Appendix G

Fauna Assessment (Emerge, 2019)

Fauna Assessment

Lot 101 Wallcliffe Road Prevelly

May 2019
V2

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Acronyms/Abbreviations:

ALA: Atlas of Living Australia www.ala.org.au

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

BC Act: Biodiversity Conservation Act 2016. WA Government.

°C: Degrees Celsius.

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

CAMBA: China Australia Migratory Bird Agreement 1998.

CBD: Central Business District.

DBH: Diametre at Breast Height – tree measurement.

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

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

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

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

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

DoP: Department of Planning, WA Government.

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

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

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

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

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

EPA: Environmental Protection Authority, WA Government.

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

ha: Hectare (10,000 square metres).

IBRA: Interim Biogeographic Regionalisation for Australia.

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

JAMBA: Japan Australia Migratory Bird Agreement 1981.

km: Kilometre.

m: Metre.

mm: Millimetre.

P: Priority - 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), Australian Government.

SRE: Short Range Endemic.

SSC: Species Survival Commission, International.

WA: Western Australia.

WAM: Western Australian Museum, WA Government.

WAPC: Western Australian Planning Commission, WA Government.

WC Act: *Wildlife Conservation Act 1950*, WA Government.

WRP: Western Ringtail Possum

SUMMARY

This report details the results of a fauna assessment of Lot 101, Wallcliffe Road, Prevelly (referred to as "the site" or "Lot 101"). Lot 101 is approximately 5.31 ha in size. In order to provide contextual information for the wider area, areas in the surrounding reserves have also been included in the fauna assessment. The site and these surrounding areas are collectively referred to as the "survey area" and occupy about 11.26 ha (Figures 1 & 2).

Lot 101 is zoned 'tourism' under the Shires of Augusta Margaret River Local Planning Scheme (LPS) No 1 and it is understood that the landowners are proposing to redevelop the site for tourism purposes. The site contains Wallcliffe House, which was once one of the original farm and homesteads built by the Bussell family in the 1850s and contains large areas of cultivated gardens and turf. This redevelopment will require the removal/modification of some of the existing vegetation within the site, an action that has the potential to impact on current fauna habitat values.

The fauna assessment reported on here represents one of several technical reports that will be used to provide an understanding of the suite of environmental values present within the survey area which will then be used during the ongoing planning and approval process.

The scope of works was to conduct a level 1 fauna survey as defined by the EPA (EPA 2016). Because some listed threatened species (i.e. three species of black cockatoo (*Calyptorhynchus* sp.) and the western ringtail possum (WRP) (*Pseudocheirus occidentalis*)) are known to occur in the general area, the scope of the survey work was expanded to include targeted assessment of the site's significance to these particular species. To fulfil the required scope of works the assessment has therefore included a literature review ("desktop study") and a day and night survey carried out in April 2019.

With respect to native vertebrate fauna, 21 mammals (including nine bat species), 124 bird, 34 reptile, 10 frog and six fish species have previously been recorded in the general area, some of which have the potential to occur in or utilise sections of the survey area at times. Thirteen species of introduced animals could also frequent the area.

Descriptions and example images of the main fauna habitats/dominant vegetation present within the survey area are provided in Table 1, with the location and extent of each unit being depicted in Figure 3.

Lot 101 is predominantly cleared of native vegetation with some parkland cleared native trees (mainly peppermint - *Agonis flexuosa*), managed grasses and gardens with planted non-endemic and exotic plant species remaining. Small sections of disturbed native vegetation subject to some plantings, ground disturbance and weed management occur mainly in central section of the site. The most intact vegetation is present along the west of the site adjacent to the Margaret River (a major, perennial watercourse) and to the south of the site bordering the Wallcliffe Nature Reserve. A small section of a high limestone cliff enters the site near its south west corner.

Overall the fauna habitat quality of Lot 101 can be regarded as being very low given most areas are highly degraded/modified. The fauna assemblage likely to persist in these areas is likely to be highly depauperate and would only be represented by a small subset of the predicted fauna species (Appendix B). The balance of the survey area, which generally contains larger expanses of a variety of good quality habitats can be expected to harbour a higher percentage of the predicted species. While the site itself has relatively low overall fauna habitat values it still retains some value for a range of species including some of conservation significance and this fact will need to be taken into consideration during ongoing planning and subsequent development.

The locations of various possum observations made during the day and night surveys are shown in Figure 4. Nine WRP dreys were observed during the day survey. WRP scats were also observed at three locations during the same period. Seven WRPs and five common brushtail possums were observed during the nocturnal survey. Most WRPs were seen in remnant native vegetation with one individual recorded with the grove of pine trees near the centre of Lot 101.

The results of the WRP assessment suggest that almost all the vegetation present with the survey area can be considered habitat of some type and therefore maybe used either continuously or at various times for refuge, foraging and/or dispersal.

The black cockatoo habitat assessment identified only three trees within the survey area with a DBH of $\geq$50cm. None of the trees appeared to contain hollows of a size that would be suitable for black cockatoos to use for nesting purposes. Only one of the identified habitat trees is actually located within Lot 101.

Evidence of black cockatoos foraging was observed during the field survey in the form of chewed marri fruits and pine cones in two areas (Figure 5). This evidence was attributed to one or more of the three black cockatoo species depending on the plant species involved and the characteristics of the foraging activity (i.e. nature of remaining debris).

The overall extent of quality foraging habitat for black cockatoos within Lot 101 is very limited. Marri and red flowering gum, the most favoured native species present, are only represented by a few scattered specimens. A group of pine trees near the centre of the site appear to be a focal point of foraging activity with numerous chewed cones being observed under trees during the survey period. The total extent of quality foraging habitat within Lot 101 is difficult to estimate given that the favoured species (marri, red flowering gum and pine) are represented by only a small number of scattered trees or small groves of trees but would not amount to more than about 0.1 or 0.2 ha.

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

Besides the three black cockatoo species and the western ringtail possum, evidence of one additional fauna species of conservation significance was observed during the survey period, this being the eastern osprey (*Pandion cristatus*) (state and federally listed migratory species).

One individual of this species was observed roosting in a tree near Margaret River and on top of one of the buildings at a later time. What appears to be an osprey nest is also present in a tree near the north east boundary of Lot 101 (outside of the current development footprint).

Opportunistic fauna observations are listed in Appendix B. Including those species previously mentioned, a total of 11 native fauna species were observed (or positively identified from foraging evidence, scats, tracks, skeletons or calls) within the survey area during the course of survey.

The assessment indicates that the best quality and widest range of fauna habitats within the survey area are located outside of Lot 101. As a consequence, these areas (including the reserve areas of which they from a part of) are most likely to be harbouring the greatest variety of fauna species. Any development undertaken in Lot 101 is therefore considered as unlikely to impact significantly on the current status of any fauna species presently utilising the area.

In summary five vertebrate fauna species of conservation significance were positively identified as utilising the survey area for some purpose, these being:

- Forest Red-tailed Black Cockatoo – Vulnerable;
- Baudin's Black Cockatoo – Endangered;
- Carnaby's Black Cockatoo – Endangered;
- Eastern Osprey – Migratory; and
- Western Ringtail Possum – Critically Endangered.

A number of additional vertebrate species of conservation significance may also utilise the survey area, though, as no evidence of these species' presence was identified during the field survey, the status of some in the area remains uncertain. These species are:

- Pouched Lamprey – Priority 3;
- Black Bittern – Priority 2;
- Australian Little - Priority 2;
- Masked Owl – Priority 3;
- Peregrine Falcon – Schedule 7;
- South-western Brush-tailed Phascogale - Schedule 6;
- Quenda – Priority 4;
- Western False Pipistrelle – Priority 4;
- Water Rat – Priority 4.

As indicated, most of these species would not actually utilise Lot 101 due to a lack of suitable habitats, though they may frequent nearby areas.

One invertebrate species of conservation significance has also been assessed as possibly occurring based on available information. The Cape Leeuwin freshwater snail (Vulnerable) has been collected in national park areas north and south of the survey area (DBCA 2019b) so it must be regarded as a potential species though it is considered unlikely to occur within Lot 101 itself given the disturbed nature of the site.

Overall Lot 101 has low biodiversity values and therefore impacts on fauna in general will be non-existent or negligible. Constraints on development within the subject site will largely be centred on the presence of habitat used or potentially used by threatened fauna species in particular the western ringtail possum.

The presence of this species should be taken into account during ongoing planning and subsequent development. To this end it is recommended that a fauna management plan be formulated for implementation prior to and during development. In particular the plan should define procedures for ensuring the retention and protection of existing WRP habitat wherever possible including protocols for ensuring western ringtail possums (and other fauna) are not injured or killed during site works.

It is also recommended that the tree containing the potential eastern osprey nest be specifically marked and fenced off during site works to minimise activity occurring nearby which may disturb nesting birds.

1. INTRODUCTION

This report details the results of a fauna assessment of Lot 101, Wallcliffe Road, Prevelly (referred to as "the site" or "Lot 101"). The site is located approximately 8 km south-east of Margaret River township within the Shire of Augusta-Margaret River (the Shire) (Figure 1).

Lot 101 is approximately 5.31 ha in size and is bounded by Wallcliffe Road to the east, rural residential lots to the north-east, the Margaret River to the north-west and the Wallcliffe Nature Reserve to the south (Figure 2).

In order to provide contextual information for the wider area, some areas in surrounding reserves have also been included in the fauna assessment. The site and these surrounding areas are collectively referred to as the "survey area" and occupy about 11.26 ha (Figure 2).

2. DEVELOPMENT PROPOSAL

Lot 101 is zoned 'tourism' under the Shires Local Planning Scheme (LPS) No 1 and it is understood that the landowners are proposing to redevelop the site for tourism purposes. The site contains Wallcliffe House, which was once one of the original farm and homesteads built by the Bussell family in the 1850s and contains large areas of cultivated gardens and turf. The redevelopment will require the removal/modification of some of the existing vegetation within the site, an action that has the potential to impact on current fauna habitat values.

The fauna assessment reported on here represents one of several technical reports that will be used to provide an understanding of the suite of environmental values present within the survey area which will then be used during the ongoing planning and approval process.

3. SCOPE OF WORKS

The scope of the fauna survey was to carry out a "desktop study" and a site reconnaissance survey consistent with a level 1 fauna survey as defined in EPA Guidance (2016), in addition to targeted surveys for western ringtail possums (WRP) and black cockatoo habitat. To fulfil this requirement the following has been undertaken:

- A literature review of ecological information pertaining to the survey area and surrounds, including database searches for conservation significant fauna species and locations.
- A 'level 1' (basic) fauna assessment, with additional targeted (detailed) survey for specific conservation significant fauna values, namely black cockatoos

(*Calyptorhynchus* sp.) and the western ringtail possum (*Pseudocheirus occidentalis*). As part of the survey the following sub tasks were undertaken.

- A single day survey:
  - Opportunistically collect an inventory of fauna taxa present through visual observation and secondary evidence such as tracks, scats, skeletal remains, foraging evidence or calls if observed/heard.
  - Record the location and attributes of all potential black cockatoo habitat trees (large eucalypts with trunk diameter at breast height ≥50 cm, presence type and size of hollows, evidence of use, inspection to confirm use).
  - Record the location of any dreys, obvious tree hollows, scats, habitat characteristics and individual western ringtail possums. This will involve a series of close spaced traverses across vegetated sections of the survey area (concurrent with the black cockatoo habitat tree assessment).
  - Describe fauna habitat values with particular reference to black cockatoo habitat and habitat for other 'threatened' or 'priority' fauna species with potential to occur within the survey area.
- For western ringtail possums, a single nocturnal (night) survey was undertaken in order to understand whether the possums were present within the survey area. This involved a nocturnal count to provide an estimate of the distribution and abundance of western ringtail possums.

- Documentation of fauna and fauna habitat information, field survey methods and results, into a report.

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

4. METHODS

4.1 POTENTIAL FAUNA INVENTORY - LITERATURE REVIEW

4.1.1 Database Searches

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

- DBCA's NatureMap Database Search (combined data from DBCA, ALA, WAM, BA and consultant's reports) (DBCA 2019b); and

- Protected Matters Search Tool (DotEE 2019).

It should be noted that lists produced during the abovementioned database searches contain observations/inferred distributions from a broader area than the survey area 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 survey area itself. The databases also often include or are based on very old records and in some cases certain species have become locally or regionally extinct.

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

4.1.2 Previous Fauna Surveys in the Area

Fauna surveys, assessments and reviews have been undertaken in nearby areas in the past, though not all are publicly available and could not be referenced. The most significant of those available have been used as the primary reference material for compiling the potential fauna assemblage for 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.
- Beatty, S., Morgan, D., Jury, C. & Mitchell, J. (2006). Fish and freshwater crayfish in streams in the Cape Naturaliste region & Wilyabrup Brook. Report to the Cape to Cape Catchments Group and GeoCatch.
- 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.
- Ecologia Environmental Consultants (2001). Location 413 Smiths Beach Fauna Assessment. Unpublished report for ATA Environmental.
- 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 (2009). Fauna Survey (Level 2). Gracetown. Unpublished report for Strategen.

- Harewood, G. (2012a). Western Ringtail Possum & Black Cockatoo Survey of Trinder Drive Precinct Margaret River. Unpublished report for Trinder Drive Landowners Group.

- Harewood, G. (2012b). Fauna Assessment - Bussell Highway Bramley Forest Section (90.62 – 93.77 SLK), Margaret River. Unpublished report for GHD/MRWA.

- Harewood, G. (2013). Western Ringtail Possum Survey of Lots 72 and 73 Kevill Road, Margaret River. Unpublished report for TME Town Planning Management Engineering Pty Ltd.

- Harewood, G. (2017). Fauna Assessment Lots 4, 5, 7, 8, 9, 10 & 11 Doyle Place Margaret River. Unpublished report for Halsall and Associates.

- Harewood, G. (2018). Fauna Assessment Lots 3, 4, 111 and 113 Brumby Place; Lots 101 and 102 Exmoor Drive; and Lots 103, 104, 107 and 108 Boodjidup Road, Margaret River. Unpublished report for Halsall and Associates.

