range (cm)	Occupancy	Chew Marks	Potential Cockatoo Nest Hollow	Comments
wpt174	50H	330754	6200662	Marri	15-20	>50	0					
wpt175	50H	330760	6200647	Marri	15-20	>50	2+	Small-Medium	No Signs	No Signs	No	Internal dimensions of hollows unknown
wpt176	50H	330769	6200636	Jarrah	15-20	>50	2+	Small	No Signs	No Signs	No	Internal dimensions of hollows unknown
wpt177	50H	330765	6200630	Jarrah	15-20	>50	2+	Small	No Signs	No Signs	No	Internal dimensions of hollows unknown
wpt178	50H	330775	6200617	Jarrah	15-20	>50	0					
wpt179	50H	330774	6200617	Jarrah	15-20	>50	0					
wpt180	50H	330778	6200627	Jarrah	15-20	>50	2+	Small	No Signs	No Signs	No	Internal dimensions of hollows unknown
wpt181	50H	330784	6200640	Dead Jarrah	10-15	>50	1	Large (cockatoo)	No Signs	No Signs	Yes	Internal dimensions of hollows unknown
wpt182	50H	330777	6200657	Marri	15-20	>50	0					
wpt183	50H	330788	6200659	Marri	10-15	>50	1	Large (cockatoo)	No Signs	No Signs	Yes	Internal dimensions of hollows unknown
wpt184	50H	330798	6200643	Marri	15-20	>50	0					
wpt185	50H	330814	6200654	Marri	15-20	>50	2+	Small-Large (cockatoo)	No Signs	No Signs	Yes	Internal dimensions of hollows unknown
wpt186	50H	330821	6200662	Marri	15-20	>50	0					
wpt187	50H	330862	6200661	Marri	10-15	>50	0					
wpt188	50H	330869	6200641	Marri	10-15	>50	2+	Small	No Signs	No Signs	No	Internal dimensions of hollows unknown
wpt189	50H	330877	6200649	Marri	15-20	>50	0					
wpt190	50H	330915	6200619	Karri	15-20	>50	0					
wpt191	50H	330894	6200608	Marri	0-5	>50	0					
wpt192	50H	330899	6200587	Dead Unknown	5-10	>50	0					
wpt193	50H	330909	6200581	Dead Unknown	15-20	>50	2+	Small-Large (cockatoo)	No Signs	No Signs	Yes	Internal dimensions of hollows unknown
wpt194	50H	330865	6200560	Dead Unknown	15-20	>50	1	Large (cockatoo)	No Signs	No Signs	Yes	Internal dimensions of hollows unknown
wpt195	50H	330819	6200615	Dead Marri	15-20	>50	2+	Small-Medium	No Signs	No Signs	No	Internal dimensions of hollows unknown
wpt196	50H	330820	6200623	Jarrah	15-20	>50	2+	Small-Medium	No Signs	No Signs	No	Internal dimensions of hollows unknown
wpt197	50H	330789	6200624	Jarrah	15-20	>50	0					
wpt198	50H	330785	6200624	Dead Unknown	5-10	>50	1	Medium	No Signs	No Signs	No	Internal dimensions of hollows unknown
wpt199	50H	330787	6200614	Marri	15-20	>50	0					
wpt200	50H	330789	6200596	Jarrah	15-20	>50	0					
wpt201	50H	330795	6200594	Jarrah	15-20	>50	0					
wpt202	50H	330792	6200593	Jarrah	15-20	>50	0					
wpt203	50H	330793	6200588	Jarrah	15-20	>50	2+	Small	No Signs	No Signs	No	Internal dimensions of hollows unknown
wpt204	50H	330776	6200581	Jarrah	15-20	>50	2+	Small	No Signs	No Signs	No	Internal dimensions of hollows unknown
wpt205	50H	330781	6200573	Jarrah	20+	>50	0					
wpt206	50H	330802	6200570	Jarrah	20+	>50	0					

Waypoint Number	Zone	mE	mN	Tree Species	Tree Height (m)	DBH (cm)	Number of Hollows	Estimated Hollow Entrance Size Range (cm)	Occupancy	Chew Marks	Potential Cockatoo Nest Hollow	Comments
wpt207	50H	330808	6200576	Jarrah	20+	>50	0					
wpt208	50H	330795	6200561	Jarrah	15-20	>50	0					
wpt209	50H	330815	6200571	Jarrah	0-5	>50	0					
wpt210	50H	330811	6200601	Marri	20+	>50	2+	Small	No Signs	No Signs	No	Internal dimensions of hollows unknown
wpt211	50H	330801	6200594	Marri	20+	>50	0					
wpt212	50H	330892	6200511	Marri	15-20	>50	0					
wpt213	50H	330889	6200503	Dead Unknown	15-20	>50	2+	Small-Medium	No Signs	No Signs	No	Internal dimensions of hollows unknown
wpt214	50H	330892	6200496	Marri	15-20	>50	2+	Small	No Signs	No Signs	No	Internal dimensions of hollows unknown
wpt215	50H	330880	6200512	Dead Unknown	5-10	>50	0					
wpt216	50H	330891	6200486	Blackbutt	15-20	>50	2+	Small	No Signs	No Signs	No	Internal dimensions of hollows unknown
wpt217	50H	330887	6200486	Marri	15-20	>50	0					
wpt218	50H	330915	6200469	Dead Unknown	15-20	>50	2+	Small	No Signs	No Signs	No	Internal dimensions of hollows unknown
wpt219	50H	330893	6200453	Marri	15-20	>50	2+	Small-Large (cockatoo)	No Signs	No Signs	Yes	Internal dimensions of hollows unknown
wpt220	50H	330903	6200450	Marri	10-15	>50	1	Large (cockatoo)	No Signs	No Signs	Yes	Internal dimensions of hollows unknown
wpt221	50H	330891	6200448	Marri	15-20	>50	2+	Small	No Signs	No Signs	No	Internal dimensions of hollows unknown
wpt222	50H	330884	6200459	Marri	15-20	>50	2+	Small	No Signs	No Signs	No	Internal dimensions of hollows unknown
wpt223	50H	330871	6200454	Marri	15-20	>50	2+	Small	No Signs	No Signs	No	Internal dimensions of hollows unknown
wpt224	50H	330872	6200454	Marri	10-15	>50	2+	Small	No Signs	No Signs	No	Internal dimensions of hollows unknown
wpt225	50H	330862	6200452	Marri	0-5	>50	0					
wpt226	50H	330873	6200478	Marri	15-20	>50	0					
wpt227	50H	330867	6200476	Dead Unknown	5-10	>50	2+	Small	No Signs	No Signs	No	Internal dimensions of hollows unknown
wpt228	50H	330851	6200479	Marri	20+	>50	2+	Small-Medium	No Signs	No Signs	No	Internal dimensions of hollows unknown
wpt229	50H	330846	6200474	Dead Marri	15-20	>50	2+	Small-Large (cockatoo)	No Signs	No Signs	Yes	Internal dimensions of hollows unknown
wpt230	50H	330837	6200480	Marri	15-20	>50	0					
wpt231	50H	330827	6200469	Jarrah	15-20	>50	0					
wpt232	50H	330820	6200475	Marri	15-20	>50	0					
wpt233	50H	330817	6200470	Marri	20+	>50	2+	Small-Large (cockatoo)	No Signs	No Signs	Yes	Internal dimensions of hollows unknown
wpt234	50H	330807	6200474	Marri	20+	>50	2+	Small-Medium	No Signs	No Signs	No	Internal dimensions of hollows unknown
wpt235	50H	330808	6200486	Dead Marri	15-20	>50	2+	Small-Medium	No Signs	No Signs	No	Internal dimensions of hollows unknown
wpt236	50H	330801	6200465	Marri	20+	>50	2+	Small-Medium	No Signs	No Signs	No	Internal dimensions of hollows unknown
wpt237	50H	330786	6200477	Marri	20+	>50	2+	Small-Medium	No Signs	No Signs	No	Internal dimensions of hollows unknown
wpt238	50H	330793	6200478	Marri	20+	>50	2+	Small-Medium	No Signs	No Signs	No	Internal dimensions of hollows unknown
wpt239	50H	330803	6200491	Jarrah	20+	>50	0					

Waypoint Number	Zone	mE	mN	Tree Species	Tree Height (m)	DBH (cm)	Number of Hollows	Estimated Hollow Entrance Size Range (cm)	Occupancy	Chew Marks	Potential Cockatoo Nest Hollow	Comments
wpt240	50H	330813	6200505	Marri	20+	>50	2+	Small-Medium	No Signs	No Signs	No	Internal dimensions of hollows unknown
wpt241	50H	330801	6200514	Jarrah	15-20	>50	0					
wpt242	50H	330785	6200528	Marri	20+	>50	2+	Small-Medium	No Signs	No Signs	No	Internal dimensions of hollows unknown
wpt243	50H	330781	6200524	Marri	20+	>50	2+	Small-Large (cockatoo)	No Signs	No Signs	Yes	Internal dimensions of hollows unknown
wpt244	50H	330766	6200528	Marri	15-20	>50	0					
wpt245	50H	330775	6200536	Marri	20+	>50	2+	Small-Medium	No Signs	No Signs	No	Internal dimensions of hollows unknown
wpt246	50H	330798	6200530	Marri	15-20	>50	0					
wpt247	50H	330807	6200529	Marri	15-20	>50	0					
wpt248	50H	330816	6200517	Marri	20+	>50	2+	Small-Large (cockatoo)	No Signs	No Signs	Yes	Internal dimensions of hollows unknown
wpt249	50H	330825	6200526	Marri	15-20	>50	0					
wpt250	50H	330847	6200529	Marri	15-20	>50	1	Large	No Signs	No Signs	No	Appears too shallow
wpt251	50H	330852	6200523	Blackbutt	15-20	>50	0					
wpt252	50H	330862	6200531	Marri	15-20	>50	0					
wpt253	50H	330880	6200528	Dead Unknown	5-10	>50	1	Large	No Signs	No Signs	No	Appears too shallow
wpt254	50H	330858	6200512	Dead Marri	10-15	>50	2+	Medium-Large	No Signs	No Signs	Yes	Internal dimensions of hollows unknown
wpt255	50H	330848	6200508	Marri	15-20	>50	2+	Small-Medium	No Signs	No Signs	No	Internal dimensions of hollows unknown
wpt256	50H	330835	6200506	Dead Unknown	15-20	>50	2+	Small-Medium	No Signs	No Signs	No	Internal dimensions of hollows unknown
wpt257	50H	330836	6200505	Marri	15-20	>50	2+	Small-Medium	No Signs	No Signs	No	Internal dimensions of hollows unknown
wpt258	50H	330822	6200508	Marri	15-20	>50	0					
wpt259	50H	330823	6200508	Marri	20+	>50	2+	Small-Large (cockatoo)	No Signs	No Signs	Yes	Internal dimensions of hollows unknown
wpt260	50H	330821	6200505	Jarrah	15-20	>50	0					
wpt261	50H	330840	6200491	Marri	15-20	>50	2+	Small-Medium	No Signs	No Signs	No	Internal dimensions of hollows unknown
wpt262	50H	330852	6200491	Blackbutt	15-20	>50	2+	Small-Medium	No Signs	No Signs	No	Internal dimensions of hollows unknown
wpt263	50H	330859	6200494	Jarrah	15-20	>50	2+	Small	No Signs	No Signs	No	Internal dimensions of hollows unknown
wpt264	50H	330867	6200496	Marri	20+	>50	0					
wpt265	50H	330873	6200495	Blackbutt	15-20	>50	2+	Small-Medium	Bees	No Signs	No	Internal dimensions of hollows unknown
wpt266	50H	330909	6200443	Blackbutt	15-20	>50	0					
wpt267	50H	330902	6200430	Marri	15-20	>50	2+	Small-Medium	No Signs	No Signs	No	Internal dimensions of hollows unknown
wpt268	50H	330917	6200410	Marri	15-20	>50	0					
wpt269	50H	330918	6200389	Blackbutt	15-20	>50	0					
wpt270	50H	330905	6200383	Blackbutt	15-20	>50	0					
wpt271	50H	330893	6200355	Dead Unknown	15-20	>50	2+	Small-Medium	No Signs	No Signs	No	Internal dimensions of hollows unknown
wpt272	50H	330917	6200344	Blackbutt	20+	>50	0					

Waypoint Number	Zone	mE	mN	Tree Species	Tree Height (m)	DBH (cm)	Number of Hollows	Estimated Hollow Entrance Size Range (cm)	Occupancy	Chew Marks	Potential Cockatoo Nest Hollow	Comments
wpt273	50H	330894	6200339	Karri	20+	>50	0					
wpt274	50H	330877	6200334	Karri	20+	>50	0					
wpt275	50H	330850	6200328	Marri	20+	>50	2+	Small-Medium	No Signs	No Signs	No	Internal dimensions of hollows unknown
wpt276	50H	330830	6200339	Karri	20+	>50	0					
wpt277	50H	330856	6200291	Dead Marri	20+	>50	2+	Small	No Signs	No Signs	No	Internal dimensions of hollows unknown
wpt278	50H	330878	6200298	Marri	20+	>50	2+	Small	No Signs	No Signs	No	Internal dimensions of hollows unknown
wpt279	50H	330887	6200299	Karri	20+	>50	2+	Small-Medium	No Signs	No Signs	No	Internal dimensions of hollows unknown
wpt280	50H	330897	6200292	Karri	20+	>50	2+	Small	No Signs	No Signs	No	Internal dimensions of hollows unknown
wpt281	50H	330876	6200282	Karri	20+	>50	2+	Small-Large (cockatoo)	Black Cockatoo	No Signs	Yes	Chew marks ?
wpt282	50H	330872	6200272	Karri	20+	>50	2+	Small-Large (cockatoo)	No Signs	No Signs	Yes	Internal dimensions of hollows unknown
wpt283	50H	330875	6200265	Marri	20+	>50	2+	Small-Medium	No Signs	No Signs	No	Internal dimensions of hollows unknown
wpt284	50H	330879	6200267	Karri	20+	>50	0					
wpt285	50H	330889	6200267	Karri	20+	>50	0					
wpt286	50H	330897	6200274	Karri	20+	>50	2+	Small-Medium	No Signs	No Signs	No	Internal dimensions of hollows unknown
wpt287	50H	330905	6200271	Karri	20+	>50	2+	Small	No Signs	No Signs	No	Internal dimensions of hollows unknown
wpt288	50H	330898	6200264	Jarrah	15-20	>50	0					
wpt289	50H	330887	6200249	Jarrah	20+	>50	0					
wpt290	50H	330880	6200241	Karri	20+	>50	0					
wpt291	50H	330882	6200235	Karri	20+	>50	0					
wpt292	50H	330899	6200234	Marri	20+	>50	2+	Small-Medium	No Signs	No Signs	No	Internal dimensions of hollows unknown
wpt293	50H	330899	6200240	Marri	20+	>50	2+	Small-Medium	No Signs	No Signs	No	Internal dimensions of hollows unknown
wpt294	50H	330906	6200215	Marri	15-20	>50	0					
wpt295	50H	330899	6200197	Karri	15-20	>50	0					
wpt296	50H	330895	6200196	Karri	15-20	>50	0					
wpt297	50H	330893	6200195	Karri	15-20	>50	0					
wpt298	50H	330899	6200178	Karri	15-20	>50	0					
wpt299	50H	330907	6200166	Karri	15-20	>50	0					
wpt300	50H	330912	6200162	Karri	20+	>50	0					
wpt301	50H	330921	6200147	Karri	15-20	>50	0					
wpt302	50H	330925	6200132	Jarrah	15-20	>50	0					
wpt303	50H	330927	6200112	Marri	15-20	>50	0					
wpt304	50H	330925	6200192	Dead Marri	15-20	>50	1	Large (cockatoo)	No Signs	No Signs	Yes	Internal dimensions of hollows unknown
wpt305	50H	330921	6200194	Dead Marri	15-20	>50	2+	Small-Large (cockatoo)	No Signs	No Signs	Yes	Internal dimensions of hollows unknown

Waypoint Number	Zone	mE	mN	Tree Species	Tree Height (m)	DBH (cm)	Number of Hollows	Estimated Hollow Entrance Size Range (cm)	Occupancy	Chew Marks	Potential Cockatoo Nest Hollow	Comments
wpt306	50H	330915	6200185	Jarrah	15-20	>50	0					
wpt307	50H	331250	6200225	Karri	20+	>50	0					
wpt308	50H	330919	6200210	Marri	20+	>50	0					
wpt309	50H	330918	6200231	Marri	20+	>50	0					
wpt310	50H	330915	6200228	Dead Unknown	5-10	>50	0					
wpt311	50H	330921	6200257	Karri	15-20	>50	0					
wpt312	50H	330905	6200253	Jarrah	15-20	>50	0					
wpt313	50H	330907	6200270	Marri	20+	>50	0					
wpt314	50H	330913	6200275	Marri	20+	>50	0					
wpt315	50H	330912	6200292	Dead Unknown	10-15	>50	1	Large (cockatoo)	No Signs	No Signs	Yes	Internal dimensions of hollows unknown
wpt316	50H	330911	6200301	Dead Unknown	5-10	>50	1	Large	No Signs	No Signs	No	Appears too shallow
wpt317	50H	330910	6200301	Karri	15-20	>50	0					
wpt318	50H	330913	6200305	Karri	15-20	>50	0					
wpt319	50H	330924	6200298	Karri	15-20	>50	0					
wpt320	50H	330918	6200304	Karri	15-20	>50	0					
wpt321	50H	330922	6200309	Karri	15-20	>50	0					
wpt322	50H	330915	6200315	Dead Unknown	0-5	>50	1	Large	No Signs	No Signs	No	Appears too shallow
wpt323	50H	330918	6200316	Karri	15-20	>50	0					
wpt324	50H	330877	6200332	Karri	15-20	>50	0					
wpt325	50H	330843	6200371	Karri	10-15	>50	2+	Medium	No Signs	No Signs	No	Internal dimensions of hollows unknown
wpt326	50H	330832	6200376	Dead Unknown	5-10	>50	0					
wpt327	50H	330837	6200386	Karri	20+	>50	2+	Small-Large (cockatoo)	No Signs	No Signs	Yes	Internal dimensions of hollows unknown
wpt328	50H	330837	6200400	Karri	20+	>50	2+	Small	No Signs	No Signs	No	Internal dimensions of hollows unknown
wpt329	50H	330829	6200416	Marri	15-20	>50	2+	Small	No Signs	No Signs	No	Internal dimensions of hollows unknown
wpt330	50H	330832	6200425	Karri	15-20	>50	0					
wpt331	50H	330840	6200429	Marri	15-20	>50	0					
wpt332	50H	330836	6200438	Jarrah	15-20	>50	0					
wpt333	50H	330827	6200443	Jarrah	15-20	>50	0					
wpt334	50H	330826	6200449	Marri	15-20	>50	0					
wpt335	50H	330817	6200436	Marri	15-20	>50	0					
wpt336	50H	330812	6200409	Karri	20+	>50	0					
wpt337	50H	330813	6200456	Jarrah	15-20	>50	0					
wpt338	50H	330810	6200466	Jarrah	15-20	>50	0					