- 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.

- Morgan, D. and Beatty, S. (2003). Fish fauna of Margaret River Western Australia. Report to the Margaret River Regional Environment Centre.

- Western Wildlife (2007). Gracetown Development - A Fauna Assessment. Unpublished report for Strategen.

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

4.1.3 Existing Publications

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

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

- Barrett, G., Silcocks, A., Barry, S., Cunningham, R. and Poulter, R. (2003). The New Atlas of Australian Birds. Royal Australasian Ornithologists Union, Victoria.
- Bush, B., Maryan, B., Browne-Cooper, R. & Robinson, D. (2007). Reptiles and Frogs in the Bush: Southwestern Australia. UWA Press, Nedlands.
- Bush, B., Maryan, B., Browne-Cooper, R. & Robinson, D. (2010). Field Guide to Reptiles and Frogs of the Perth Region. UWA Press, Nedlands.
- Churchill, S. (2008). Australian Bats. Second Edition, Allen & Unwin.
- Cogger, H.G. (2014). Reptiles and Amphibians of Australia. 7th Edition. CSIRO Publishing.
- Johnstone, R.E. and Storr, G.M. (1998). Handbook of Western Australian Birds: Volume 1 – Non-passerines (Emu to Dollarbird). Western Australian Museum, Perth Western Australia.
- Johnstone, R.E. and Storr, G.M. (2004). Handbook of Western Australian Birds: Volume 2 – Passerines (Blue-winged Pitta to Goldfinch). Western Australian Museum, Perth Western Australia.
- Menkhorst, P. and Knight, F. (2011). A Field Guide to the Mammals of Australia. Oxford University Press, Melbourne.
- Morgan, D.L., Beatty, S.J., Klunzinger, M.W, Allen, M.G. and Burnham, Q.E (2011). Field Guide to the Freshwater Fishes, Crayfishes and Mussels of South Western Australia. Published by SERCUL.
- Storr, G.M., Smith, L.A. and Johnstone R.E. (1983). Lizards of Western Australia II: Dragons and Monitors. WA Museum, Perth.
- Storr, G.M., Smith, L.A. and Johnstone R.E. (1990). Lizards of Western Australia III: Geckos and Pygopods. WA Museum, Perth.
- Storr, G.M., Smith, L.A. and Johnstone R.E. (1999). Lizards of Western Australia I: Skinks. Revised Edition, WA Museum, Perth.
- Storr, G.M., Smith, L.A. and Johnstone R.E. (2002). Snakes of Western Australia. Revised Edition, WA Museum, Perth.
- Tyler M.J. & Doughty P. (2009). Field Guide to Frogs of Western Australia, Fourth Edition, WA Museum, Perth.
- Van Dyck, S., Gynther, I. & Baker, A. Eds (2013). Field Companion to The Mammals of Australia. Queensland Museum.

- Wilson, S. and Swan, G. (2017). A Complete Guide to Reptiles of Australia. Reed, New Holland, Sydney.

- Woinarski, J., Burbidge, A. & Harrison, P. (2014). The Action Plan for Australian Mammals 2012. CSIRO Publishing.

4.1.4 Fauna of Conservation Significance

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

- *Environment Protection and Biodiversity Conservation Act 1999* (*EPBC Act*). Administered by the Australian Government DotEE;

- *Wildlife Conservation Act 1950* (*WC Act*). Administered by the Western Australian DBCA (Govt. of WA 2018). Note: The Wildlife Conservation (Specially Protected Fauna) Notice 2018 has been transitioned under regulations 170, 171 and 172 of the Biodiversity Conservation Regulations 2018 to be the lists of Threatened, Extinct and Specially Protected species under Part 2 of the *Biodiversity Conservation Act 2016* (*BC Act*);

- Red List produced by the Species Survival Commission (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 the

- DBCA Priority Fauna list. A non-statutory list maintained by the DBCA for management purposes (DBCA 2019a).

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

- Japan Australia Migratory Bird Agreement 1981 (JAMBA);

- China Australia Migratory Bird Agreement 1998 (CAMBA);

- Republic of Korea-Australia Migratory Bird Agreement 2007 (ROKAMBA); and

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

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

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

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

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

4.1.5 Invertebrate Fauna of Conservation Significance

For this assessment the review of potential conservation significant invertebrates has been limited to those listed by the DBCA and *EPBC Act* database searches (which rely on distribution records and known habitat preferences).

No assessment of the potential for short range endemic species (SREs) to be present has been made at this stage as it can be difficult to identify significant invertebrate species due to uncertainties in determining the range-restrictions of many species due to lack of surveys, lack of taxonomic resolutions within target taxa and problems in identifying certain life stages. Where invertebrates are collected during surveys, a high percentage are likely to be unknown, or for known species there can be limited knowledge or information on their distribution (Harvey 2002).

4.1.6 Likelihood of Occurrence – Fauna of Conservation Significance

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

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

- Unlikely to Occur: The survey area is outside of the currently documented distribution for the species in question, or no suitable habitat (type, quality and extent) was identified as being present during the field assessment. Individuals of some species may occur occasionally as vagrants/transients especially if suitable habitat is located nearby but the survey area itself would not support a population or part population of the species.

- Possibly Occurs: The survey area is within the known distribution of the species in question and habitat of at least marginal quality was identified as being present during the field assessment, supported in some cases by recent records being documented in literature from within or near the survey area. In some cases, while a species may be classified as possibly being present at times, habitat may be marginal (e.g. poor quality, fragmented, limited in extent) and therefore the frequency of occurrence and/or population levels may be low.

- Known to Occur: The species in question was positively identified as being present (for sedentary species) or as using the survey area as habitat for some other purpose (for non-sedentary/mobile species) during the field survey. This information may have been obtained by direct observation of individuals or by way of secondary evidence (e.g. foraging debris, tracks and scats). In some cases, while a species may be classified as known to occur, habitat may be marginal (e.g. poor quality, fragmented, limited in extent) and therefore the frequency of occurrence and/or population levels may be low.

4.1.7 Taxonomy and Nomenclature

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

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

4.2 SITE SURVEYS

Day and night field work within the survey area was carried out on the 1 April 2019. Survey work was done by Greg Harewood (consultant Zoologist), Kirsten Knox (Environmental Scientist – Emerge Associates) and Heidi Becker (Environmental Scientist – Emerge Associates).

4.2.1 Fauna Habitat Assessment

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

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

4.2.2 Western Ringtail Possum Assessment

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

- One daytime survey of the survey area which involved searching for dreys, obvious tree hollows (and other potential daytime refuge habitat), scats and individual WRPs. The day time survey was carried out using a GPS equipped PDA for guidance and as a data recorder;

- One night time survey to locate and record the distribution and abundance of WRPs. The nocturnal count involved the systematic searching of potential WRP habitats within the survey area on foot using a head torch. The nocturnal count was carried out using a GPS equipped PDA for guidance and as a data recorder.

It should be noted that vegetation with the Wallcliffe Nature Reserve (located south of the site), which forms part of the survey area, is extremely dense and it was not possible to survey this area for WRPs to the same degree as other sections of the survey area.

4.2.3 Black Cockatoo Habitat Assessment

The following methods were employed to comply with the defined scope of works and are based on guidelines published by the federal 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 12 km);

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

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

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

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

4.2.3.1 Black Cockatoo Breeding Habitat

The black cockatoo breeding habitat assessment has involved the identification of all suitable breeding trees species within the survey area that have a Diameter at Breast Height (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 and any other *Corymbia/Eucalyptus* species of a suitable size that were 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.

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

- Small = ~<5cm diameter (i.e. entrance too small for a black cockatoo);
- Medium = ~5cm-10cm diameter (i.e. entrance too small for a black cockatoo);
- Large = ~>10cm diameter (entrance large enough for a black cockatoo but possible hollow appears to be unsuitable for nesting i.e. wrong orientation, too small, too low or too shallow); or
- Large (cockatoo) = ~>10cm 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 survey area have then been placed into one of four categories:

- Tree < 50cm DBH or an unsuitable species (not assessed/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 or possibly for black cockatoos to use for nesting.

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

Generally, any tree which is alive or dead that contains one or more hollows or possible hollows (cavities within the trunk or branches) which appear suitable for occupation by black cockatoos for the purpose of nesting/breeding. Hollows or apparent hollows that had an entrance greater than about 10cm in diameter and would allow the entry of a black cockatoo into a suitably orientated and sized branch/trunk, were recorded as a "potential nest hollow".

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

A review of available literature was carried out to determine the location/extent of any known/likely black cockatoo breeding habitat areas in the vicinity of the survey area.

4.2.3.2 Black Cockatoo Foraging Habitat

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

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

4.2.3.3 Black Cockatoo Roosting Habitat

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

A review of available literature was carried out to determine the location/extent of any known/likely black cockatoo roosting habitat areas in the vicinity of the survey area.

4.2.4 Other Species of Conservation Significance

Evidence of the presence or likely presence of other species of conservation significance (including suitable habitat) was searched for and recorded concurrent with other field work. The aim was to obtain sufficient information to make a definitive comment on the likely significance of the survey area to other species of conservation significance which may be present.

4.2.5 Opportunistic Fauna Observations

Opportunistic observations of all fauna species were made during the field survey. Secondary evidence of a species presence such as tracks, scats, skeletal remains, foraging evidence or calls were also noted if observed/heard.

5. SURVEY CONSTRAINTS

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

Some fauna species are reported as potentially occurring within the survey area based on there being suitable habitat (quality and extent) within the survey area 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 survey area.

The habitat requirements and ecology of many of the species known to occur in the wider area are often not well understood or documented. It can therefore be difficult to exclude species from the potential list based on a lack of a specific habitat or microhabitat within the survey area. As a consequence of this limitation the potential fauna list produced is most likely an overestimation of those species that actually utilise the survey area for some purpose. Some

species may be present in the general area but may only use the survey area 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 survey area (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 survey area.

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

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

6. RESULTS

6.1 POTENTIAL FAUNA INVENTORY – LITERATURE REVIEW

A list of fauna species considered most likely to occur in the survey area 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 and targeted survey was assessed.

The results of some previous fauna surveys carried out in the general area are summarised in this species listing as are the DBCA NatureMap database search results. Species considered unlikely to occur with the survey area but previously recorded in other surveys and/or which appear in the DBCA database search are not listed. The raw database search results from NatureMap (DBCA 2019b) and the Protected Matters Search Tool (DotEE 2019) are contained within Appendix C.

The list of potential fauna takes into consideration that firstly the species in question is not known to be locally/regionally extinct and secondly that suitable habitat for each species, as identified during the habitat assessment, is present within the survey area. Compiling an accurate fauna list has limitations (see Section 5 above) and therefore the listing is likely to be an overestimation of the fauna species actually present within the survey area at any one time.

With respect to native vertebrate fauna, 21 mammals (includes nine bat species), 124 bird, 34 reptile, 10 frog and six fish species have previously been recorded in the general area, some

of which have the potential to occur in or utilise sections of the survey area at times. Thirteen species of introduced animals could also frequent the area.

Of the 196 native animals that are listed as potentially occurring in the area, six are considered to be endangered/vulnerable or in need of special protection under State and/or Federal law. In addition, one migratory and seven DBCA priority species have also been listed as potentially present. One invertebrate species of conservation significance also has the potential to be present in the survey area.

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

6.2 SITE SURVEYS

6.2.1 Fauna Habitat Assessment

Descriptions and example images of the main fauna habitats/dominant vegetation present within the survey area are provided in Table 1. The location and extent of each of the identified habitat/vegetation units is shown in Figure 3 (data courtesy Emerge Associates 2019).

A review of publicly available historical images from 2004 onwards shows that the majority of the site was cleared of native vegetation prior to 2004 while in use for residential purposes (WALIA 2018). Currently Lot 101 remains predominantly cleared of native vegetation with some parkland cleared native trees (mainly peppermint - *Agonis flexuosa*), managed grasses and gardens with planted non-endemic and exotic plant species remaining. Small sections of disturbed native vegetation subject to some plantings, ground disturbance and weed management occur mainly in central section of the site. The most intact vegetation is present along the west of the site adjacent to the Margaret River (a major, perennial watercourse) and to the south of the site bordering the Wallcliffe Nature Reserve. A small section of a high limestone cliff enters the site near its south west corner.

Table 1: Main Fauna Habitats within the Survey area

Unit Code (see Figure 3)	Fauna Habitat Description	Example Image
AfW	Woodland of Peppermint over open shrubland over open mixed forbland and open to closed grassland of weeds. Lot 101 = ~0.63 ha Balance of Survey Area = ~0.21 ha	

Unit Code (see Figure 3)	Fauna Habitat Description	Example Image
AfSgHcW	Woodland of Peppermint over shrubland with vineland over low shrubland of over forbland. Lot 101 = ~0.33 ha Balance of Survey Area = ~2.45 ha	
CcAfW	Woodland of Marri and Peppermint over shrubland with vineland over weeds. Lot 101 = ~0.05 ha Balance of Survey Area = ~0.42 ha	
MhBvTrCS	Low open woodland of Peppermint with closed shrubland with vineland over open forbland and sparse sedgeland or grassland. Lot 101 = ~0.16 ha Balance of Survey Area = ~1.96 ha	

Unit Code (see Figure 3)	Fauna Habitat Description	Example Image
MrLOF	Low open forest of Paperbark over open to closed rush/sedgeland over sparse forbland bordering Margaret River. Lot 101 = ~0.13 ha Balance of Survey Area = ~0.79 ha	
Cleared/ Planted	Modified vegetation comprising grassland, weeds with occasional native trees and planted vegetation. Lot 101 = ~3.98 ha Balance of Survey Area = ~0.08 ha	

As indicated in Table 1 the majority of the site (3.98 ha ~75% of total area) contains modified vegetation with bare soil, scattered native trees over pasture grasses or planted vegetation (including buildings and roads). A sparse, generally degraded peppermint woodland makes up about 12% (0.63ha) of the site. The balance of Lot 101 contains small sections of remnant native vegetation that extends into the surrounding survey area and reserves (Figure 3).