Waypoint Number	Zone	mE	mN	Tree Species	Tree Height (m)	DBH (cm)	Number of Hollows	Estimated Hollow Entrance Size Range (cm)	Occupancy	Chew Marks	Potential Cockatoo Nest Hollow	Comments
wpt339	50H	330823	6200464	Jarrah	15-20	>50	0					
wpt340	50H	330836	6200457	Blackbutt	15-20	>50	2+	Small-Medium	No Signs	No Signs	No	Internal dimensions of hollows unknown
wpt341	50H	330848	6200449	Dead Unknown	15-20	>50	2+	Small-Medium	No Signs	No Signs	No	Internal dimensions of hollows unknown
wpt342	50H	330852	6200457	Karri	20+	>50	0					
wpt343	50H	330863	6200440	Dead Marri	10-15	>50	0					
wpt344	50H	330855	6200438	Jarrah	15-20	>50	0					
wpt345	50H	330859	6200429	Karri	15-20	>50	0					
wpt346	50H	330873	6200410	Dead Marri	15-20	>50	2+	Small-Medium	No Signs	No Signs	No	Internal dimensions of hollows unknown
wpt347	50H	330869	6200433	Karri	20+	>50	0					
wpt348	50H	330875	6200437	Marri	5-10	>50	2+	Small-Medium	No Signs	No Signs	No	Internal dimensions of hollows unknown
wpt349	50H	330875	6200442	Marri	10-15	>50	2+	Small-Medium	No Signs	No Signs	No	Internal dimensions of hollows unknown
wpt350	50H	330878	6200431	Marri	15-20	>50	0					
wpt351	50H	330887	6200416	Dead Karri	15-20	>50	2+	Medium-Large (cockatoo)	No Signs	No Signs	Yes	Internal dimensions of hollows unknown
wpt352	50H	330889	6200398	Marri	15-20	>50	2+	Small-Medium	No Signs	No Signs	No	Internal dimensions of hollows unknown
wpt353	50H	330880	6200392	Karri	20+	>50	2+	Small-Medium	No Signs	No Signs	No	Internal dimensions of hollows unknown
wpt354	50H	330866	6200401	Dead Unknown	15-20	>50	2+	Small-Medium	No Signs	No Signs	No	Internal dimensions of hollows unknown
wpt355	50H	330873	6200384	Dead Unknown	15-20	>50	0					
wpt357	50H	331260	6200224	Blackbutt	15-20	>50	0					
wpt358	50H	331269	6200236	Karri	15-20	>50	0					
wpt359	50H	331263	6200248	Karri	15-20	>50	0					
wpt360	50H	331261	6200207	Karri	15-20	>50	0					
wpt361	50H	331263	6200201	Karri	15-20	>50	0					
wpt362	50H	331250	6200196	Karri	15-20	>50	0					
wpt363	50H	331236	6200193	Karri	15-20	>50	0					
wpt364	50H	331234	6200201	Karri	15-20	>50	0					
wpt365	50H	331221	6200200	Marri	15-20	>50	0					
wpt366	50H	331217	6200184	Marri	20+	>50	0					
wpt367	50H	331236	6200158	Marri	15-20	>50	0					
wpt368	50H	331240	6200146	Karri	15-20	>50	0					
wpt369	50H	331252	6200114	Marri	15-20	>50	0					
wpt370	50H	331265	6200099	Blackbutt	15-20	>50	0					
wpt371	50H	331253	6200073	Marri	15-20	>50	0					
wpt372	50H	331255	6200065	Marri	15-20	>50	0					

Waypoint Number	Zone	mE	mN	Tree Species	Tree Height (m)	DBH (cm)	Number of Hollows	Estimated Hollow Entrance Size Range (cm)	Occupancy	Chew Marks	Potential Cockatoo Nest Hollow	Comments
wpt373	50H	331258	6200060	Marri	20+	>50	0					
wpt374	50H	331209	6200043	Karri	15-20	>50	0					
wpt375	50H	331204	6200045	Karri	15-20	>50	0					
wpt376	50H	331221	6200069	Karri	15-20	>50	0					
wpt377	50H	331229	6200076	Karri	15-20	>50	0					
wpt378	50H	331223	6200110	Dead Marri	20+	>50	0					
wpt379	50H	331221	6200109	Marri	15-20	>50	0					
wpt380	50H	331255	6200129	Karri	15-20	>50	0					
wpt381	50H	331256	6200136	Karri	15-20	>50	0					
wpt382	50H	331266	6200148	Blackbutt	15-20	>50	0					
wpt383	50H	331261	6200160	Karri	15-20	>50	0					
wpt384	50H	331249	6200176	Dead Blackbutt	15-20	>50	2+	Small	No Signs	No Signs	No	Internal dimensions of hollows unknown
wpt385	50H	331253	6200180	Karri	15-20	>50	2+	Small	No Signs	No Signs	No	Internal dimensions of hollows unknown
wpt386	50H	331257	6200187	Karri	15-20	>50	2+	Small	No Signs	No Signs	No	Internal dimensions of hollows unknown
wpt387	50H	331197	6200187	Karri	15-20	>50	0					
wpt388	50H	331180	6200175	Karri	15-20	>50	0					
wpt389	50H	331177	6200169	Karri	15-20	>50	0					
wpt390	50H	331169	6200166	Karri	15-20	>50	0					
wpt391	50H	331165	6200154	Marri	15-20	>50	0					
wpt392	50H	331149	6200157	Karri	15-20	>50	0					
wpt393	50H	331125	6200146	Marri	15-20	>50	0					
wpt394	50H	331122	6200149	Marri	20+	>50	0					
wpt395	50H	331125	6200152	Marri	20+	>50	0					
wpt396	50H	331109	6200135	Marri	20+	>50	2+	Small-Medium	No Signs	No Signs	No	Internal dimensions of hollows unknown
wpt397	50H	331118	6200127	Karri	20+	>50	2+	Small-Medium	No Signs	No Signs	No	Internal dimensions of hollows unknown
wpt398	50H	331103	6200120	Karri	20+	>50	2+	Small	No Signs	No Signs	No	Internal dimensions of hollows unknown
wpt399	50H	331102	6200138	Marri	20+	>50	0					
wpt400	50H	331094	6200142	Marri	15-20	>50	0					
wpt401	50H	331088	6200142	Dead Marri	20+	>50	0					
wpt402	50H	331078	6200140	Karri	20+	>50	0					
wpt403	50H	331051	6200141	Karri	15-20	>50	0					
wpt404	50H	331061	6200142	Karri	20+	>50	2+	Small	No Signs	No Signs	No	Internal dimensions of hollows unknown
wpt405	50H	331060	6200135	Karri	20+	>50	2+	Small-Medium	No Signs	No Signs	No	Internal dimensions of hollows unknown

Waypoint Number	Zone	mE	mN	Tree Species	Tree Height (m)	DBH (cm)	Number of Hollows	Estimated Hollow Entrance Size Range (cm)	Occupancy	Chew Marks	Potential Cockatoo Nest Hollow	Comments
wpt406	50H	331056	6200144	Marri	15-20	>50	0					
wpt407	50H	331053	6200137	Marri	15-20	>50	0					
wpt408	50H	331036	6200139	Marri	15-20	>50	2+	Small-Medium	No Signs	No Signs	No	Internal dimensions of hollows unknown
wpt409	50H	331031	6200135	Dead Marri	15-20	>50	2+	Small	No Signs	No Signs	No	Internal dimensions of hollows unknown
wpt410	50H	331033	6200129	Marri	15-20	>50	1	Large	No Signs	No Signs	No	Appears too shallow
wpt411	50H	331020	6200160	Karri	20+	>50	0					
wpt412	50H	331023	6200171	Karri	20+	>50	0					
wpt413	50H	331010	6200167	Karri	15-20	>50	0					
wpt414	50H	331011	6200156	Karri	15-20	>50	0					
wpt415	50H	331007	6200166	Karri	20+	>50	0					
wpt416	50H	331000	6200158	Karri	20+	>50	0					
wpt417	50H	330990	6200162	Marri	20+	>50	0					
wpt418	50H	330995	6200169	Karri	20+	>50	2+	Small	No Signs	No Signs	No	Internal dimensions of hollows unknown
wpt419	50H	330991	6200188	Karri	20+	>50	2+	Small-Large	No Signs	No Signs	No	Wrong orientation
wpt420	50H	330970	6200207	Karri	15-20	>50	0					
wpt421	50H	330956	6200196	Karri	20+	>50	0					
wpt422	50H	330962	6200202	Karri	20+	>50	0					
wpt423	50H	330948	6200206	Marri	15-20	>50	0					
wpt424	50H	330952	6200190	Marri	20+	>50	0					
wpt425	50H	330956	6200192	Marri	20+	>50	2+	Medium-Large (cockatoo)	No Signs	No Signs	Yes	Internal dimensions of hollows unknown
wpt426	50H	330956	6200187	Karri	20+	>50	0					
wpt427	50H	330965	6200173	Karri	5-10	>50	1	Large (cockatoo)	No Signs	No Signs	Yes	Possibly too low and shallow
wpt428	50H	330966	6200163	Marri	15-20	>50	0					
wpt429	50H	330948	6200167	Karri	15-20	>50	0					
wpt430	50H	330950	6200153	Marri	20+	>50	2+	Small-Medium	No Signs	No Signs	No	Internal dimensions of hollows unknown
wpt431	50H	330965	6200160	Karri	20+	>50	0					
wpt432	50H	330962	6200128	Karri	20+	>50	2+	Small-Large (cockatoo)	No Signs	No Signs	Yes	Internal dimensions of hollows unknown
wpt433	50H	330956	6200137	Karri	20+	>50	2+	Small-Medium	No Signs	No Signs	No	Internal dimensions of hollows unknown
wpt434	50H	330954	6200131	Karri	15-20	>50	0					
wpt435	50H	330967	6200129	Karri	15-20	>50	0					
wpt436	50H	330961	6200109	Karri	20+	>50	0					
wpt437	50H	330966	6200106	Karri	20+	>50	0					
wpt438	50H	330960	6200098	Marri	15-20	>50	2+	Small-Medium	No Signs	No Signs	No	Internal dimensions of hollows unknown

Waypoint Number	Zone	mE	mN	Tree Species	Tree Height (m)	DBH (cm)	Number of Hollows	Estimated Hollow Entrance Size Range (cm)	Occupancy	Chew Marks	Potential Cockatoo Nest Hollow	Comments
wpt439	50H	330962	6200081	Jarrah	20+	>50	0					
wpt440	50H	330963	6200081	Karri	20+	>50	0					
wpt441	50H	330978	6200115	Marri	15-20	>50	2+	Small-Large (cockatoo)	No Signs	No Signs	Yes	Internal dimensions of hollows unknown
wpt442	50H	330974	6200120	Jarrah	15-20	>50	0					
wpt443	50H	330972	6200147	Marri	15-20	>50	2+	Small-Medium	No Signs	No Signs	No	Internal dimensions of hollows unknown
wpt444	50H	330992	6200150	Marri	15-20	>50	0					
wpt445	50H	330996	6200148	Blackbutt	15-20	>50	2+	Medium-Large	No Signs	No Signs	Yes	Internal dimensions of hollows unknown
wpt446	50H	330999	6200137	Dead Unknown	5-10	>50	1	Large	No Signs	No Signs	No	Appears too shallow
wpt447	50H	331013	6200145	Karri	20+	>50	0					
wpt448	50H	331008	6200116	Karri	20+	>50	0					
wpt449	50H	330998	6200116	Karri	20+	>50	0					
wpt450	50H	330997	6200100	Karri	20+	>50	0					
wpt451	50H	330992	6200097	Karri	15-20	>50	0					
wpt452	50H	330988	6200103	Karri	20+	>50	0					
wpt453	50H	330989	6200090	Jarrah	15-20	>50	0					
wpt454	50H	331001	6200089	Karri	20+	>50	0					
wpt455	50H	331003	6200087	Marri	20+	>50	0					
wpt456	50H	331004	6200084	Jarrah	15-20	>50	0					
wpt457	50H	331009	6200079	Marri	15-20	>50	0					
wpt458	50H	331005	6200061	Karri	15-20	>50	2+	Small-Medium	No Signs	No Signs	No	Internal dimensions of hollows unknown
wpt459	50H	331005	6200053	Jarrah	15-20	>50	0					
wpt460	50H	330992	6200048	Jarrah	15-20	>50	0					
wpt461	50H	330986	6200054	Jarrah	5-10	>50	1	Medium	No Signs	No Signs	No	Internal dimensions of hollows unknown
wpt462	50H	330987	6200060	Jarrah	0-5	>50	0					
wpt463	50H	330979	6200079	Marri	15-20	>50	2+	Small	No Signs	No Signs	No	Internal dimensions of hollows unknown
wpt464	50H	330981	6200078	Dead Unknown	10-15	>50	2+	Small-Medium	No Signs	No Signs	No	Internal dimensions of hollows unknown
wpt465	50H	330971	6200086	Karri	20+	>50	2+	Small-Large (cockatoo)	No Signs	No Signs	Yes	Internal dimensions of hollows unknown
wpt466	50H	330978	6200070	Marri	15-20	>50	0					
wpt467	50H	330983	6200050	Karri	15-20	>50	0					
wpt468	50H	331013	6200037	Marri	15-20	>50	0					
wpt469	50H	331020	6200050	Marri	15-20	>50	2+	Small-Large (cockatoo)	No Signs	No Signs	Yes	Internal dimensions of hollows unknown
wpt470	50H	331028	6200049	Jarrah	15-20	>50	0					
wpt471	50H	331033	6200048	Marri	15-20	>50	2+	Small-Medium	No Signs	No Signs	No	Internal dimensions of hollows unknown

Waypoint Number	Zone	mE	mN	Tree Species	Tree Height (m)	DBH (cm)	Number of Hollows	Estimated Hollow Entrance Size Range (cm)	Occupancy	Chew Marks	Potential Cockatoo Nest Hollow	Comments
wpt472	50H	331044	6200046	Dead Blackbutt	15-20	>50	0					
wpt473	50H	331041	6200058	Jarrah	15-20	>50	0					
wpt474	50H	331059	6200063	Karri	20+	>50	0					
wpt475	50H	331066	6200053	Karri	20+	>50	2+	Small-Medium	No Signs	No Signs	No	Internal dimensions of hollows unknown
wpt476	50H	331073	6200033	Karri	15-20	>50	0					
wpt477	50H	331076	6200050	Marri	15-20	>50	0					
wpt478	50H	331091	6200054	Marri	20+	>50	2+	Small-Large (cockatoo)	No Signs	No Signs	Yes	Internal dimensions of hollows unknown
wpt479	50H	331103	6200049	Karri	20+	>50	2+	Small	No Signs	No Signs	No	Internal dimensions of hollows unknown
wpt480	50H	331111	6200050	Karri	15-20	>50	0					
wpt481	50H	331120	6200051	Karri	15-20	>50	0					
wpt482	50H	331130	6200050	Karri	15-20	>50	0					
wpt483	50H	331135	6200053	Karri	15-20	>50	0					
wpt484	50H	331143	6200048	Karri	15-20	>50	0					
wpt485	50H	331142	6200045	Karri	15-20	>50	0					
wpt486	50H	331144	6200056	Karri	15-20	>50	0					
wpt487	50H	331179	6200045	Karri	15-20	>50	0					
wpt488	50H	331206	6200175	Karri	20+	>50	0					
wpt489	50H	331217	6200169	Karri	15-20	>50	0					
wpt490	50H	331199	6200161	Marri	20+	>50	0					
wpt491	50H	331188	6200150	Blackbutt	15-20	>50	0					
wpt492	50H	331182	6200150	Blackbutt	15-20	>50	0					
wpt493	50H	331179	6200156	Blackbutt	15-20	>50	0					
wpt494	50H	331168	6200136	Dead Marri	15-20	>50	0					
wpt495	50H	331163	6200126	Marri	20+	>50	2+	Small-Medium	No Signs	No Signs	No	Internal dimensions of hollows unknown
wpt496	50H	331158	6200147	Blackbutt	20+	>50	0					
wpt497	50H	331142	6200133	Marri	20+	>50	2+	Small-Medium	No Signs	No Signs	No	Internal dimensions of hollows unknown
wpt498	50H	331124	6200121	Marri	20+	>50	0					
wpt499	50H	331124	6200118	Karri	20+	>50	0					
wpt500	50H	331128	6200109	Karri	20+	>50	0					
wpt501	50H	331123	6200102	Karri	20+	>50	0					
wpt502	50H	331124	6200104	Karri	20+	>50	0					
wpt503	50H	331112	6200106	Karri	20+	>50	0					
wpt504	50H	331113	6200098	Karri	5-10	>50	0					

Waypoint Number	Zone	mE	mN	Tree Species	Tree Height (m)	DBH (cm)	Number of Hollows	Estimated Hollow Entrance Size Range (cm)	Occupancy	Chew Marks	Potential Cockatoo Nest Hollow	Comments
wpt505	50H	331108	6200098	Karri	20+	>50	0					
wpt506	50H	331104	6200085	Karri	20+	>50	0					
wpt507	50H	331110	6200086	Karri	20+	>50	0					
wpt508	50H	331112	6200076	Karri	20+	>50	0					
wpt509	50H	331107	6200074	Dead Jarrah	15-20	>50	2+	Small	No Signs	No Signs	No	Internal dimensions of hollows unknown
wpt510	50H	331096	6200069	Dead Unknown	15-20	>50	1	Large (cockatoo)	No Signs	No Signs	Yes	Internal dimensions of hollows unknown
wpt511	50H	331086	6200074	Dead Unknown	15-20	>50	2+	Medium-Large	No Signs	No Signs	No	Appears too shallow
wpt512	50H	331082	6200069	Karri	20+	>50	0					
wpt513	50H	331077	6200074	Karri	20+	>50	0					
wpt514	50H	331068	6200073	Karri	15-20	>50	0					
wpt515	50H	331063	6200081	Marri	15-20	>50	0					
wpt516	50H	331064	6200098	Karri	20+	>50	2+	Small-Medium	No Signs	No Signs	No	Internal dimensions of hollows unknown
wpt517	50H	331047	6200094	Karri	20+	>50	2+	Small	No Signs	No Signs	No	Internal dimensions of hollows unknown
wpt518	50H	331052	6200094	Karri	20+	>50	2+	Small	No Signs	No Signs	No	Internal dimensions of hollows unknown
wpt519	50H	331043	6200075	Karri	20+	>50	2+	Small	No Signs	No Signs	No	Internal dimensions of hollows unknown
wpt520	50H	331032	6200079	Karri	20+	>50	2+	Small	No Signs	No Signs	No	Internal dimensions of hollows unknown
wpt521	50H	331027	6200072	Jarrah	15-20	>50	2+	Small	No Signs	No Signs	No	Internal dimensions of hollows unknown
wpt522	50H	331018	6200068	Jarrah	15-20	>50	1	Large (cockatoo)	No Signs	No Signs	Yes	Internal dimensions of hollows unknown
wpt523	50H	331019	6200085	Marri	15-20	>50	0					
wpt524	50H	331027	6200096	Marri	15-20	>50	0					
wpt525	50H	331016	6200101	Marri	20+	>50	0					
wpt526	50H	331027	6200104	Marri	20+	>50	0					
wpt527	50H	331024	6200108	Jarrah	15-20	>50	0					
wpt528	50H	331025	6200123	Karri	15-20	>50	0					
wpt529	50H	331034	6200122	Karri	20+	>50	2+	Small-Medium	No Signs	No Signs	No	Internal dimensions of hollows unknown
wpt530	50H	331040	6200105	Karri	20+	>50	0					
wpt531	50H	331041	6200099	Karri	15-20	>50	0					
wpt532	50H	331034	6200104	Karri	10-15	>50	1	Medium	No Signs	No Signs	No	Internal dimensions of hollows unknown
wpt533	50H	331051	6200106	Marri	15-20	>50	0					
wpt534	50H	331060	6200117	Karri	15-20	>50	0					
wpt535	50H	331056	6200120	Karri	20+	>50	0					
wpt536	50H	331048	6200130	Karri	15-20	>50	0					
wpt537	50H	331053	6200127	Karri	20+	>50	2+	Small-Medium	No Signs	No Signs	No	Internal dimensions of hollows unknown