Overall the fauna habitat quality of Lot 101 can be regarded as being very low given most areas are highly degraded/modified. The fauna assemblage likely to persist in these areas is likely to be highly depauperate and would only be represented by a small subset of the predicted fauna species (Appendix B). The balance of the survey area, which generally contains larger expanses of a variety of good quality habitats can be expected to harbour a higher percentage of the predicted species. While the site itself has relatively low overall fauna habit values it still retains some value for a range of species including some of conservation significance and this fact will need to be taken into consideration during ongoing planning and subsequent development of the site.

Based on available vegetation mapping it is estimated that there is approximately 14,200 ha of native vegetation within 12 km the survey area (with large proportions of this protected in

national park or nature reserves). Remnant native vegetation (excluding scattered trees) present within Lot 101 (total ~1.33 ha) makes up ~0.009% of this total.

6.2.2 Western Ringtail Possum Assessment

The locations of various possum observations made during the day and night surveys are shown in Figure 4.

Nine WRP dreys were observed during the day survey. WRP scats were also observed at three locations during the same period.

The majority of dreys were found in dense vegetation bordering Margaret River. It should be noted that human structures (e.g. houses/sheds), forks in trees, subtle cavities in tree trunks, fallen hollow logs, rabbit burrows and dense ground cover are also used by WRPs for daytime refuge (to varying degrees) and therefore observations of dreys only provide a guide to WRP habitat use/quality as other opportunities for daytime refuge may exist.

Seven WRPs and five common brushtail possums were observed during the nocturnal survey. It should be noted that these observations represent the minimum number of WRPs present, as it unlikely that all individuals were observed during the single nocturnal survey. Most WRPs were seen in remnant native vegetation with one individual recorded with the grove of pine trees near the centre of Lot 101.

The results of the WRP assessment suggest that almost all the vegetation present with the survey area can be considered habitat of some type and therefore may be used either continuously or at various times for refuge, foraging and/or dispersal. The quality is however highly variable depending on factors such as plant species, structure (e.g. midstorey component) and canopy connectivity. Much of the native vegetation within Lot 101 itself has been removed, with areas remaining being generally fragmented and with limited intact midstorey. Other areas have been planted as gardens with non-endemic and exotic species dominating.

6.2.3 Black Cockatoo Habitat Assessment

6.2.3.1 Black Cockatoo Breeding Habitat

Trees considered potentially suitable for black cockatoos to use as nesting habitat (using DotEE criteria i.e. DBH $\geq$50cm (Commonwealth of Australia 2012) but ultimately subject to a suitable hollow being present or developing and a range of other factors) which were found within the survey area comprised the following species:

- Marri – *Corymbia calophylla.*

A summary of the potential black cockatoo habitat trees observed within the survey area is provided in Table 2 below and their location shown in Figure 5.

Table 2: Summary of Potential Black Cockatoo Habitat Trees (DBH ≥50cm) within the Survey Area

Total Number of Habitat Trees Recorded	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
3	2	1	0

The assessment identified only three trees within the survey area with a DBH of ≥50cm. None of the trees appeared to contain hollows of a size that would be suitable for black cockatoos to use for nesting purposes. Only one of the identified habitat trees is actually located within Lot 101 (Figure 5).

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

While there appears to be a paucity of breeding data for the general area this could simply be a consequence of a lack of survey work or a lack of publicly available data. Based on available vegetation mapping it is however estimated that there is approximately 14,200 ha of native vegetation within 12 km the subject site. A significant portion of this vegetation is located within the Leeuwin-Naturaliste and Bramley National Parks. These areas (in addition to areas of private and crown land) and in particular that further inland, are likely to contain "potential" breeding habitat (i.e. suitable tree species with a DBH ≥50cm).

6.2.3.2 Black Cockatoo Foraging Habitat

The following represents a list of native (including non-endemics) plant species recorded within the survey area by Emerge Associates (2019) which are known (or highly likely) to be used by one or more of the black cockatoo species as a food source (i.e. foraging habitat).

- Marri – *Corymbia calophylla* - flowers, seeds, nectar.
- Red Flowering Gum - *Corymbia ficifolia* - flowers, seeds, nectar.
- Parrot Bush - *Banksis sessilis* - flowers, seeds.
- Olive-leaved Hakea - *Hakea oleifolia* – seeds.
- Peppermint - *Agonis flexuosa* – bark, grubs/invertebrates.
- Orange Wattle - *Acacia saligna* – fresh bark/grubs/invertebrates.
- Sheoak – *Allocasuarina* spp. – seeds.

It should be noted that the degree to which the various plant species are utilised varies considerably. For example, marri is documented as being the primary food source for all three species, though jarrah and *banksia* make up a high proportion of some black cockatoo species in other areas where they proliferate. Jarrah is absent from the survey area and *banksia* was only represented by one single parrot bush specimen. Other more common plants such as orange wattle and peppermint (for example) are only foraged upon rarely.

Evidence of black cockatoos foraging was observed during the field survey in the form of chewed marri fruits and pine cones in two areas (Figure 5). This evidence was attributed to one or more of the three black cockatoo species depending on the plant species involved and the characteristics of the foraging activity (i.e. nature of remaining debris). Representative examples of the foraging activity observed are shown in Table 3.

The overall extent of quality foraging habitat within Lot 101 is very limited. Marri and red flowering gum, the most favoured native species present, are only represented by a few scattered specimens. A group of pine trees near the centre of the site appear to be a focal point of foraging activity with numerous chewed cones being observed under trees during the survey period. However, the total extent of this resource is also quite small.

The total extent of quality foraging habitat within Lot 101 is difficult to estimate given that the favoured species (marri, red flowering gum and pine) are represented by only a small number of scattered trees or small groves of trees but would not amount to more than about 0.1 or 0.2 ha.

Table 3: Foraging Evidence Examples

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

Foraging Evidence Description	Example Image
Marri Fruits – foraging activity attributed to the Baudin's black cockatoo.	
Marri Fruits – foraging activity attributed to Carnaby's black cockatoo.	
Pine Cones – foraging activity attributed to Carnaby's black-cockatoo or Baudin's black cockatoo.	

Based on available vegetation mapping it is estimated that there is approximately 14,200 ha of native vegetation within 12 km the subject site (~30% of the total area, though it should be noted that a high proportion of the 12 km buffer is ocean), much of which is very likely to represent potential black cockatoo foraging habitat of some type. There is also up to 480 ha of pine plantations within 12 km of the subject site, and these areas are likely to represent a significant foraging resource for Carnaby's and Baudin's black cockatoos in this area.

6.2.3.3 Black Cockatoo Roosting Habitat

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

A review of the 2018 Great Cocky Count database shows no documented roost sites within the survey area. There are 14 documented roost sites with 12 km of the survey area. Seven of these roost sites were monitored during the 2018 Great Cocky Count (April 2018) but none were found to be in use at the time (Peck *et al.* 2018). The results of the 2019 survey are pending.

6.2.4 Other Species of Conservation Significance

Besides the three black cockatoo species and the western ringtail possum, evidence of one additional fauna species of conservation significance was observed during the survey period, this being the eastern osprey (*Pandion cristatus*) (state and federally listed migratory species).

One individual of this species was observed roosting in a tree near Margaret River and on top of one of the buildings at a later time. What appears to be an osprey nest is also present in a tree near the north east boundary of Lot 101 (outside of the current development footprint). While listed under state and federal legislation as migratory the eastern osprey is not a threatened species, however the fact that it may breed in close proximity to the proposed development will need to be taken into consideration.

6.2.5 Opportunistic Fauna Observations

Opportunistic fauna observations are listed in Appendix B. Including those species previously mentioned, a total of 11 native fauna species were observed (or positively identified from foraging evidence, scats, tracks, skeletons or calls) within the survey area during the course of survey. The low number of observations can be attributed to the small size of the survey area, its largely degraded state and the limited time (~ five hours over one day/night) spent on site.

6.3 FAUNA INVENTORY – SUMMARY

6.3.1 Vertebrate Fauna

Table 3 summarises the number of vertebrate fauna species potentially occurring within or utilising at times the survey area, based on results from the literature review and observations made during the field assessment. A complete list of vertebrate fauna possibly inhabiting or frequenting the survey area is located in Appendix B.

As previously discussed, 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 survey area (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 survey area.

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 recorded during field survey
Fish	7[1]	0	0	1	0
Amphibians	10	0	0	0	0
Reptiles	34	0	0	0	0
Birds	130[6]	4	1	3	8
Non-Volant Mammals	18[6]	2	0	2	3
Volant Mammals (Bats)	9	0	0	1	0
Total	**208[13]**	**6**	**1**	**7**	**11**

Superscript = number of introduced species included in total.

6.3.2 Vertebrate Fauna of Conservation Significance

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

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

- Baudin's Black-Cockatoo *Calyptorhynchus baudinii* – S3 (*BC Act*), Endangered (*EPBC Act*)
  Known to occur. Not seen during the survey period but some foraging evidence attributed to this species found within the survey area (chewed marri fruits and pine cones). Lot 101 contains a single potential breeding habitat tree (DBH ≥50cm) but no suitable hollows are present. Extent of quality foraging habitat with Lot 101 is very limited and no evidence of roosting observed.

- Carnaby`s Black-Cockatoo *Calyptorhynchus latirostris* – S2 (*BC Act*), Endangered (*EPBC Act*)
  Known to occur. Not seen during the survey period but some foraging evidence attributed to this species found within the survey area (chewed marri fruits and pine cones). Lot 101 contains a single potential breeding habitat tree (DBH >50cm) but no suitable hollows are present. Extent of quality foraging habitat with Lot 101 is very limited and no evidence of roosting observed.

- Forest Red-tailed Black Cockatoo *Calyptorhynchus banksii naso* – S3 (*BC Act*), Vulnerable (*EPBC Act*)
  Known to occur. Not seen during the survey period but some foraging evidence attributed to this species found within the survey area (chewed marri fruits and pine cones). Lot 101 contains a single potential breeding habitat tree (DBH >50cm) but no suitable hollows are present. Extent of quality foraging habitat with Lot 101 is very limited and no evidence of roosting observed.

- Eastern Osprey *Pandion haliaetus* – S5 (*BC Act*), Migratory (*EPBC Act*)
  Recorded during survey period and a potential nest site is located near the northern most boundary of Lot 101.

- Western Ringtail Possum *Pseudocheirus occidentalis* – S1 (BC Act), Critically Endangered (*EPBC Act*)
  Recorded during the survey period and potentially uses most vegetation in the survey area for some purpose at times.

Based on the habitats present and current documented distributions it is considered possible that several additional species may use the survey area for some purpose at times (but necessarily Lot 101). As no evidence of any was found their status within the survey area remains uncertain.

These species are:

- Pouched Lamprey *Geotria australis* – P3 (DBCA Priority Species)
  Known to migrate up Margaret River where it breeds but Lot 101 itself does not contain any habitat that this species would utilise.

- Peregrine Falcon *Falco peregrinus* – S7 (*BC Act*)
  Uncommon but this species potentially utilises the survey area as part of a much larger home range. Would not nest within Lot 101 and only likely to forage within this area very occasionally.

- Masked Owl (SW population) - *Tyto n. novaehollandiae* – P3 (DBCA Priority Species)
  Relatively uncommon but may occur, if only occasionally. Would not nest within Lot 101 and only likely to forage within this area very occasionally.

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- Black Bittern *Ixobrychus flavicollis* – P2 (DBCA Priority Species)
  Riverside vegetation (mostly outside of Lot 101) appears suitable for this species. Not often recorded but must be considered a potential species.

- Australian Little Bittern *Ixobrychus dubius* – P4 (DBCA Priority Species)
  Riverside vegetation (mostly outside of Lot 101) appears suitable for this species. Not often recorded but must be considered a potential species.

- South-western Brush-tailed Phascogale *Phascogale tapoatafa wambenger* – S6 (*BC Act*)
  Possibly occurs though the majority of the habitats present appear marginal due to a lack of hollow bearing trees, especially within Lot 101 itself where it is least likely to occur.

- Quenda *Isoodon fusciventer* – P4 (DBCA Priority Species)
  Required dense groundcover to persist so most of the survey area (and almost all of Lot 101) is unsuitable. May be present in riparian vegetation along Margaret River.

- Western False Pipistrelle *Falsistrellus mackenziei* – P4 (DBCA Priority Species)
  Uncommon species but possibly forages along the Margaret River and in open areas on land. Unlikely to roost in the survey area due to a lack of suitable hollows especially within Lot 101 itself.

- Water Rat *Hydromys chrysogaster* – P4 (DBCA Priority Species)
  Likely to forage within Margaret River and riverside vegetation (mostly outside of Lot 101) appears suitable for this species.

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

A number of other species of conservation significance, while possibly present in the wider area, 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.

6.3.3 Invertebrate Fauna of Conservation Significance

Several invertebrate species of conservation significance appeared in the DBCA database search (DBCA 2019b) however most have been assessed as being unlikely to be present especially within Lot 101 itself due to a lack of suitable habitat and/or likely local extinction.

The single species which may occur at least in the wider area is:

- Cape Leeuwin Freshwater Snail - *Austroassiminea letha*- S3 (*BC Act*)
  There are no records of this species from along the Margaret River but it has been recorded north and south of Prevelly in the recent past (DBCA 2019b). Considered

unlikely to occur within Lot 101 as possible habitat (base of limestone cliff) limited in extent and no seepages noted – more likely to occur in the Wallcliffe Nature Reserve though actual status is unknown.

7. POTENTIAL IMPACTS

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

- Loss of vegetation/fauna habitat that may be used for foraging, breeding, roosting, or dispersal (includes loss of hollow bearing trees);
- Fragmentation of vegetation/fauna habitat which may restrict the movement of some fauna species;
- Modifications to surface hydrology, siltation of creek lines;
- Changes to fire regimes;
- Pollution (e.g. oil spills);
- Noise/Light/Dust;
- Spread of plant pathogens (e.g. dieback) and weeds;
- Potential increase in the number of predatory introduced species (e.g. cats);
- Death or injury of fauna during clearing and construction; and
- An increase in fauna road kills subsequent to development.

Based on the likely scale of habitat loss which the proposed development may result in (which is likely to be minimal based on the proposed retention of the majority of existing vegetation) and other factors such as the extent of similar vegetation in surrounding areas, its quality and degree of fragmentation, the possible 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.

It should be noted that the best quality and widest range of fauna habitats within the survey area are located outside of Lot 101. As a consequence, these areas (including the reserve areas of which they form a part of) are most likely to harbour the greatest variety of fauna species. Any development undertaken in Lot 101 is therefore considered as unlikely to impact significantly on the current status of any fauna species presently utilising the area.

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

Species	Conservation Status		Habitat Preferences	Habitat Present	Likelihood of Occurrence	Comments/Possible Impacts
	BC Act/ DBCA Priority	*EPBC Act*				
Western Pygmy Trapdoor Spider *Bertmainius opimus*	P3	-	Poorly documented - Lives in shallow burrows on eucalyptus bark or in topsoil.	?	Unlikely to Occur	Previously recorded in nearby Karri forest (DBCA 2019b). Considered unlikely to occur as habitat unlikely to be suitable. No impact on this species anticipated.
Cape Leeuwin Freshwater Snail *Austroassiminea letha*	S3	-	Natural seepages from limestone or lime sands	Yes?	Possibly occurs? Wallcliffe Nature Reserve only.	No records from along the Margaret River (DBCA 2019b). Considered unlikely to occur within Lot 101 as possible habitat (base of limestone cliff) limited in extent and no seepages noted – more likely in Wallcliffe Nature Reserve though actual status unknown. No impact on this species anticipated.
Margaret River Hairy Marron *Cherax tenuimanus*	S1	CR	Upper reaches of Margaret River.	No	Would Not Occur.	Would not occur in lower reaches of Margaret River. No impact on this species will occur.
Margaret River Burrowing Crayfish *Engaewa pseudoreducta*	S1	CR	Narrow creek tributaries of the Margaret River which are densely vegetated on heavy grey/yellow clay soils.	No	Would Not Occur.	Would not occur in lower reaches of Margaret River. No impact on this species will occur.
Grey Vernal Katydid *Kawaniphila pachomai*	P1	-	Not documented.	?	Would Not Occur.	Given the lack of published records and apparent knowledge on this species, its status within the survey area is difficult to determine, however the probability of it being present can be regarded as being extremely low. No impact on this species will occur.
a ground beetle *Trichosternus relictus*	P3	-	Not documented.	?	Would Not Occur.	The only records of this species in NatureMap (5) are from 1959 and 1931 (DBCA 2109b). Considered very unlikely to occur. No impact on this species will occur.
Carter's Freshwater Mussel *Westralunio carteri*	S3	VU	Occurs in greatest abundance in slower flowing streams with stable sediments that are soft enough for burrowing amongst woody debris and exposed tree roots.	No	Would Not Occur.	Would not occur in lower reaches of Margaret River. No impact on this species will occur.
Pouched Lamprey *Geotria australis*	P3	-	This species lives in mud burrows in the upper reaches of coastal streams for the first 4 years of life until migrating to the sea. Adults migrate up to 60km upstream during spawning.	Yes	Possibly Occurs (Margaret River only).	Known to migrate up Margaret River. No impact on this species anticipated.

Species	Conservation Status		Habitat Preferences	Habitat Present	Likelihood of Occurrence	Comments/Possible Impacts
	BC Act/ DBCA Priority	EPBC Act				
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.	Would not occur in lower reaches of Margaret River. No impact on this species will occur.
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.	Would not occur in lower reaches of Margaret River. No impact on this species will occur.
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.	This species does not occur along Margaret River. With all records being in the Karridale-Witchcliffe area (DBCA 2019b) No impact on this species will occur.
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.	This species is regionally extinct. No impact on this species will occur.
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.	There is no suitable habitat for any of these species within the survey area. No impact on any of these species will occur.
Hooded Plover *Thinornis rubricollis*	P4	-	Broad sandy ocean beaches and bays, coastal and inland salt lakes.	No	Would Not Occur.	There is no suitable habitat for this species in the survey area. No impact on any of these species will occur.
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.	Yes	Known to Occur	Recorded during survey period and a potential nest site is located near the northern most boundary of Lot 101. This area is not subject to any current development plans and therefore no impact on this species is anticipated.
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.	Uncommon but the survey area may represent part of a larger home range used by individuals of this species. Would not breed within Lot 101. No impact on this species anticipated.

Species	Conservation Status		Habitat Preferences	Habitat Present	Likelihood of Occurrence	Comments/Possible Impacts
	BC Act/ DBCA Priority	EPBC Act				
Masked Owl (SW population) *Tyto n. novaehollandiae*	P3	-	Roosts and nests in heavy forest, hunts over open woodlands and farmlands.	Yes	Possibly Occurs.	Relatively uncommon but may occur, if only occasionally. Any proposed development is however unlikely to impact on this species.
Barking Owl (SW population) *Ninox connivens connivens*	P3	-	Dense vegetation, especially forest and thickets of waterside vegetation such as *melaleucas*. Roosts in tree hollows.	Yes	Unlikely to Occur	No suitable habitat within Lot 101 itself and only rarely recorded in the south west. Considered unlikely to occur. No impact on this species anticipated.
Australasian Bittern *Botaurus poiciloptilus*	S2	EN	Freshwater wetlands, occasionally estuarine; prefers heavy vegetation such as beds of tall dense *Typha, Baumea* and sedges in freshwater swamps.	No/Marginal	Unlikely to Occur.	Riverside vegetation (mostly outside of Lot 101) appears marginal for this species and therefore it is considered unlikely to occur. No impact on this species will occur.
Black Bittern *Ixobrychus flavicollis*	P2	-	Freshwater pools, swamps and lagoons well screened with trees. Shelters in dense waterside vegetation.	Yes	Possibly Occurs	Riverside vegetation (mostly outside of Lot 101) appears suitable for this species. Not often recorded but must be considered a potential species. Areas of preferred habitat are however not subject to any current development plans and therefore no impact on this species is anticipated.
Australian Little Bittern *Ixobrychus dubius*	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	Possibly Occurs	Riverside vegetation (mostly outside of Lot 101) appears suitable for this species. Not often recorded but must be considered a potential species. Areas of preferred habitat are however not subject to any current development plans and therefore no impact on this species is anticipated.
Noisy Scrub-bird *Atrichornis clamosus*	S2	EN	Areas of dense understorey or lower stratum of sedges and shrubs, a dense accumulation of leaf litter and an abundant population of litter-dwelling invertebrates.	No	Would Not Occur.	This species is regionally extinct. No impact on this species will occur.
Western Whipbird *Psophodes nigrogularis*	S2	EN	Dense shrubland with an open overstorey	No	Would Not Occur.	This species is regionally extinct. No impact on this species will occur.
Carnaby's Black Cockatoo *Calyptorhynchus latirostris*	S2	EN	Forests, woodlands, heathlands, farms; feeds on *Banksia, Hakea* and Marri.	Yes	Known to Occur	The survey area contains a small amount of foraging habitat, but no actual breeding hollows and no evidence of roosting found. The proposed small-scale development will not significantly impact on this species.
Baudin's Black Cockatoo *Calyptorhynchus baudinii*	S2	EN	Mainly eucalypt forests where it feeds primarily on the marri seeds.	Yes	Known to Occur	The survey area contains a small amount of foraging habitat, but no actual breeding hollows and no evidence of roosting found. The proposed small-scale development will not significantly impact on this species.

Species	Conservation Status		Habitat Preferences	Habitat Present	Likelihood of Occurrence	Comments/Possible Impacts
	BC Act/ DBCA Priority	EPBC Act				
Forest Red-tailed Black Cockatoo *Calyptorhynchus 29enicil naso*	S3	VU	Eucalypt forests, feeds on marri, jarrah, blackbutt, karri, sheoak and snottygobble.	Yes	Known to Occur	The survey area contains a small amount of foraging habitat, but no actual breeding hollows and no evidence of roosting found. The proposed small-scale development will not significantly impact on this species.
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.	May occur very occasionally for brief periods. Entirely aerial. No impact on this species will occur.
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	Not recorded in recent times in the general area (DBCA 2019b) so considered as unlikely to occur. No impact on this species is 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/Marginal	Possibly Occurs.	Possibly occurs though the majority of the habitats present appear marginal due to a lack of hollow bearing trees, especially within Lot 101 itself. The proposed small-scale development will not significantly impact on this species.
Numbat *Myrmecobius fasciatus*	S2	EN	Open Woodlands generally dominated by eucalypts that provide hollow logs and branches for shelter and termites for food.	No	Would Not Occur.	This species is regionally extinct. No impact on this species will occur.
Quenda *Isoodon fusciventer*	P4	-	Dense scrubby, often swampy, vegetation with dense cover.	Yes	Possibly Occurs.	Requires dense groundcover to persist so most of the survey area (and almost all of Lot 101) is unsuitable. May be present in riparian vegetation along Margaret River. This area is not subject to any current development plans and therefore no impact on this species is anticipated.
Bilby *Macrotis lagotis*	S3	VU	*Acacia* shrublands, spinifex and hummock grassland. Mitchell grass and stony downs country if cracking clay, also desert sand plains and dune fields sometimes with spinifex hummock grassland and *acacia* shrubland.	No	Would Not Occur.	This species is regionally extinct. No impact on this species will occur.
Western Ringtail Possum *Pseudocheirus occidentalis*	S1	CR	Coastal peppermint, coastal peppermint-tuart, jarrah-marri associations, sheoak woodland, and eucalypt woodland and mallee.	Yes	Known to Occur.	Recorded during the survey period and potentially uses most vegetation in the survey area for some purpose at times. The proposed small-scale development is considered as unlikely to significantly impact on the extent suitable habitat currently present. However, the potential for individuals to be injured or killed during any clearing operations will need to be managed.

Species	Conservation Status		Habitat Preferences	Habitat Present	Likelihood of Occurrence	Comments/Possible Impacts
	BC Act/ DBCA Priority	EPBC Act				
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.	No	Would Not Occur.	This species appears to be locally extinct. No impact on this species will occur.
Woylie *Bettongia penicillate ogilbyi*	S1	EN	Open forest and woodland with a low, dense, understorey of tussock grasses or woody scrub. Formerly occurred in a wider range of habitats including spinifex hummock grasslands.	No	Would Not Occur.	This species is locally extinct. No impact on this species will occur.
Western Brush Wallaby *Notamacropus irma*	P4	-	Open forest or woodland, particularly favouring open, seasonally wet flats with low grasses and open scrubby thickets.	Yes	Unlikely to Occur	Possibly occurs in larger remnants in nearby national park areas but not likely to frequent the survey area. No impact on this species will occur.
Tammar Wallaby *Notamacropus derbianus*	P4	-	Coastal scrub, heath, dry sclerophyll forest and thickets in mallee and woodland.	No	Would Not Occur.	This species is locally extinct. No impact on this species will occur.
Gilbert's Potoroo *Potorous gilbertii*	S1	CR	Long-unburnt, dense shrubland on the valley slopes.	No	Would Not Occur.	This species is regionally extinct. No impact on this species will occur.
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.	Uncommon species but possibly forages along the Margaret River and in open areas on land. Unlikely to roost in the survey area due to a lack of suitable hollows especially within Lot 101 itself. The proposed small-scale development will not significantly impact on this species.
Water Rat *Hydromys chrysogaster*	P4	-	Permanent water, fresh, brackish or marine.	Yes	Possibly Occurs	Likely to forage within Margaret River and riverside vegetation (mostly outside of Lot 101) appears suitable for this species. Areas of preferred habitat are however not subject to any current development plans and therefore no impact on this species is anticipated.

Note: see Appendix A for conservation codes

8. CONCLUSION

The fauna assessment within the survey area was undertaken for the purposes of delineating and characterising the fauna habitats and faunal assemblages present. Targeted searches for western ringtail possums and black cockatoo habitat was also carried out.

With respect to native vertebrate fauna, 21 mammals (including nine bat species), 124 bird, 35 reptile, 10 frog species and six fish species have previously been recorded in the general area, some of which have the potential to occur in or utilise sections of the survey area at times, a conclusion largely based on the presence of apparently suitable habitat. Fauna habitat quality within Lot 101 is however low as a consequence of historical clearing and development and only a subset of the fauna species predicted to occur in the wider area are considered likely to occur.

The assessment identified the presence the western ringtail possum and it is considered to potentially utilise most areas of Lot 101 where suitable vegetation persists. Within Lot 101 black cockatoo habitat was found to be limited in extent and/or of low quality. A single migratory species, the eastern osprey was recorded during the survey period and a possible nest site is present near the boundary of Lot 101.

A number of additional federal and/or state listed threatened and DBCA priority fauna species may also occur though in most cases their use of the survey area wasn't detected during the survey period.

The best quality and widest range of fauna habitats within the survey area are located outside of Lot 101. As a consequence, these areas (including the reserve areas of which they form a part of) are most likely to harbour the greatest variety of fauna species. Any development undertaken in Lot 101 is therefore considered as unlikely to impact significantly on the current status of any fauna species presently utilising the area.

In summary five vertebrate fauna species of conservation significance were positively identified as utilising the survey area for some purpose, these being:

- Forest Red-tailed Black Cockatoo – Vulnerable;
- Baudin's Black Cockatoo – Endangered;
- Carnaby's Black Cockatoo – Endangered;
- Eastern Osprey – Migratory; and
- Western Ringtail Possum – Critically Endangered.

A number of additional vertebrate species of conservation significance may also utilise the survey area, though, as no evidence of these species' presence was identified during the field survey, the status of some in the area remains uncertain. These species are:

- Pouched Lamprey – Priority 3;
- Black Bittern – Priority 2;
- Australian Little - Priority 2;
- Masked Owl – Priority 3;
- Peregrine Falcon – Schedule 7;
- South-western Brush-tailed Phascogale - Schedule 6;
- Quenda – Priority 4;
- Western False Pipistrelle – Priority 4;
- Water Rat – Priority 4.