Waypoint Number	Zone	mE	mN	Tree Species	Tree Height (m)	DBH (cm)	Number of Hollows	Estimated Hollow Entrance Size Range (cm)	Occupancy	Chew Marks	Potential Cockatoo Nest Hollow	Comments
wpt538	50H	331057	6200126	Karri	20+	>50	0					
wpt539	50H	331061	6200115	Karri	20+	>50	0					
wpt540	50H	331066	6200121	Karri	15-20	>50	0					
wpt541	50H	331079	6200115	Marri	15-20	>50	0					
wpt542	50H	331084	6200131	Blackbutt	20+	>50	0					
wpt543	50H	331087	6200123	Karri	20+	>50	0					
wpt544	50H	331100	6200120	Karri	20+	>50	0					
wpt545	50H	331103	6200115	Karri	20+	>50	0					
wpt546	50H	331096	6200126	Karri	20+	>50	0					
wpt547	50H	331110	6200115	Karri	20+	>50	0					
wpt548	50H	331113	6200119	Karri	20+	>50	0					
wpt549	50H	331111	6200121	Karri	20+	>50	0					
wpt550	50H	331103	6200097	Karri	20+	>50	0					
wpt551	50H	331092	6200092	Karri	15-20	>50	0					
wpt552	50H	331088	6200096	Marri	15-20	>50	0					
wpt553	50H	331074	6200095	Jarrah	15-20	>50	1	Large (cockatoo)	No Signs	No Signs	No	Internal dimensions of hollows unknown
wpt554	50H	331068	6200104	Marri	15-20	>50	0					
wpt555	50H	331098	6200086	Marri	15-20	>50	0					
wpt556	50H	331123	6200070	Karri	20+	>50	0					
wpt557	50H	331131	6200072	Karri	20+	>50	0					
wpt558	50H	331126	6200061	Karri	20+	>50	0					
wpt559	50H	331128	6200055	Karri	20+	>50	0					
wpt560	50H	331124	6200058	Karri	20+	>50	0					
wpt561	50H	331131	6200068	Marri	15-20	>50	0					
wpt562	50H	331143	6200067	Karri	20+	>50	0					
wpt563	50H	331145	6200069	Karri	15-20	>50	0					
wpt564	50H	331147	6200074	Karri	20+	>50	0					
wpt565	50H	331168	6200071	Marri	15-20	>50	0					
wpt566	50H	331176	6200072	Marri	15-20	>50	0					
wpt567	50H	331181	6200078	Marri	15-20	>50	0					
wpt568	50H	331194	6200076	Marri	15-20	>50	0					
wpt569	50H	331197	6200093	Karri	15-20	>50	0					
wpt570	50H	331209	6200092	Karri	15-20	>50	0					

Waypoint Number	Zone	mE	mN	Tree Species	Tree Height (m)	DBH (cm)	Number of Hollows	Estimated Hollow Entrance Size Range (cm)	Occupancy	Chew Marks	Potential Cockatoo Nest Hollow	Comments
wpt571	50H	331187	6200102	Marri	20+	>50	2+	Small-Medium	No Signs	No Signs	No	Internal dimensions of hollows unknown
wpt572	50H	331179	6200101	Karri	15-20	>50	0					
wpt573	50H	331160	6200089	Karri	20+	>50	0					
wpt574	50H	331146	6200098	Karri	20+	>50	2+	Small-Medium	No Signs	No Signs	No	Internal dimensions of hollows unknown
wpt575	50H	331150	6200091	Karri	15-20	>50	0					
wpt576	50H	331148	6200083	Karri	15-20	>50	0					
wpt577	50H	331142	6200083	Karri	15-20	>50	0					
wpt578	50H	331135	6200093	Dead Marri	20+	>50	2+	Small-Medium	No Signs	No Signs	No	Internal dimensions of hollows unknown
wpt579	50H	331132	6200080	Karri	15-20	>50	0					
wpt580	50H	331148	6200128	Marri	15-20	>50	0					
wpt581	50H	331155	6200122	Marri	15-20	>50	0					
wpt582	50H	331161	6200120	Marri	15-20	>50	0					
wpt583	50H	331174	6200117	Marri	15-20	>50	0					
wpt584	50H	331185	6200120	Marri	20+	>50	2+	Small	No Signs	No Signs	No	Internal dimensions of hollows unknown
wpt585	50H	331187	6200115	Marri	20+	>50	0					
wpt586	50H	331186	6200114	Dead Marri	10-15	>50	0					
wpt587	50H	331187	6200115	Marri	15-20	>50	0					
wpt588	50H	331190	6200120	Marri	5-10	>50	0					
wpt589	50H	331196	6200134	Karri	15-20	>50	0					
wpt590	50H	331195	6200138	Karri	15-20	>50	0					
wpt591	50H	331195	6200147	Marri	15-20	>50	0					
wpt592	50H	331212	6200147	Karri	20+	>50	0					
wpt593	50H	331218	6200150	Karri	15-20	>50	0					
wpt594	50H	331220	6200146	Karri	15-20	>50	0					

APPENDIX E

CAMERA TRAP RESULTS

Camera Trap Results

Camera Number	Date	Common Name	Species	Number
GH 11	05/03/2018	Common Brushtail Possum	*Trichosurus vulpecula*	2
GH 11	05/03/2018	Red-winged Fairy-wren	*Malurus elegans*	1
GH 11	09/03/2018	Common Brushtail Possum	*Trichosurus vulpecula*	1
GH 11	10/03/2018	Black Rat	*Rattus rattus*	1
GH 11	10/03/2018	Common Brushtail Possum	*Trichosurus vulpecula*	1
GH 11	10/03/2018	South-west Brush-tailed Phascogale	*Phascogale tapoatafa wambenger*	1
GH 11	12/03/2018	Common Brushtail Possum	*Trichosurus vulpecula*	1
GH 14	05/03/2018	Western Grey Kangaroo	*Macropus fuliginosus*	1
GH 14	07/03/2018	Red Fox	*Vulpes vulpes*	1
GH 14	08/03/2018	Red Fox	*Vulpes vulpes*	1
GH 14	08/03/2018	South-west Brush-tailed Phascogale	*Phascogale tapoatafa wambenger*	1
GH 14	09/03/2018	South-west Brush-tailed Phascogale	*Phascogale tapoatafa wambenger*	1
GH 14	14/03/2018	Quenda	*Isoodon fusciventer*	1
GH 14	15/03/2018	Red Fox	*Vulpes vulpes*	1
GH 14	15/03/2018	Red Fox	*Vulpes vulpes*	1
GH 14	18/03/2018	Common Brushtail Possum	*Trichosurus vulpecula*	1
GH 14	20/03/2018	Common Brushtail Possum	*Trichosurus vulpecula*	1
GH 14	21/03/2018	Common Brushtail Possum	*Trichosurus vulpecula*	1
GH 16	09/03/2018	Common Brushtail Possum	*Trichosurus vulpecula*	1
GH 17	04/03/2018	Red Fox	*Vulpes vulpes*	1
GH 17	06/03/2018	Quenda	*Isoodon fusciventer*	1
GH 17	07/03/2018	Quenda	*Isoodon fusciventer*	1
GH 17	09/03/2018	Western Grey Kangaroo	*Macropus fuliginosus*	1
GH 17	11/03/2018	Quenda	*Isoodon fusciventer*	1
GH 17	12/03/2018	House Mouse	*Mus musculus*	1
GH 17	16/03/2018	Red Fox	*Vulpes vulpes*	1
GH 17	18/03/2018	South-west Brush-tailed Phascogale	*Phascogale tapoatafa wambenger*	1
GH 18	08/03/2018	White-browed Scrubwren	*Sericornis frontalis*	1
GH 21	05/03/2018	Quenda	*Isoodon fusciventer*	1
GH 21	08/03/2018	Western Grey Kangaroo	*Macropus fuliginosus*	1
GH 21	13/03/2018	Common Brushtail Possum	*Trichosurus vulpecula*	1
GH 21	20/03/2018	Red Fox	*Vulpes vulpes*	1
GH 21	21/03/2018	Red Fox	*Vulpes vulpes*	1
GH 21	23/03/2018	Red Fox	*Vulpes vulpes*	1
GH 22	05/03/2018	Black Rat	*Rattus rattus*	1
GH 22	05/03/2018	Quenda	*Isoodon fusciventer*	1
GH 22	05/03/2018	Red Fox	*Vulpes vulpes*	1
GH 22	07/03/2018	Black Rat	*Rattus rattus*	1
GH 22	08/03/2018	Grey Fantail	*Rhipidura fuliginosa*	1
GH 22	08/03/2018	Red Fox	*Vulpes vulpes*	1
GH 23	04/03/2018	Black Rat	*Rattus rattus*	1
GH 23	04/03/2018	Western Bush Rat	*Rattus fuscipes*	1
GH 23	05/03/2018	Red Fox	*Vulpes vulpes*	1
GH 23	05/03/2018	Western Bush Rat	*Rattus fuscipes*	1
GH 23	06/03/2018	Red Fox	*Vulpes vulpes*	1
GH 23	06/03/2018	Western Bush Rat	*Rattus fuscipes*	1
GH 23	07/03/2018	Red Fox	*Vulpes vulpes*	1
GH 23	07/03/2018	Western Bush Rat	*Rattus fuscipes*	1
GH 23	08/03/2018	Red Fox	*Vulpes vulpes*	1