As described previously, most of these species would not actually utilise Lot 101 due to a lack of suitable habitats, though they may frequent nearby areas.

One invertebrate species of conservation significance has also been assessed as possibly occurring based on available information. The Cape Leeuwin freshwater snail (Vulnerable) has been collected in national park areas north and south of the survey area (DBCA 2019b) so it must be regarded as a potential species though it is considered unlikely to occur within Lot 101 itself.

Overall Lot 101 has low biodiversity values and therefore impacts on fauna in general will be non-existent or negligible. Constraints on development within the subject site will largely be centred on the presence of habitat used or potentially used by threatened fauna species in particular the western ringtail possum.

The presence of this species should be taken into account during ongoing planning and subsequent development. To this end it is recommended that a fauna management plan be formulated for implementation prior to and during development. In particular the plan should define procedures for ensuring the retention and protection of existing WRP habitat wherever possible including protocols for ensuring western ringtail possums (and other fauna) are not injured or killed during site works.

It is also recommended that the tree containing the potential eastern osprey nest be specifically marked and fenced off during site works to minimise activity occurring nearby which may disturb nesting birds.

9. REFERENCES

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

Aplin, K.P. and Smith, L.A. (2001). Checklist of the frogs and reptiles of Western Australia, Records of the Western Australian Museum Supplement No. 63, 51-74.

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.

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

Beatty, S., Morgan, D., Jury, C. & Mitchell, J. (2006). Fish and freshwater crayfish in streams in the Cape Naturaliste region & Wilyabrup Brook. Report to the Cape to Cape Catchments Group and GeoCatch.

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

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

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

Cogger, H.G. (2014). Reptiles and Amphibians of Australia. 7th Edition. CSIRO Publishing.

Commonwealth of Australia (2012). *EPBC Act* Referral guidelines for three threatened black cockatoo species: Carnaby's cockatoo (endangered) *Calyptorhynchus latirostris*, Baudin's cockatoo (vulnerable) *Calyptorhynchus baudinii*, Forest red-tailed black cockatoo (vulnerable) *Calyptorhynchus banksii naso*.

Christidis, L. and Boles, W.E. (2008). Systematics and Taxonomy of Australian Birds. CSIRO Publishing, Melbourne.

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.

Department of Biodiversity, Conservation and Attractions (DBCA) (2019a). Threatened and Priority Fauna Rankings. 23 January 2019.

Department of Biodiversity Conservation and Attractions (DBCA) (2019b). NatureMap Database search. “By Circle” 114° 59' 43" E, 33° 58' 16" S (plus 20 km buffer). Available from: https://naturemap.dbca.wa.gov.au/ . Accessed 15/04/2019.

Department of the Environment and Energy (DotEE) (2019). *EPBC Act* Protected Matters Report: Point Search -33.97104 114.99517 (1km Buffer) Available from: http://www.environment.gov.au. Accessed 15/04/2019.

Ecologia Environmental Consultants (2001). Location 413 Smiths Beach Fauna Assessment. Unpublished report for ATA Environmental.

Emerge Associates (Emerge) (2019). Spring Flora and Vegetation Assessment - Lot 101 Wallcliffe Road, Prevelly. Unpublished report for Wallcliffe House Pty Ltd.

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

EPA (2016). Technical Guidance – Terrestrial Vertebrate Fauna Surveys (replaces EPA (2004). Guidance for the Assessment of Environmental Factors No 56: Terrestrial Surveys for Environmental Impact Assessment, but not yet updated).

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

Government of Western Australia (2018). Wildlife Conservation Act 1950. Wildlife Conservation (Specially Protected Fauna) Notice 2017. Government Gazette, WA. 11 September 2018.

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

Harewood, G. (2012a). Western Ringtail Possum & Black Cockatoo Survey of Trinder Drive Precinct Margaret River. Unpublished report for Trinder Drive Landowners Group.

Harewood, G. (2012b). Fauna Assessment - Bussell Highway Bramley Forest Section (90.62 – 93.77 SLK), Margaret River. Unpublished report for GHD/MRWA.

Harewood, G. (2013). Western Ringtail Possum Survey of Lots 72 and 73 Kevill Road, Margaret River. Unpublished report for TME Town Planning Management Engineering Pty Ltd.

Harewood, G. (2017). Fauna Assessment Lots 4, 5, 7, 8, 9, 10 & 11 Doyle Place Margaret River. Unpublished report for Halsall and Associates.

Harewood, G. (2018). Fauna Assessment Lots 3, 4, 111 and 113 Brumby Place; Lots 101 and 102 Exmoor Drive; and Lots 103, 104, 107 and 108 Boodjidup Road, Margaret River. Unpublished report for Halsall and Associates.

Harvey, M. S. (2002). Short-range endemism among the Australian fauna: some examples from non-marine environments. Invertebrate Systematics 16: 555-570.

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.

Jackson, S. & Groves, C. (2015). Taxonomy of Australian Mammals. CSIRO Publishing.

Johnstone, R.E. (2001). Checklist of the birds of Western Australia, Records of the Western Australian Museum Supplement No. 63, 75-90.

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. and Beatty, S. (2003). Fish fauna of Margaret River Western Australia. Report to the Margaret River Regional Environment Centre.

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.

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

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.

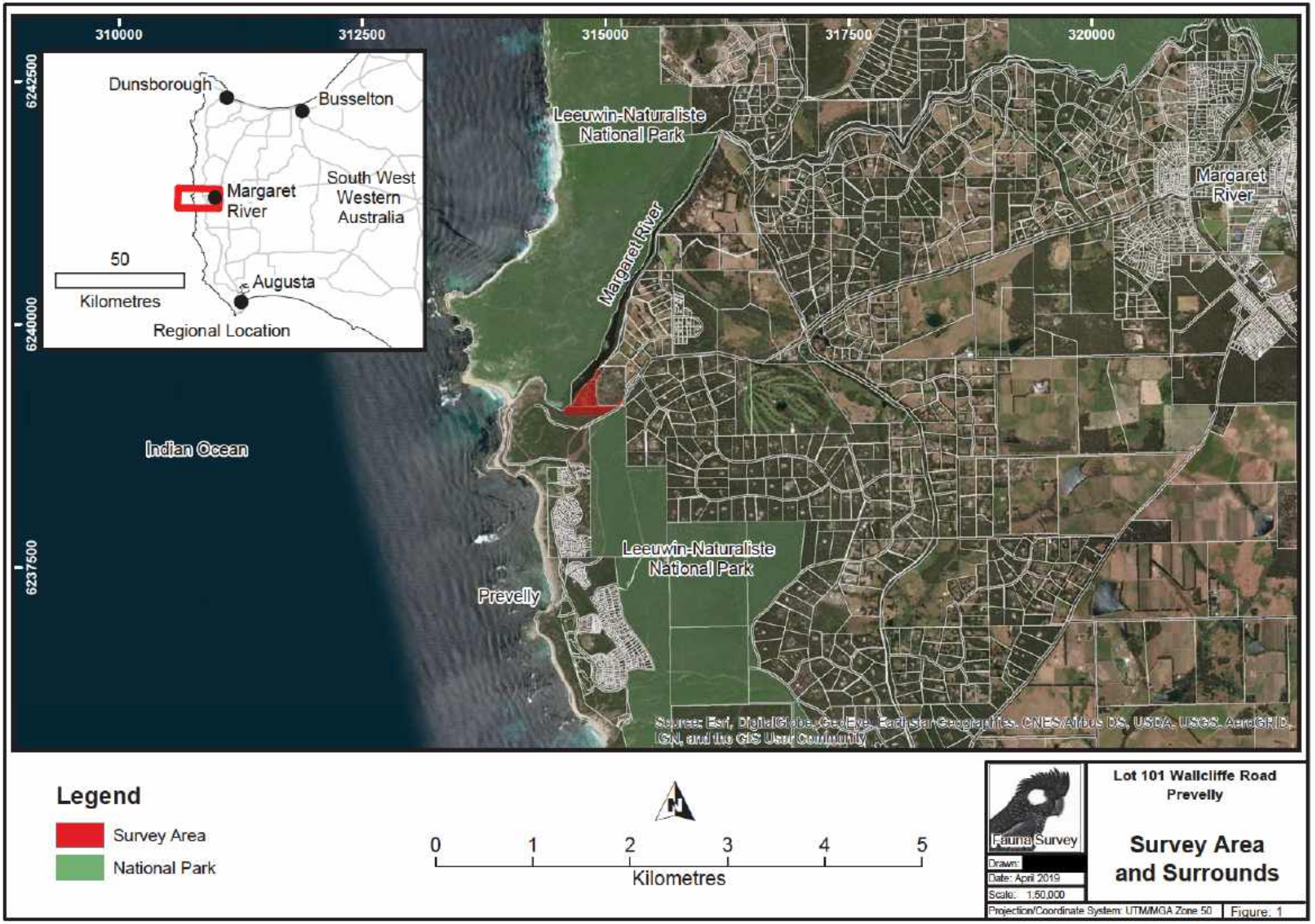
West Australian Land Information Authority (WALIA) 2018, Landgate Map Viewer, viewed 23 November 2018, <http://landgate.wa.gov.au>.

Western Wildlife (2007). Gracetown Development - A Fauna Assessment. Unpublished report for Strategen.

Wilson, S. and Swan, G. (2017). A Complete Guide to Reptiles of Australia. Reed, New Holland, Sydney.

Woinarski, J., Burbidge, A. & Harrison, P. (2014). The Action Plan for Australian Mammals 2012. CSIRO Publishing.

FIGURES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Dunsborough
Busselton
Margaret River
South West Western Australia
50
Kilometres
Augusta
Regional Location
Leeuwin-Naturaliste National Park
Margaret River
Margaret River
Indian Ocean
Leeuwin-Naturaliste National Park
Prevelly
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community
Legend
Survey Area
National Park
0
1
2
3
4
5
Kilometres
Fauna Survey
Drawn:
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Prevelly
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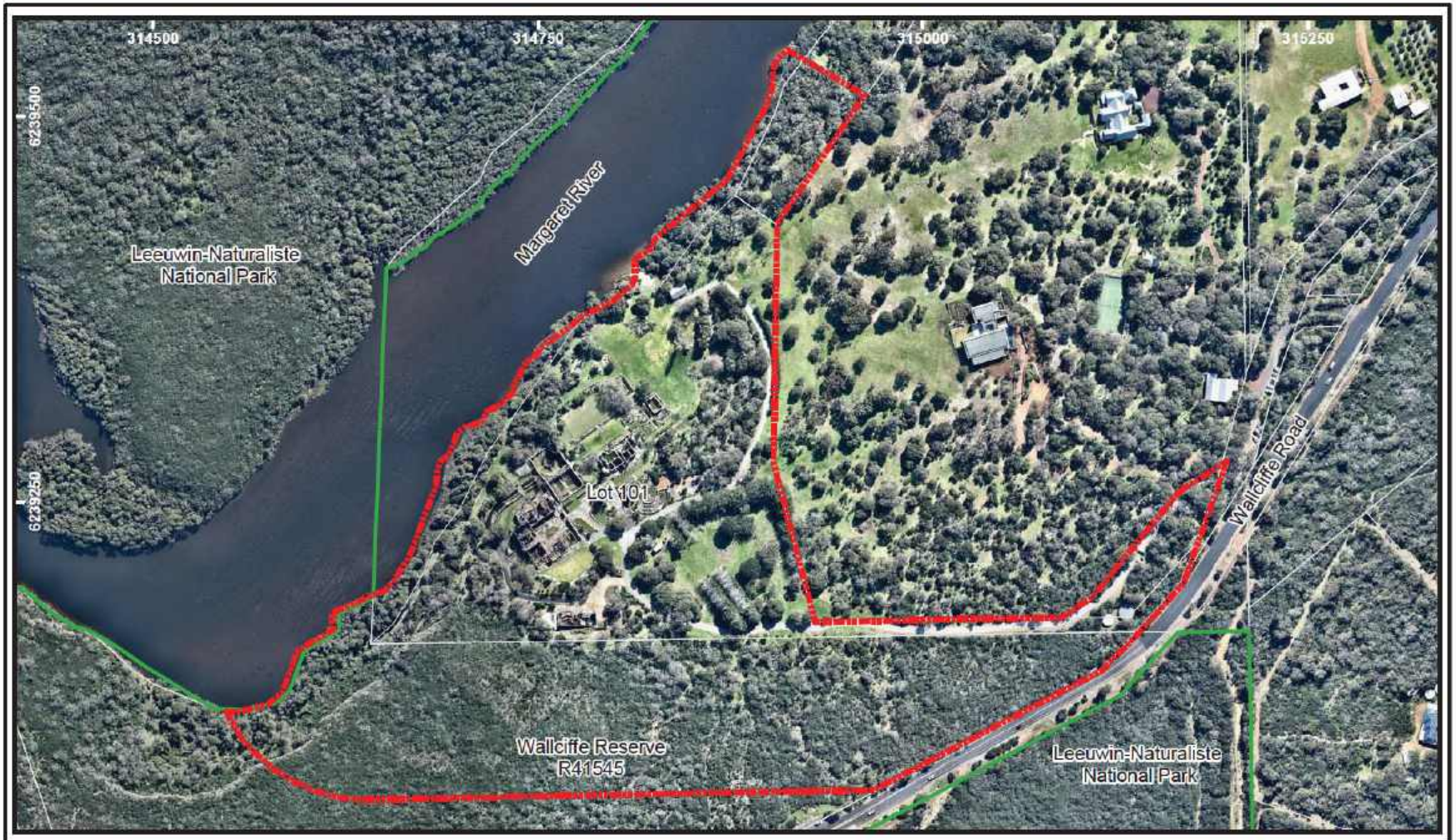

Legend

- Survey Area
- National Park

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Metres

Fauna Survey

Drawn: [redacted]

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Projection/Coordinate System: UTM/MGA Zone 50