Camera Number	Date	Common Name	Species	Number
GH 23	08/03/2018	Western Bush Rat	*Rattus fuscipes*	1
GH 23	09/03/2018	Western Bush Rat	*Rattus fuscipes*	1
GH 23	10/03/2018	Western Bush Rat	*Rattus fuscipes*	1
GH 23	10/03/2018	Western Grey Kangaroo	*Macropus fuliginosus*	1
GH 23	11/03/2018	Common Bronzewing	*Phaps chalcoptera*	1
GH 23	11/03/2018	Red Wattlebird	*Anthochaera carunculata*	1
GH 23	13/03/2018	Western Bush Rat	*Rattus fuscipes*	1
GH 23	14/03/2018	Red Fox	*Vulpes vulpes*	1
GH 23	15/03/2018	Red Fox	*Vulpes vulpes*	1
GH 23	17/03/2018	Western Bush Rat	*Rattus fuscipes*	1
GH 23	17/03/2018	Western Grey Kangaroo	*Macropus fuliginosus*	1
GH 23	18/03/2018	Red Fox	*Vulpes vulpes*	1
GH 23	20/03/2018	Red Fox	*Vulpes vulpes*	1
GH 23	21/03/2018	Red Fox	*Vulpes vulpes*	1
GH 23	22/03/2018	Red Fox	*Vulpes vulpes*	1
GH 23	23/03/2018	Western Grey Kangaroo	*Macropus fuliginosus*	1
GH 25	05/03/2018	King's Skink	*Egernia kingii*	1
GH 25	11/03/2018	South-west Brush-tailed Phascogale	*Phascogale tapoatafa wambenger*	1
GH 25	16/03/2018	Red-winged Fairy-wren	*Malurus elegans*	1
GH 25	23/03/2018	King's Skink	*Egernia kingii*	1
GH 25	24/03/2018	Silvereye	*Zosterops lateralis*	1
GH 26	04/03/2018	Western Grey Kangaroo	*Macropus fuliginosus*	1
GH 26	04/03/2018	Yellow-footed Antechinus	*Antechinus flavipes*	1
GH 26	05/03/2018	Red-winged Fairy-wren	*Malurus elegans*	1
GH 26	05/03/2018	Yellow-footed Antechinus	*Antechinus flavipes*	1
GH 26	05/03/2018	Yellow-footed Antechinus	*Antechinus flavipes*	2
GH 26	06/03/2018	Yellow-footed Antechinus	*Antechinus flavipes*	1
GH 26	09/03/2018	Laughing Kookaburra	*Dacelo novaeguineae*	1
GH 26	11/03/2018	Yellow-footed Antechinus	*Antechinus flavipes*	1
GH 26	13/03/2018	Yellow-footed Antechinus	*Antechinus flavipes*	1
GH 26	21/03/2018	Western Ringtail Possum	*Pseudocheirus occidentalis*	1

APPENDIX F

PROPOSED DEVELOPMENT INITIATIVES

SITE PLAN

SCALE 1:200

OWNER SIGNATURE .....

BUILDER SIGNATURE .....

DATE .....

DATE:	DRAWING:
27/06/17	MASTER LAYOUT

Tectonics

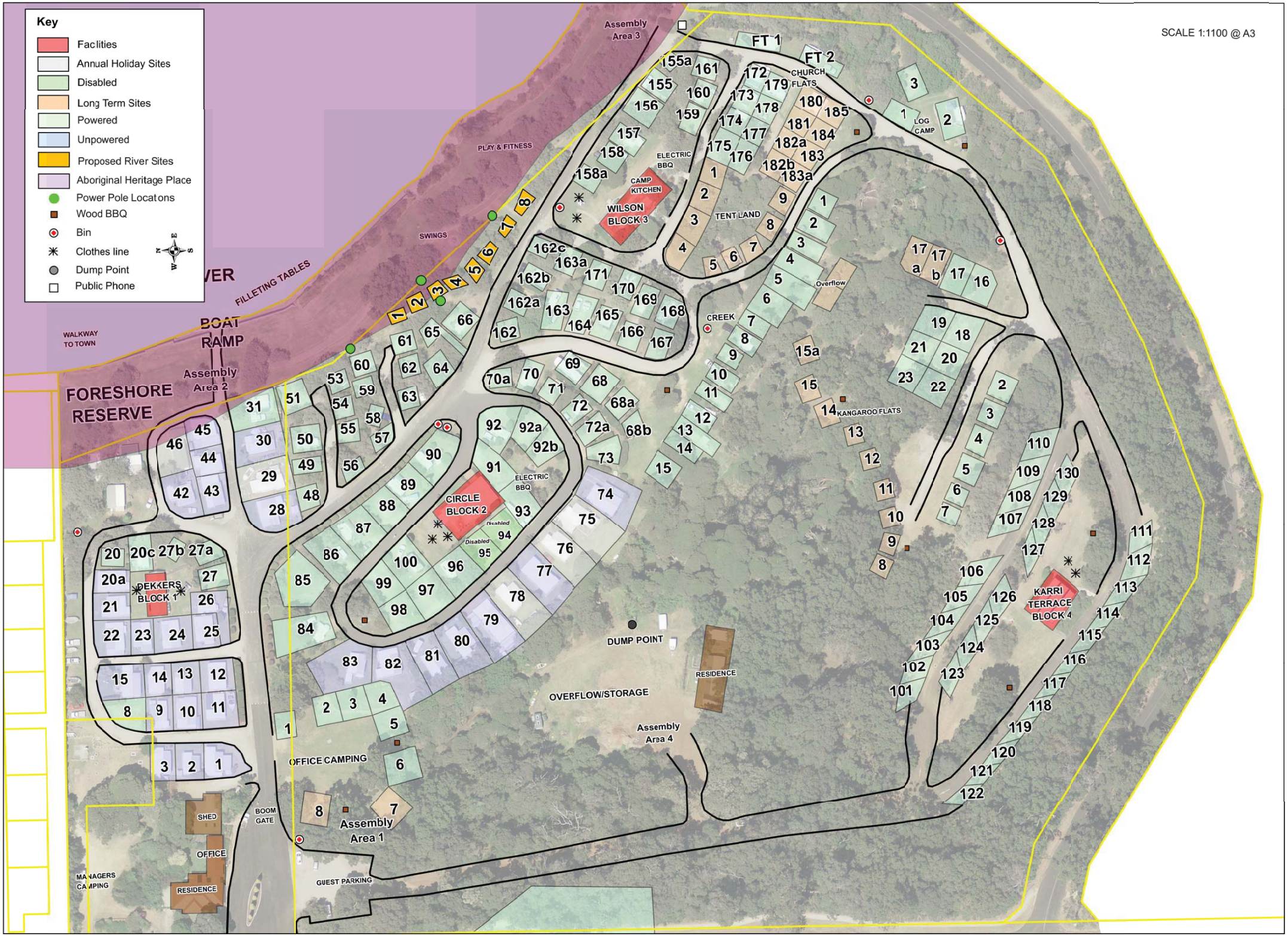
PHONE: 08 97579020
PO BOX 1458
MARGARET RIVER
WA, 6285
info@tectonics.net.au

PROPOSED CHALETS FOR TURNER ST CARAVAN PARK

LOT 853 TURNER ST AUGUSTA, WA

FUTURE SITE PLAN CHALETS

DRG NO: Z.10
SHEET: A2
SCALE: 1:200
DATE: 15/06/17


Key
Facilities
Annual Holiday Sites
Disabled
Long Term Sites
Powered
Unpowered
Proposed River Sites
Aboriginal Heritage Place
Power Pole Locations
Wood BBQ
Bin
Clothes line
Dump Point
Public Phone
SCALE 1:1100 @ A3
Assembly Area 3
FT 1
FT 2
CHURCH FLATS
LOG CAMP
PLAY & FITNESS
ELECTRIC BBQ
CAMP KITCHEN
WILSON BLOCK 3
TENT LAND
SWINGS
FILLETING TABLES
BOAT RAMP
WALKWAY TO TOWN
FORESHORE RESERVE
Assembly Area 2
CREEK
Overflow
KANGAROO FLATS
CIRCLE BLOCK 2
Disabled
DEKKERS BLOCK 1
KARRI TERRACE BLOCK 4
DUMP POINT
RESIDENCE
OVERFLOW/STORAGE
Assembly Area 4
OFFICE CAMPING
SHED
BOOM GATE
Assembly Area 1
OFFICE
MANAGERS CAMPING
RESIDENCE
GUEST PARKING

Arbor Guy (2017) - Trees recommended for trimming or removal

Tree No	Common Name	Genus & species	Height (m)	DBH (mm)	Health	QTRA Risk Index	Recommended Works	Comments	Horz_Prec	X	Y
2	Paperbark	Melaleuca sp	15	1300	Good	4K	Reduce end-weight	twin stems	1.6	6200546.7	330983.015
4	Paperbark	Melaleuca sp	15	700	Good	4K	Reduce end-weight	decay at base	0.5	6200543.6	330985.459
6	Paperbark	Melaleuca sp	9	600	Good	4K	Reduce end-weight	2 stems - 3rd stem previously	1.1	6200538.94	330986.543
8	Paperbark	Melaleuca sp	16	700	Good	4K	Reduce end-weight	None	0.5	6200534.91	330981.6
9	Paperbark	Melaleuca sp	16	1000	Good	4K	Reduce end-weight	None	0.8	6200538.25	330981.441
10	Paperbark	Melaleuca sp	9	800	Good	4K	Reduce end-weight	None	1	6200539.8	330979.069
11	Paperbark	Melaleuca sp	18	1100	Good	4K	Reduce end-weight	previous stem removed	0.6	6200522.56	330987.241
12	Paperbark	Melaleuca sp	18	1200	Good	4K	Reduce end-weight	None	0.6	6200531.95	330991.484
13	Paperbark	Melaleuca sp	4	300	Poor	1K	Remove Tree	almost dead	0.9	6200534.23	330992.729
14	Paperbark	Melaleuca sp	5	700	Fair	400	Remove Tree	decay at base	0.8	6200526.25	330992.322
28	Peppermint	Agonis flexuosa	10	1300	Poor	400	Remove Tree	recent failure 300mm limb,	1	6200492.03	331132.816
31	Peppermint	Agonis flexuosa	3	800	Poor	40K	Remove Tree	almost dead covered with ivy	0.8	6200493.63	331108.831
32	Peppermint	Agonis flexuosa	4	900	Dead	40K	Remove Tree	covered with ivy	0.9	6200492.16	331107.554
36	Peppermint	Agonis flexuosa	9	1100	Fair	4K	Remove Tree	decay at base, consider remove	1.6	6200465.37	331106.504
42	Peppermint	Agonis flexuosa	6	1000	Fair	4K	reduce stem closest road	decay at base	1.5	6200463.94	331116.952
45	Peppermint	Agonis flexuosa	8	900	Fair	40K	Remove Tree	Previously topped, heavy lean ,	0.7	6200539.25	331117.127
46	Peppermint	Agonis flexuosa	7	450	Good	40K	weight reduce	leans over table, decay in base	0.8	6200539.77	331120.765
47	Peppermint	Agonis flexuosa	5	450	Poor	4K	Remove Tree	almost dead	0.8	6200530.19	331119.311
48	Peppermint	Agonis flexuosa	8	1000	Fair	50K	Remove Tree	significant decay in trunk,	0.6	6200530.46	331117.691
49	Peppermint	Agonis flexuosa	9	1000	Fair	40K	Remove Tree	significant decay at base,	0.7	6200546.75	331113.141
50	Peppermint	Agonis flexuosa	6	1200	Fair	4K	Remove Tree	Recent trenching within 1m of base	2.7	6200552.58	331085.75
52	Peppermint	Agonis flexuosa	10	1100	Good	40K	weight reduce, crown clean and	Recent trenching within 3m of base of tree	0.8	6200549.08	331068.586
60	Peppermint	Agonis flexuosa	9	600	Dead	>1M	Remove stump	Tree has decayed at base and fallen	1.3	6200432.33	331162.064
62	Peppermint	Agonis flexuosa	8	600	Fair	4K	Remove Tree	Significant decay at base	2.3	6200418.05	331167.445
68	Peppermint	Agonis flexuosa	9	600	Fair	4K	Reduce end-weight	Exclude camping within fall zone of	1.6	6200406.52	331181.984
69	Peppermint	Agonis flexuosa	9	600	Fair	50K	Reduce end-weight	Previously topped	0.6	6200403.34	331180.473
70	Peppermint	Agonis flexuosa	9	1400	Fair	50K	Reduce end-weight and crown-	Multi stemmed tree. Exclude	0.8	6200404.19	331185.576
71	Peppermint	Agonis flexuosa	9	1400	Fair	4K	Reduce end-weight and crown- clean	Broken limb hanging in crown.	2.3	6200393.76	331198.315
72	Peppermint	Agonis flexuosa	9	800	Fair	50K	Reduce end-weight and crown-	Exclude camping within fall zone of	1	6200386.68	331203.4
73	Peppermint	Agonis flexuosa	8	1200	Fair	40K	Reduce end-weight and crown-	Exclude camping within fall zone of	1.6	6200387.37	331206.431
74	Peppermint	Agonis flexuosa	8	900	Fair	50K	Reduce end-weight	Significant decay at base. 1 stem previously removed at ground level	1	6200356.36	331245.484
78	Peppermint	Agonis flexuosa	9	500	Good	4K	Reduce end-weight	Neighboring tree (#79) has root	0.8	6200346.4	331239.924
79	Peppermint	Agonis flexuosa	9	1000	Good	4K	Remove stem leaning on	None	0.9	6200342.02	331240.874
83	Peppermint	Agonis flexuosa	9	1400	Fair	4K	Reduce end-weight	previously topped	0.6	6200458.92	331105.987
85	Peppermint	Agonis flexuosa	9	1100	Fair	4K	Remove Tree	extensive decay at base	3.1	6200452.77	331118.192
88	Peppermint	Agonis flexuosa	12	700	Fair	4K	Remove Tree	extensive decay at base and trunk	0.8	6200443.89	331124.495
91	Peppermint	Agonis flexuosa	9	1100	Fair	4K	Remove Tree	extensive decay at base	0.5	6200451.81	331142.052
92	Peppermint	Agonis flexuosa	9	1100	Fair	4K	Remove Tree	recent failure, extensive decay at	0.7	6200440.77	331137.072
101	Peppermint	Agonis flexuosa	7	1800	Fair	4K	remove tree or significant height	previously topped extensive decay	1.4	6200427.65	331154.119
107	Peppermint	Agonis flexuosa	15	2500	Good	4K	weight reduce and brace	3 stems	0.7	6200386.75	331176.747
118	Paperbark	Melaleuca sp	15	900	Good	40K	Reduce end-weight	None	0.7	6200358.27	331169.303
122	Peppermint	Agonis flexuosa	10	1100	Good	500K	Reduce end-weight	over extended limb to sth east	0.8	6200355.82	331150.282
129	Peppermint	Agonis flexuosa	15	800	Good	4K	Reduce end-weight	decay at base	0.6	6200361.14	331180.925
131	Paperbark	Melaleuca sp	12	800	Good	100K	Reduce end-weight	None	0.7	6200350.14	331194.769
132	Peppermint	Agonis flexuosa	16	1000	Good	4K	Reduce end-weight	None	0.9	6200347.11	331206.044
134	Peppermint	Agonis flexuosa	17	400	Good	10K	Reduce end-weight	decay at lower trunk	0.6	6200343.59	331212.104
138	Peppermint	Agonis flexuosa	10	900	Good	4K	Reduce end-weight	heavy lean	1.3	6200329.87	331241.675
140	Peppermint	Agonis flexuosa	10	1200	Good	4K	Reduce end-weight	None	1	6200339.4	331234.145
143	Peppermint	Agonis flexuosa	13	1200	Good	400	Remove Tree	significant decay at base, 1 stem	1.2	6200358.2	331222.862
145	Peppermint	Agonis flexuosa	11	1500	Good	40	Remove Tree	creeping failure of codominant	2.3	6200350.09	331222.289
147	Peppermint	Agonis flexuosa	9	900	Good	50K	remove decayed branch over	None	0.6	6200368.67	331214.676
148	Paperbark	Melaleuca sp	9	1600	Good	4K	weight reduce and brace	multiple stems	0.6	6200361.44	331204.076