Figure: 2

Lot 101 Wallcliffe Road
Prevelly

Survey Area Aerial Photograph

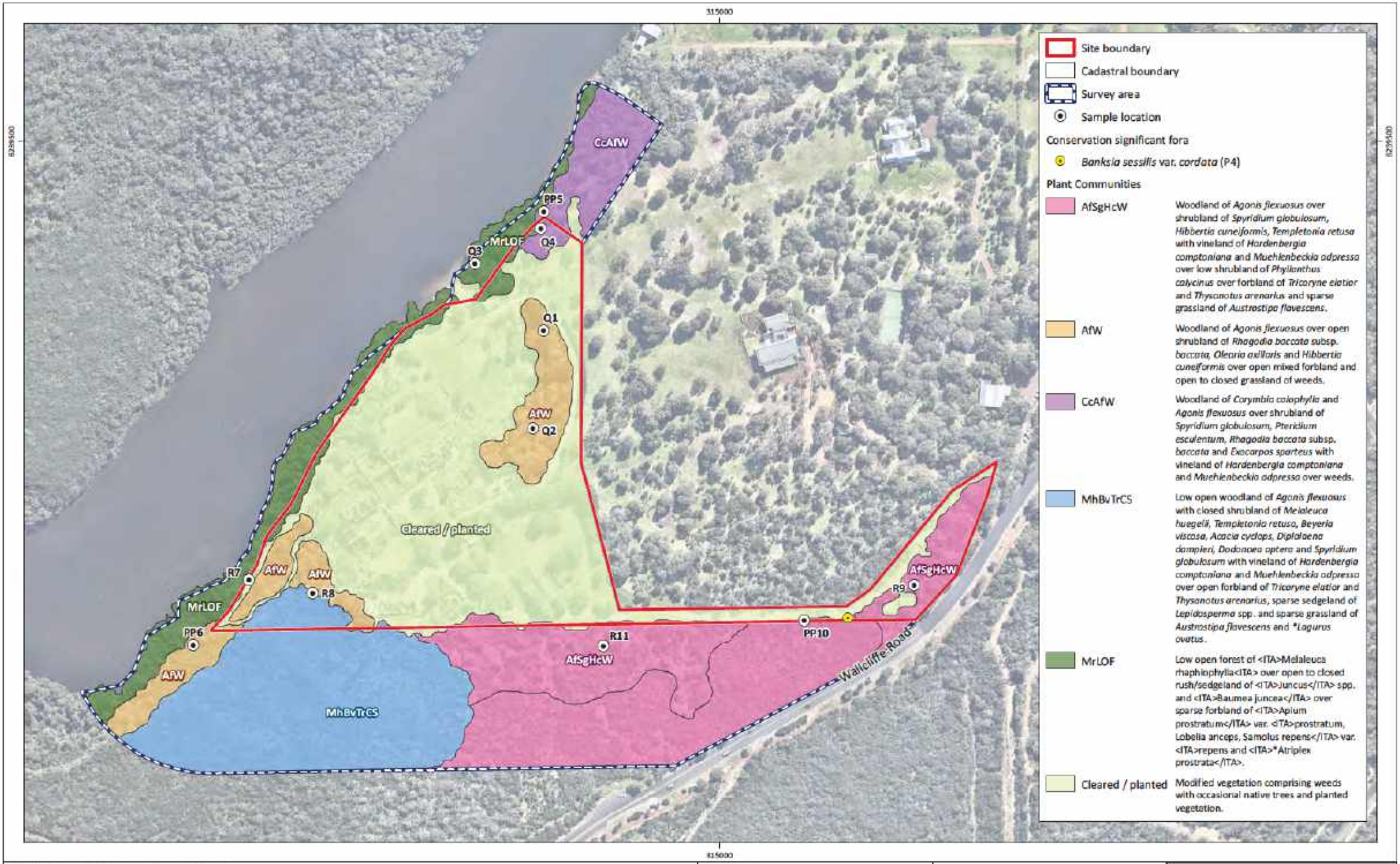

Figure 3: Plant Communities

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Client:	Wallcliffe House Pty Ltd

Plan Number: EP18-128(01)--F03

Drawn:	KNM
Date:	23/01/2019
Checked:	SKP
Approved:	TAA
Date:	11/02/2019

N

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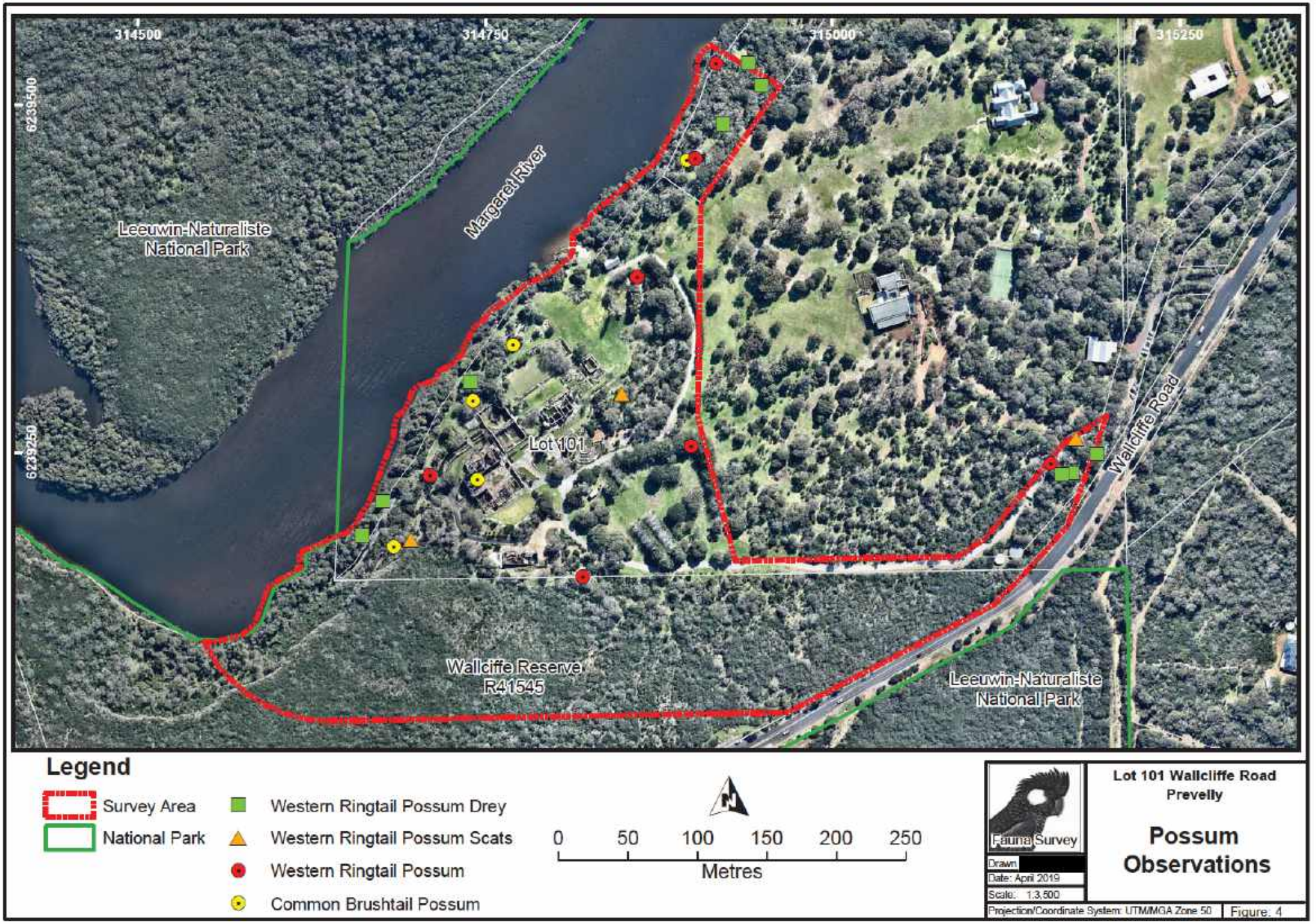
Metres
Scale: 1:3,500@A4
GDA 1994 MGA Zone 50

emerge ASSOCIATES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Margaret River
Lot 101
Wallcliffe Road
Wallcliffe Reserve R41545
Leeuwin-Naturaliste National Park
Legend
Survey Area
National Park
Western Ringtail Possum Drey
Western Ringtail Possum Scats
Western Ringtail Possum
Common Brushtail Possum
0 50 100 150 200 250
Metres
Fauna Survey
Drawn
Date: April 2019
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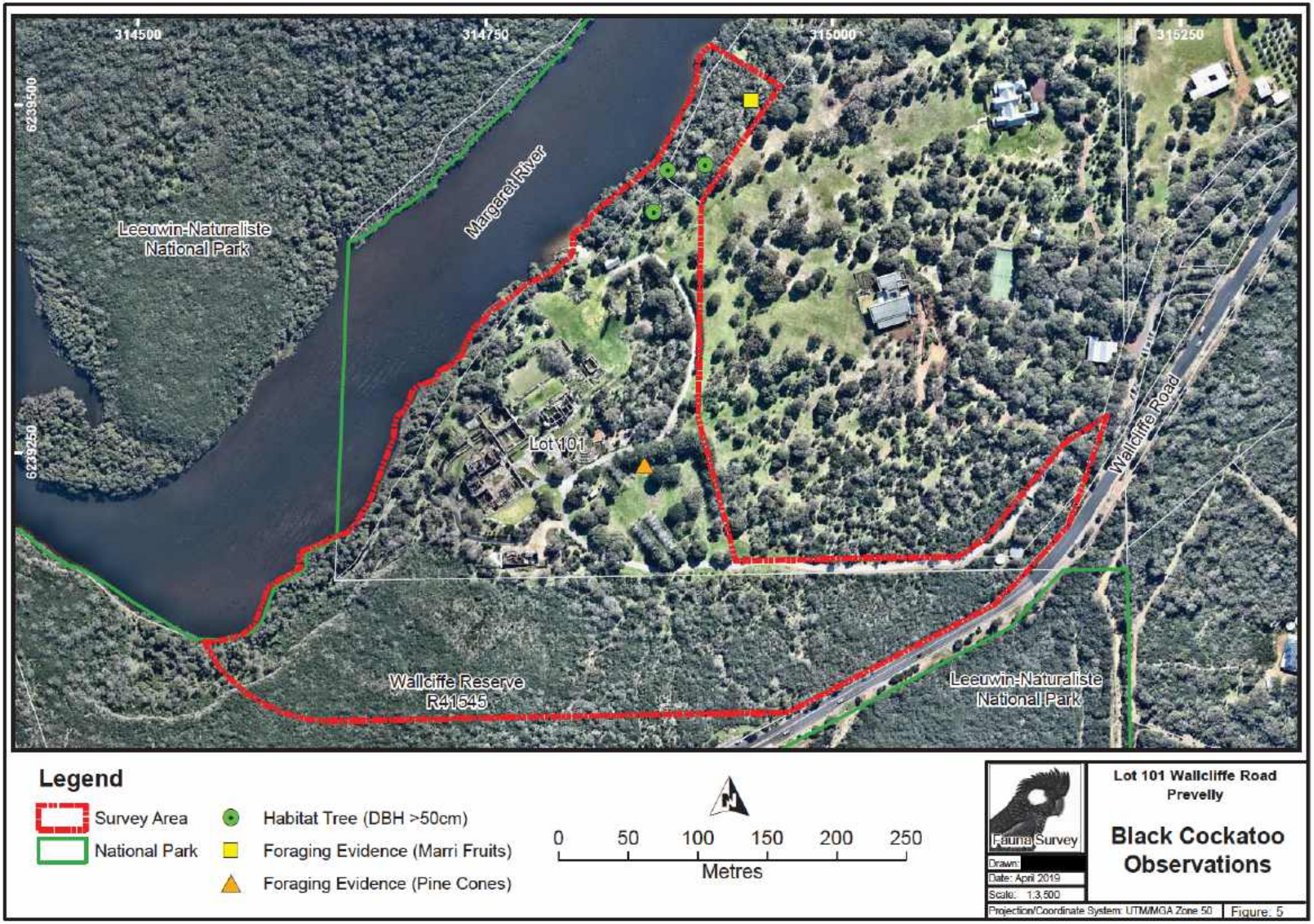
Projection/Coordinate System: UTM/MGA Zone 50
Lot 101 Wallcliffe Road
Prevelly
Possum Observations
Figure: 4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6239250
Margaret River
Leeuwin-Naturaliste
National Park
Lot 101
Wallcliffe Road
Wallcliffe Reserve
R41545
Leeuwin-Naturaliste
National Park
Legend
Survey Area
National Park
Habitat Tree (DBH >50cm)
Foraging Evidence (Marri Fruits)
Foraging Evidence (Pine Cones)
0
50
100
150
200
250
Metres
Fauna Survey
Drawn:
Date: April 2019
Scale: 1:3,500
Projection/Coordinate System: UTM/MGA Zone 50
Lot 101 Wallcliffe Road
Prevelly
Black Cockatoo
Observations
Figure: 5

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 2018 Categories

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

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

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

Western Australian DBCA Priority Fauna Categories

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

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

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

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

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

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

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

Categories are summarized below.

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

VERTEBRATE FAUNA OBSERVED OR POTENTIALLY PRESENT

Vertebrate Fauna Observed or Potentially Present

Compiled by [redacted] April 2019

Lot 101 Wallcliffe Road, Prevelly

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

Harewood, G (2019). Fauna Assessment – Lot 101 Wallcliffe Road Prevelly Unpublished report for Emerge Associates.

Harewood, G. (2017): Fauna Assessment - Gracetown Fire Access Road. Unpublished report for MRWA.

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

ATA/ecologia ('01/06) - ecologia Environmental Consultants (2001) Location 413 Smiths Beach Fauna Assessment Survey, Unpublished report for ATA Environmental, ATA Environmental (2006) Location 413 Smiths Beach Fauna Assessment Survey, Unpublished report for Canal Rocks Properties.

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

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.

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.

DBCA (2019). NatureMap Database search. “By Circle” Centre = 114° 59' 43" E, 33° 58' 16" S (plus 20km buffer). Acessed 15 April 2019.