152	Paperbark	Melaleuca sp	17	900	Good	4K	Reduce end-weight	decay at base, waterlogged soil	0.4	6200336.31	331171.183
153	Paperbark	Melaleuca sp	17	300	Good	4K	Reduce end-weight	None	0.6	6200333.26	331175.295
154	Paperbark	Melaleuca sp	17	900	Good	4K	weight reduce and brace	None	0.5	6200331.72	331177.653
156	Paperbark	Melaleuca sp	17	300	Good	4K	Reduce end-weight	decay at base, monitor lean	0.8	6200336.12	331181.886
161	Paperbark	Melaleuca sp	9	250	Fair	5K	Remove Tree	has heaved into neighboring tree	0.8	6200324.48	331181.018
162	Paperbark	Melaleuca sp	15	900	Good	10K	Reduce end-weight	None	0.5	6200322.72	331181.522
163	Paperbark	Melaleuca sp	14	350	Good	10K	Reduce end-weight	None	0.7	6200317.83	331182.758
165	Paperbark	Melaleuca sp	12	900	Good	4K	Reduce end-weight	codominant stems creeping apart	1	6200313.21	331183.475
166	Paperbark	Melaleuca sp	9	500	Good	100K	Reduce end-weight	None	0.8	6200308.54	331189.584
167	Paperbark	Melaleuca sp	14	900	Good	4K	Reduce end-weight	None	0.4	6200310.95	331191.465
171	Paperbark	Melaleuca sp	7	800	Good	4K	Reduce end-weight	None	0.6	6200316.41	331195.481
174	Paperbark	Melaleuca sp	13	1300	Good	4K	Reduce end-weight	over road	0.9	6200333.93	331201.06
175	Paperbark	Melaleuca sp	12	900	Good	4K	Reduce end-weight	over road	0.4	6200334.77	331194.206
176	Paperbark	Melaleuca sp	15	1100	Good	4K	Reduce end-weight	multiple stems	1	6200336.5	331189.709
178	Paperbark	Melaleuca sp	16	900	Good	10K	Reduce end-weight	None	0.6	6200332.46	331187.883
181	Peppermint	Agonis flexuosa	11	1300	Good	400	remove 2 largest stems	creeping failure	0.5	6200317.46	331209.719
182	Peppermint	Agonis flexuosa	10	1200	Good	4K	Reduce end-weight	None	1	6200324.6	331215.076
187	Paperbark	Melaleuca sp	8	1000	Good	4K	Reduce end-weight	None	0.4	6200282.57	331209.516
189	Paperbark	Melaleuca sp	10	1600	Good	40K	Reduce end-weight	multiple stems	0.6	6200288.8	331199.226
191	Paperbark	Melaleuca sp	10	700	Good	4K	Reduce end-weight	None	0.4	6200285.29	331186.033
193	Paperbark	Melaleuca sp	8	700	Good	4K	Reduce end-weight	None	0.8	6200292.6	331164.817
196	Paperbark	Melaleuca sp	12	1300	Good	4K	Reduce end-weight	multiple stems	0.6	6200310.95	331166.322
197	Paperbark	Melaleuca sp	12	600	Good	50K	Reduce end-weight	None	0.4	6200304.48	331159.15
199	Paperbark	Melaleuca sp	12	800	Good	50K	Reduce end-weight	multiple stems, decay at base	0.5	6200309.86	331148.567
200	Paperbark	Melaleuca sp	12	900	Good	4K	Reduce end-weight	None	0.6	6200309.6	331149.201
205	Paperbark	Melaleuca sp	10	1900	Good	4K	Reduce end-weight	None	0.7	6200321.34	331136.509
206	Paperbark	Melaleuca sp	7	700	Good	400	Remove Tree	fallen into neighboring tree	1.2	6200318.34	331127.428
207	Paperbark	Melaleuca sp	9	1300	Good	10K	Reduce end-weight	None	2.9	6200315.17	331116.48
208	Paperbark	Melaleuca sp	4	600	Good	10K	Reduce end-weight	None	1.2	6200326.13	331116.623
211	Paperbark	Melaleuca sp	10	1600	Good	4K	Reduce end-weight	multiple stems	1.2	6200343.08	331106.407
212	Paperbark	Melaleuca sp	10	500	Good	10K	Reduce end-weight	None	1.2	6200338.61	331102.406
248	Peppermint	Agonis flexuosa	5	700	Good	40K	Reduce end-weight	None	2.7	6200472.04	331046.504
283	Cape Lilac	Melia azedarach	4	500	Dead	4K	Remove Tree	None	0.9	6200437.24	331091.188
289	Karri	Eucalyptus diversicolor	6	1000	Dead	4K	Remove Tree	covered with ivy	1.3	6200431.85	331098.503
291	Paperbark	Melaleuca sp	9	700	Good	4K	Reduce end-weight	None	0.8	6200353.3	331088.777
292	Paperbark	Melaleuca sp	7	700	Good	4K	Reduce end-weight	None	0.5	6200353.23	331083.785
294	Paperbark	Melaleuca sp	8	1000	Good	10K	Reduce end-weight	None	0.7	6200373.08	331069.707
324	Peppermint	Agonis flexuosa	13	900	Good	10K	Reduce end-weight	None	1.1	6200425.08	331058.943
330	Peppermint	Agonis flexuosa	15	1000	Good	500K	Reduce end-weight	None	1.4	6200459.2	331052.234
332	Flame Tree	Erythrina sp	20	400	Good	10K	remove stems leaning towards	cluster of trees	0.8	6200419.76	331030.146
334	Flame Tree	Erythrina sp	12	500	Good	50K	remove leaning stem	None	1.1	6200425.7	331024.403
335	Willow	Salix sp	8	200	Good	50K	Reduce end-weight	None	1.1	6200431.44	331029.889
336	Flame Tree	Erythrina sp	16	300	Good	50K	remove leaning stems	cluster of stems	0.6	6200432.05	331022.456
337	Peppermint	Agonis flexuosa	16	400	Good	10K	Reduce end-weight	\	1.1	6200431.89	331022.312
343	Paperbark	Melaleuca sp	9	1400	Good	4K	Reduce end-weight	multiple stems, crack in leaning	1.1	6200274.76	331209.638
354	Paperbark	Melaleuca sp	16	1000	Good	4K	Reduce end-weight	heavy lean over campsite	1.4	6200268.83	331181.294
355	Paperbark	Melaleuca sp	14	1200	Good	4K	Reduce end-weight	waterlogged soil	1	6200286.51	331164.738
359	Paperbark	Melaleuca sp	15	1100	Good	4K	Reduce end-weight	limb leaning over creek	0.5	6200305.4	331142.483
361	Paperbark	Melaleuca sp	15	800	Good	4K	Reduce end-weight	hangar	0.9	6200311.97	331131.303
380	Paperbark	Melaleuca sp	13	1200	Good	4K	Reduce end-weight	hollow leaning stem	0.9	6200280.05	331134.845
383	Paperbark	Melaleuca sp	16	400	Good	4K	Reduce end-weight	decay at base	1.4	6200306.57	331134.067
399	Marri	Corymbia calophylla	6	1400	Poor	500K	remove live growth and poison	mostly dead stump	0.8	6200220.53	331137.17
403	Marri	Corymbia calophylla	25	900	Good	400	Reduce end-weight and aerial	aerial inspection	0.9	6200255.05	331069.039
408	Karri	Eucalyptus diversicolor	20	300	Good	100K	Reduce end-weight	leaning stem due to competition	1.9	6200261.76	331052.638
417	Paperbark	Melaleuca sp	8	300	Fair	4K	Remove Tree	fallen into neighboring tree	2.1	6200275.15	331061.782

433	Marri	Corymbia calophylla	20	300	Good	50K	remove poorly attached low limb	None	0.9	6200229.66	331105.362
437	Peppermint	Agonis flexuosa	12	800	Poor	4K	Remove Tree	decay at base	0.8	6200249.85	331062.51
444	Marri	Corymbia calophylla	30	1000	Good	4K	Reduce end-weight	exclude camping beneath canopy,	0.6	6200279.79	331020.537
488	Peppermint	Agonis flexuosa	9	500	Good	500K	Reduce end-weight	None	0.9	6200263.35	331247.026
511	Marri	Corymbia calophylla	22	500	Good	50K	side trim	decay in upper stem	1.6	6200185.82	331050.722
528	Karri	Eucalyptus diversicolor	20	500	Good	40K	remove low side limb with decay	None	2.5	6200248.58	330980.973
551	Marri	Corymbia calophylla	18	600	Good	>1M	remove ivy	None	1.4	6200252.42	330999.418
552	Karri	Eucalyptus diversicolor	9	350	Dead	1K	Remove Tree	None	2.7	6200253.32	331003.699
553	Karri	Eucalyptus diversicolor	16	600	Fair	>1M	remove ivy	None	0.8	6200247.99	331007.247
554	Marri	Corymbia calophylla	19	600	Good	>1M	remove ivy	None	5.3	6200241.11	331005.905
556	Karri	Eucalyptus diversicolor	26	800	Good	500K	remove ivy	previously topped	3.3	6200233.64	331013.6
557	Karri	Eucalyptus diversicolor	28	1100	Good	50K	remove ivy and aerial inspection	previously topped	3	6200238.86	331022.71
558	Marri	Corymbia calophylla	16	400	Poor	50K	remove ivy and aerial inspection	None	1.9	6200232.67	331023.745
559	Marri	Corymbia calophylla	19	1000	Good	50K	reduce height	previously topped	3.6	6200193.57	331069.335
560	Karri	Eucalyptus diversicolor	22	1000	Good	10K	reduce height	previously topped	1.6	6200197.7	331078.304
563	Black Butt	Eucalyptus patens	20	350	Good	40K	Reduce end-weight	heavy lean over road	1	6200312.19	330979.94
567	Black Butt	Eucalyptus patens	28	1100	Poor	4K	remove crown to safe height	None	1.2	6200361.4	330966.878
568	Black Butt	Eucalyptus patens	18	350	Good	10K	Reduce end-weight	previous failure 300mm limb	0.6	6200408.15	330960.667
578	Marri	Corymbia calophylla	26	900	Poor	4K	remove limbs over road	None	0.7	6200387.16	330974.282
579	Marri	Corymbia calophylla	18	450	Dead	4K	Remove Tree	None	1.3	6200380.24	330979.045
581	Black Butt	Eucalyptus patens	30	1200	Dead	4K	remove limbs over road	None	1.1	6200377.43	330978.533
585	Black Butt	Eucalyptus patens	30	1200	Fair	4K	remove limbs over road	significant defects but leaning	1.7	6200342.57	330991.934
599	Black Butt	Eucalyptus patens	25	650	Fair	40K	Reduce end-weight	limbs over road	1.1	6200326.21	330989.653
604	Black Butt	Eucalyptus patens	26	1800	Fair	400	shorten stem towards road	fractured lower trunk	1.1	6200324.89	330994.079
614	Marri	Corymbia calophylla	16	600	Good	50K	reduce height	previously topped	0.9	6200467.88	330976.122
621	Karri	Eucalyptus diversicolor	20	400	Good	100K	shorten low lateral limb	None	2	6200458.85	330975.31
631	Karri	Eucalyptus diversicolor	22	600	Good	4K	reduce height	previously topped	0.6	6200446.51	330996.699

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