Class **Family** *Species*	Common Name	Conservation Status	Harewood ('19) Wallcliffe	Harewood ('17) Gracetown	Harewood ('09) Gracetown	ATA/ecologia ('01/06) Smith's Beach	ENV ('07) Busselton to Margaret River	Christensen ('85) Boranup	How ('87) ~7km NW Margaret River	DBCA ('19) Nature Map
Fish										
Atherinidae Hardyheads or Silversides										
Leptatherina wallacei	Western Hardyhead									
Gobidae Gobies										
Pseudogobius olurum	Swan River Goby									
Percichthyidae Basses and Cods										
Bostockia porosa	Nightfish									

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

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Galaxiidae Galaxiids										
Galaxias occidentalis	Western Minnow									X
Geotriidae Pouched Lampreys										
Geotria australis	Pouched Lamprey	P3 DD								X
Nannopercidae Pygmy Perches										
Edelia vittata	Western Pygmy Perch									X
Poeciliidae Livebearers										
Gambusia holbrooki	Mosquito Fish	Introduced								

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Amphibians										
Myobatrachidae Ground or Burrowing Frogs										
Crinia georgiana	Quacking Frog	LC					X			X
Crinia glauerti	Glauert`s Froglet	LC					X			X
Crinia pseudinsignifera	Bleating Froglet	LC		X						X
Geocrinia leai	Lea`s Frog	LC		X			X			X
Heleioporus eyrei	Moaning Frog	LC		X		X	X	X	X	X
Heleioporus inornatus	Whooping Frog	LC					X			X
Limnodynastes dorsalis	Banjo Frog	LC			X	X	X	X	X	X
Metacrinia nichollsi	Nicholls` Toadlet	LC					X			X
Hylidae Tree or Water-Holding Frogs										
Litoria adelaidensis	Slender Tree Frog	LC					X			X
Litoria moorei	Motorbike Frog	LC					X			X
Reptiles										
Chelidae Side-necked Tortoises										
Chelodina colliei	SW Snake-necked Turtle	LC								X

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Gekkonidae Geckoes										
Christinus marmoratus	Marbled Gecko	LC			X	X	X	X	X	X
Pygopodidae Legless Lizards										
Aprasia pulchella	Pretty Worm Lizard	LC				X			X	X
Delma australis	Marbel-faced Delma	LC				X				
Lialis burtonis	Common Snake Lizard	LC								X
Pygopus lepidopodus	Southern Scaleyfoot	LC			X			X		X
Agamidae Dragon Lizards										
Pogona minor	Western Bearded Dragon	LC			X	X			X	
Varanidae Monitor's or Goanna's										
Varanus rosenbergi	Heath Monitor	LC			X	X	X			X

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Scincidae Skinks										
Acritoscincus trilineatus	South-western Cool Skink	LC			X	X	X		X	X
Cryptoblepharus buchananii	Fence Skink	LC				X		X		X
Ctenotus catenifer	Chain-striped Heath Ctenotus	LC								X
Ctenotus impar	SW Odd-striped Ctenotus	LC				X		X	X	X
Ctenotus labillardieri	Red-legged Skink	LC				X	X	X	X	X
Egernia kingii	King's Skink	LC				X	X			X
Egernia luctuosa	Mourning Skink	LC					X			
Egernia napoleonis	Salmon-bellied Skink	LC			X	X	X	X	X	X
Hemiergis gracilipes	SW Mulch Skink	LC								X
Hemiergis peronii tridactyla	Three-toed Mulch Skink	LC			X	X	X		X	
Lerista distinguenda	SW Four-toed Lerista	LC				X				X
Lerista elegans	West Coast Four-toed Lerista	LC			X				X	X
Lerista microtis	SW Five-toed Lerista	LC					X			X
Menetia greyii	Dwarf Skink	LC			X	X		X		X
Morethia lineoocellata	Western Pale-flecked Morethia	LC			X	X	X		X	X

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Morethia obscura	Dusky Morethia	LC								X
Tiliqua rugosa rugosa	Western Bobtail	LC			X	X	X	X	X	
Typhlopidae Blind Snakes										
Anilios australis	Southern Blind Snake	LC				X	X			
Boidae Pythons, Boas										
Morelia spilota imbricata	Southern Carpet Python	LC			X	X				
Elapidae Elapid Snakes										
Echiopsis curta	Bardick	LC				X			X	X
Elapognathus coronatus	Crowned Snake	LC			X	X		X		X
Notechis scutatus	Tiger Snake	LC								X
Parasuta gouldii	Gould's Hooded Snake	LC								X
Parasuta nigriceps	Black-backed Snake	LC								X
Pseudonaja affinis	Dugite	LC			X		X	X	X	X
Rhinoplocephalus bicolor	Square-nosed Snake	LC								X

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Birds										
Phasianidae Quails, Pheasants										
Coturnix pectoralis	Stubble Quail	LC								
Coturnix ypsilophora	Brown Quail	LC								
Anatidae Geese, Swans, Ducks										
Anas castanea	Chestnut Teal	LC								
Anas gracilis	Grey Teal	LC					X			X
Anas platyrhynchos	Mallard	Introduced								X
Anas rhynchotis	Australasian Shoveler	Bh LC								
Anas superciliosa	Pacific Black Duck	LC					X			X
Aythya australis	Hardhead	Bh LC								
Biziura lobata	Musk Duck	Bh LC								X
Chenonetta jubata	Australian Wood Duck	LC					X			X
Cygnus atratus	Black Swan	LC								
Malacorhynchus membranaceus	Pink-eared Duck	Bh LC								
Tadorna tadornoides	Australian Shelduck	LC					X			X

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Podicipedidae Grebes										
Poliocephalus poliocephalus	Hoary-headed Grebe	LC								
Tachybaptus novaehollandiae	Australasian Grebe	LC								X
Anhingidae Darters										
Anhinga novaehollandiae	Australian Darter	LC								
Phalacrocoracidae Cormorants										
Phalacrocorax carbo	Great Cormorant	LC								X
Phalacrocorax melanoleucos	Little Pied Cormorant	LC								
Phalacrocorax sulcirostris	Little Black Cormorant	LC								X
Phalacrocorax varius	Pied Cormorant	LC								X
Pelecanidae Pelicans										
Pelecanus conspicillatus	Australian Pelican	LC								X

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Ardeidae Herons, Egrets, Bitterns										
Ardea alba	Great Egret	CA JA LC								
Ardea pacifica	White-necked Heron	LC								
Egretta novaehollandiae	White-faced Heron	LC					X			X
Ixobrychus flavicollis	Black Bittern (SW pop.)	P2 Bp LC								X
Ixobrychus minutus	Australian Little Bittern	P4 Bp LC								
Nycticorax caledonicus	Rufous Night Heron	Bp LC								X
Threskiornithidae Iibises, Spoonbills										
Platalea flavipes	Yellow-billed Spoonbill	LC								
Threskiornis molucca	Australian White Ibis	LC					X			
Threskiornis spinicollis	Straw-necked Ibis	LC					X			X

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Accipitridae Kites, Goshawks, Eagles, Harriers										
Accipiter cirrocephalus	Collared Sparrowhawk	LC								X
Accipiter fasciatus	Brown Goshawk	LC								X
Aquila audax	Wedge-tailed Eagle	LC								X
Aquila morphnoides	Little Eagle	LC			X					
Circus approximans	Swamp Harrier	LC								X
Elanus caeruleus	Black-shouldered Kite	LC					X			
Haliastur sphenurus	Whistling Kite	LC				X		X		X
Hamirostra isura	Square-tailed Kite	LC			X					X
Pandion cristatus	Eastern Osprey	S5 Mig LC	X							X
Falconidae Falcons										
Falco berigora	Brown Falcon	LC				X		X		X
Falco cenchroides	Australian Kestrel	LC				X	X	X		X
Falco longipennis	Australian Hobby	LC					X			X
Falco peregrinus	Peregrine Falcon	S7 LC								X

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

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

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

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

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

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

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Pachycephalidae Crested Shrike-tit, Crested Bellbird, Shrike Thrushes, Whistlers										
Colluricincla harmonica	Grey Shrike-thrush	LC		X	X		X			X
Falcunculus frontatus	Western Shrike-tit	LC								X
Pachycephala occidentalis	Western Whistler	LC		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
Myiagra inquieta	Restless Flycatcher	Bh LC						X		X
Rhipidura fuliginosa	Grey Fantail	LC		X	X	X	X	X		
Rhipidura leucophrys	Willie Wagtail	LC		X	X	X	X	X		X
Campephagidae Cuckoo-shrikes, Trillers										
Coracina novaehollandiae	Black-faced Cuckoo-shrike	LC			X	X	X	X		X
Lalage sueurii	White-winged Triller	LC								

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

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

Mammals

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

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Peramelidae Bandicoots										
Isoodon fusciventer	Quenda	P4 LC		X	X		X	X		X
Phalangeridae Brushtail Possums, Cuscuses										
Trichosurus vulpecula	Common Brushtail Possum	LC	X	X		X	X	X		X
Burramyidae Pygmy Possums										
Cercartetus concinnus	Western Pygmy-possum	LC				X				X
Tarsipedidae Honey Possum										
Tarsipes rostratus	Honey Possum	LC			X	X				X
Pseudocheiridae Ringtail Posssums										
Pseudocheirus occidentalis	Western Ringtail Possum	S1 CR CR	X	X	X	X				X
Macropodidae Kangaroos, Wallabies										
Macropus fuliginosus	Western Grey Kangaroo	LC	X	X	X	X	X	X		X
Molossidae Freetail Bats										
Austronomus australis	White-striped Freetail-bat	LC				X	X			
Ozimops kitcheneri	Western Freetail Bat	LC				X	X			

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

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APPENDIX C

DBCA & EPBC DATABASE SEARCH RESULTS

NatureMap - Wallcliffe House

Created By [redacted] on 15/04/2019

Kingdom	Animalia
Current Names Only	Yes
Core Datasets Only	Yes
Method	'By Circle'
Centre	114° 59' 43" E,33° 58' 16" S
Buffer	20km
Group By	Species Group

Species Group	Species	Records
Amphibian	11	416
Bird	151	7603
Fish	46	94
Invertebrate	215	1934
Mammal	44	917
Reptile	37	275
TOTAL	**504**	**11239**

	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.	25411	*Heleioporus inornatus (Whooping Frog)*			
8.	25415	*Limnodynastes dorsalis (Western Banjo Frog)*			
9.	25378	*Litoria adelaidensis (Slender Tree Frog)*			
10.	25388	*Litoria moorei (Motorbike Frog)*			
11.	25419	*Metacrinia nichollsi (Forest 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.	24281	*Accipiter cirrocephalus subsp. cirrocephalus (Collared Sparrowhawk)*			
18.	25536	*Accipiter fasciatus (Brown Goshawk)*			
19.	41323	*Actitis hypoleucos (Common Sandpiper)*		IA	
20.	25544	*Aegotheles cristatus (Australian Owlet-nightjar)*			
21.	24301	*Aegotheles cristatus subsp. cristatus (Australian Owlet-nightjar)*			
22.	24312	*Anas gracilis (Grey Teal)*			
23.	24313	*Anas platyrhynchos (Mallard)*			
24.	24316	*Anas superciliosa (Pacific Black Duck)*			
25.	47414	*Anhinga novaehollandiae (Australasian Darter)*			
26.	24561	*Anthochaera carunculata (Red Wattlebird)*			
27.	24562	*Anthochaera lunulata (Western Little Wattlebird)*			
28.	24599	*Anthus australis subsp. australis (Australian Pipit)*			
29.	24285	*Aquila audax (Wedge-tailed Eagle)*			
30.	41326	*Ardenna carneipes (Flesh-footed Shearwater, Fleshy-footed Shearwater)*		T	
31.	25566	*Artamus cinereus (Black-faced Woodswallow)*			
32.	24353	*Artamus cyanopterus (Dusky Woodswallow)*			
33.	24358	*Atrichornis clamosus (Noisy Scrub-bird, tjimiluk)*		T	
34.		*Barnardius zonarius*			
35.	24319	*Biziura lobata (Musk Duck)*			
36.	24359	*Burhinus grallarius (Bush Stone-curlew)*			
37.	25713	*Cacatua galerita (Sulphur-crested Cockatoo)*			
38.	24723	*Cacatua pastinator subsp. butleri (Butler's Corella)*			
39.	25716	*Cacatua sanguinea (Little Corella)*			

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
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.	25717	*Calyptorhynchus banksii (Red-tailed Black-Cockatoo)*			
46.	24731	*Calyptorhynchus banksii subsp. naso (Forest Red-tailed Black Cockatoo)*		T	
47.	24733	*Calyptorhynchus baudinii (Baudin's Cockatoo, White-tailed Long-billed Black Cockatoo)*		T	
48.	24734	*Calyptorhynchus latirostris (Carnaby's Cockatoo, White-tailed Short-billed Black Cockatoo)*		T	
49.	48400	*Calyptorhynchus sp. (white-tailed black cockatoo)*		T	
50.	25575	*Charadrius leschenaultii (Greater Sand Plover)*		T	
51.	24377	*Charadrius ruficapillus (Red-capped Plover)*			
52.	24321	*Chenonetta jubata (Australian Wood Duck, Wood Duck)*			
53.		*Chroicocephalus novaehollandiae*			
54.	24432	*Chrysococcyx lucidus subsp. plagosus (Shining Bronze Cuckoo)*			
55.	24288	*Circus approximans (Swamp Harrier)*			
56.	25675	*Colluricincla harmonica (Grey Shrike-thrush)*			
57.	24399	*Columba livia (Domestic Pigeon)*	Y		
58.	25568	*Coracina novaehollandiae (Black-faced Cuckoo-shrike)*			
59.	25592	*Corvus coronoides (Australian Raven)*			
60.	24417	*Corvus coronoides subsp. perplexus (Australian Raven)*			
61.	25595	*Cracticus tibicen (Australian Magpie)*			
62.	25596	*Cracticus torquatus (Grey Butcherbird)*			
63.	30901	*Dacelo novaeguineae (Laughing Kookaburra)*	Y		
64.	25673	*Daphoenositta chrysoptera (Varied Sittella)*			
65.	24439	*Dasyornis broadbenti subsp. litoralis (Rufous Bristlebird, Rufous Bristlebird (SW WA))*		□	
66.	24470	*Dromaius novaehollandiae (Emu)*			
67.		*Egretta novaehollandiae*			
68.		*Elanus axillaris*			
69.	47937	*Elseyornis melanops (Black-fronted Dotterel)*			
70.		*Eolophus roseicapillus*			
71.	24651	*Eopsaltria australis subsp. griseogularis (Western Yellow Robin)*			
72.	24652	*Eopsaltria georgiana (White-breasted Robin)*			
73.	24567	*Epthianura albifrons (White-fronted Chat)*			
74.	25744	*Eudyptes chrysocome (Rockhopper Penguin)*			
75.	25621	*Falco berigora (Brown Falcon)*			
76.	24471	*Falco berigora subsp. berigora (Brown Falcon)*			
77.	25622	*Falco cenchroides (Australian Kestrel, Nankeen Kestrel)*			
78.	25623	*Falco longipennis (Australian Hobby)*			
79.	25624	*Falco peregrinus (Peregrine Falcon)*		S	
80.	24475	*Falco peregrinus subsp. macropus (Australian Peregrine Falcon)*		S	
81.	25677	*Falcunculus frontatus (Crested Shrike-tit)*			
82.	25727	*Fulica atra (Eurasian Coot)*			
83.	25530	*Gerygone fusca (Western Gerygone)*			
84.	24443	*Grallina cyanoleuca (Magpie-lark)*			
85.	25627	*Haematopus fuliginosus (Sooty Oystercatcher)*			
86.	24487	*Haematopus longirostris (Pied Oystercatcher)*			
87.	24295	*Haliastur sphenurus (Whistling Kite)*			
88.	24296	*Hamirostra isura (Square-tailed Kite)*			
89.	47965	*Hieraaetus morphnoides (Little Eagle)*			
90.	24491	*Hirundo neoxena (Welcome Swallow)*			
91.	48587	*Hydroprogne caspia (Caspian Tern)*		IA	
92.	25562	*Ixobrychus flavicollis (Black Bittern)*			
93.	24511	*Larus novaehollandiae subsp. novaehollandiae (Silver Gull)*			
94.	25638	*Larus pacificus (Pacific Gull)*			
95.	24557	*Leipoa ocellata (Malleefowl)*		T	
96.	25661	*Lichmera indistincta (Brown Honeyeater)*			
97.	24582	*Lichmera indistincta subsp. indistincta (Brown Honeyeater)*			
98.		*Lophoictinia isura*			
99.	25650	*Malurus elegans (Red-winged Fairy-wren)*			
100.	25654	*Malurus splendens (Splendid Fairy-wren)*			
101.	25663	*Melithreptus brevirostris (Brown-headed Honeyeater)*			
102.	24587	*Melithreptus chloropsis (Western White-naped Honeyeater)*			
103.	24598	*Merops ornatus (Rainbow Bee-eater)*			
104.		*Microcarbo melanoleucos*			
105.	48008	*Morus serrator (Australasian Gannet)*			
106.	25610	*Myiagra inquieta (Restless Flycatcher)*			
107.	24738	*Neophema elegans (Elegant Parrot)*			

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
108.	24739	*Neophema petrophila (Rock Parrot)*			
109.	25564	*Nycticorax caledonicus (Rufous Night Heron)*			
110.	24407	*Ocyphaps lophotes (Crested Pigeon)*			
111.	25680	*Pachycephala rufiventris (Rufous Whistler)*			
112.	48591	*Pandion cristatus (Osprey, Eastern Osprey)*		IA	
113.	25681	*Pardalotus punctatus (Spotted Pardalote)*			
114.	25682	*Pardalotus striatus (Striated Pardalote)*			
115.	24630	*Pardalotus striatus subsp. westraliensis (Striated Pardalote)*			
116.	24674	*Pavo cristatus (Common Peafowl, Indian Peafowl)*	Y		
117.	24648	*Pelecanus conspicillatus (Australian Pelican)*			
118.	48061	*Petrochelidon nigricans (Tree Martin)*			
119.	48066	*Petroica boodang (Scarlet Robin)*			
120.	25697	*Phalacrocorax carbo (Great Cormorant)*			
121.	24667	*Phalacrocorax sulcirostris (Little Black Cormorant)*			
122.	25699	*Phalacrocorax varius (Pied Cormorant)*			
123.	24409	*Phaps chalcoptera (Common Bronzewing)*			
124.	25587	*Phaps elegans (Brush Bronzewing)*			
125.	48071	*Phylidonyris niger (White-cheeked Honeyeater)*			
126.	24596	*Phylidonyris novaehollandiae (New Holland Honeyeater)*			
127.	25720	*Platycercus icterotis (Western Rosella)*			
128.	24745	*Platycercus icterotis subsp. icterotis (Western Rosella)*			
129.	24747	*Platycercus spurius (Red-capped Parrot)*			
130.	24750	*Platycercus zonarius subsp. semitorquatus (Twenty-eight Parrot)*			
131.	25703	*Podargus strigoides (Tawny Frogmouth)*			
132.	25722	*Polytelis anthopeplus (Regent Parrot)*			
133.	25731	*Porphyrio porphyrio (Purple Swamphen)*			
134.	24771	*Porzana tabuensis (Spotless Crake)*			
135.	25579	*Psophodes nigrogularis (Western Whipbird)*		T	
136.	24388	*Psophodes nigrogularis subsp. nigrogularis (Western Whipbird (western heath))*		T	
137.	24711	*Puffinus assimilis subsp. assimilis (Little Shearwater)*			
138.		*Purpureicephalus spurius*			
139.	48096	*Rhipidura albiscapa (Grey Fantail)*			
140.	25614	*Rhipidura leucophrys (Willie Wagtail)*			
141.	25534	*Sericornis frontalis (White-browed Scrubwren)*			
142.	24279	*Sericornis frontalis subsp. maculatus (White-browed Scrubwren)*			
143.	30948	*Smicrornis brevirostris (Weebill)*			
144.	24645	*Stagonopleura oculata (Red-eared Firetail)*			
145.	24522	*Sterna bergii (Crested Tern)*			
146.	25655	*Stipiturus malachurus (Southern Emu-wren)*			
147.	24554	*Stipiturus malachurus subsp. westernensis (Southern Emu-wren)*			
148.	25597	*Strepera versicolor (Grey Currawong)*			
149.	25705	*Tachybaptus novaehollandiae (Australasian Grebe, Black-throated Grebe)*			
150.	24331	*Tadorna tadornoides (Australian Shelduck, Mountain Duck)*			
151.	34135	*Thalassarche cauta (Shy Albatross)*		T	
152.	34007	*Thalassarche chlororhynchos (Atlantic Yellow-nosed Albatross)*		T	
153.	44607	*Thalassarche melanophris (Black-browed Albatross)*		T	
154.	48597	*Thalasseus bergii (Crested Tern)*		IA	
155.	48135	*Thinornis rubricollis (Hooded Plover, Hooded Dotterel)*		P4	
156.	24845	*Threskiornis spinicollis (Straw-necked Ibis)*			
157.	25549	*Todiramphus sanctus (Sacred Kingfisher)*			
158.	25723	*Trichoglossus haematodus (Rainbow Lorikeet)*			
159.	48147	*Turnix varius (Painted Button-quail)*			
160.	25764	*Tyto novaehollandiae (Masked Owl)*			
161.	24855	*Tyto novaehollandiae subsp. novaehollandiae (Masked Owl (southwest))*		P3	
162.	25765	*Zosterops lateralis (Grey-breasted White-eye, Silvereye)*			

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163.		*? ?*
164.		*Acanthaluteres vittiger*
165.		*Acanthistius pardalotus*
166.		*Aetapcus maculatus*
167.		*Afurcagobius suppositus*
168.		*Alabes brevis*
169.		*Aracana aurita*
170.		*Arripis georgiana*
171.		*Arripis truttacea*
172.		*Atherinosoma wallacei*
173.		*Carassius auratus*
174.		*Coris auricularis*
175.		*Cristiceps australis*
176.		*Dactylophora nigricans*

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
177.		*Edelia vittata*			
178.	34028	*Galaxias occidentalis (Western Minnow)*			
179.	34026	*Galaxiella munda (mud minnow, western dwarf galaxias)*		T	
180.	34030	*Geotria australis (Pouched Lamprey)*		P3	
181.		*Halichoeres brownfieldi*			
182.		*Helcogramma decurrens*			
183.		*Heteroclinus sp.*			
184.		*Heterodontus portusjacksoni*			
185.		*Hippocampus sp.*			
186.		*Histiophryne cryptacanthus*			
187.		*Lepidoblennius marmoratus*			
188.		*Lepidoperca occidentalis*			
189.		*Lissocampus runa*			
190.		*Meuschenia flavolineata*			
191.		*Meuschenia galii*			
192.		*Meuschenia hippocrepis*			
193.	34033	*Nannatherina balstoni (Balston's Pygmy Perch)*		T	
194.		*Nannoperca vittata*			
195.		*Naucrates ductor*			
196.		*Neopataecus waterhousii*			
197.		*Odax acroptilus*			
198.		*Oplegnathus woodwardi*			
199.		*Pelsartia humeralis*			
200.		*Pictilabrus laticlavius*			
201.		*Platycephalus sp.*			
202.		*Plectranthias alleni*			
203.		*Pseudogobius olorum*			
204.		*Pseudolabrus sp.*			
205.		*Pterygotrigla polyommata*			
206.		*Schuettea woodwardi*			
207.		*Scobinichthys granulatus*			
208.		*Siphonognathus beddomei*			
Invertebrate					
209.		*Acariformes sp.*			
210.		*Acritoptila globosa*			
211.		*Aeshnidae sp.*			
212.		*Akamptogonus novarae*			
213.		*Akamptogonus novarae?*			Y
214.		*Allothereua maculata*			
215.		*Alotanypus dalyupensis*			
216.		*Amphisopodidae sp.*			
217.		*Aname mainae*			
218.		*Aname tepperi*			
219.		*Ancylidae sp.*			
220.		*Arachnura higginsi*			
221.		*Araneus cyphoxis*			
222.		*Araneus eburneiventris*			
223.		*Araneus eburnus*			
224.		*Araneus senicaudatus*			
225.		*Archaeosynthemis leachii*			
226.		*Archaeosynthemis occidentalis*			
227.		*Archaeosynthemis spiniger*			
228.		*Archichauliodes sp.*			
229.		*Argiope trifasciata*			
230.		*Arkys walckenaeri*			
231.		*Arrenuridae sp.*			
232.		*Artoria cingulipes*			
233.		*Artoria flavimana*			
234.		*Artoria linnaei*			
235.		*Artoria taeniifera*			
236.		*Asadipus kunderang*			
237.		*Athericidae sp.*			
238.		*Aturidae sp.*			
239.		*Austracantha minax*			
240.		*Australomimetus diabolicus*			
241.		*Australomimetus tasmaniensis*			
242.		*Austroaeschna anacantha*			
243.	34110	*Austroassiminea letha (Cape Leeuwin Freshwater Snail)*		T	
244.		*Austrochiltonia sp.*			
245.		*Badumna microps*			

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
246.		*Baetidae sp.*			
247.		*Baiami tegenarioides*			
248.		*Baiami volucripes*			
249.		*Ballarra longipalpus*			
250.	47873	*Bertmainius opimus (western pygmy trapdoor spider)*		P3	
251.		*Bibulmena kadjina*			
252.		*Bithyniidae sp.*			
253.		*Botryocladius freemani*			
254.		*Caenidae sp.*			
255.		*Calymmachernes angulatus*			
256.		*Carabidae sp.*			
257.		*Ceratopogonidae sp.*			
258.		*Cercophonius granulosus*			
259.		*Cercophonius sulcatus*			
260.		*Chaussieria warregense*			
261.	33939	*Cherax cainii (Marron)*			
262.		*Cherax crassimanus*			
263.		*Cherax destructor*			
264.		*Cherax quinquecarinatus*			
265.	33940	*Cherax tenuimanus (Margaret River hairy marron, Margaret River Marron)*		T	
266.		*Chironominae sp.*			
267.		*Chironomus aff. alternans (V24) (CB)*			
268.		*Chironomus tepperi*			
269.		*Cladocera (non-daphniidae)*			
270.		*Cladocera (unident.)*			
271.		*Coenagrionidae sp.*			
272.		*Conicochernes crassus*			
273.		*Copepoda sp.*			
274.		*Corduliidae sp.*			
275.		*Corixidae sp.*			
276.		*Cormocephalus aurantiipes*			
277.		*Cormocephalus hartmeyeri*			
278.		*Cormocephalus strigosus*			
279.		*Corydalidae sp.*			
280.		*Cricotopus 'parbicinctus'*			
281.		*Crustulina bicruciata*			
282.		*Culicidae sp.*			
283.		*Curculionidae sp.*			
284.		*Cyclosa trilobata*			
285.		*Dicrotendipes sp. A (V47) (SAP)*			
286.		*Dugesiidae sp.*			
287.		*Dytiscidae sp.*			
288.		*Emertonella maga*			
289.		*Empididae sp.*			
290.		*Enchytraeidae sp.*			
291.	33945	*Engaewa pseudoreducta (Margaret River Burrowing Crayfish)*		T	
292.		*Eodelena lapidicola*			
293.		*Ephydridae sp.*			
294.		*Eriophora biapicata*			
295.		*Geogarypus taylori*			
296.		*Glossiphoniidae sp.*			
297.		*Gripopterygidae sp.*			
298.		*Gyrinidae sp.*			
299.		*Harrisius sp. B (SFM)*			
300.		*Hemicorduliidae sp.*			
301.		*Henicops dentatus*			
302.		*Holasteron aspinosum*			
303.		*Hydraenidae sp.*			
304.		*Hydrobiosidae sp.*			
305.		*Hydrometridae sp.*			
306.		*Hydrophilidae sp.*			
307.		*Hydropsychidae sp.*			
308.		*Hydroptilidae sp.*			
309.		*Hyriidae sp.*			
310.		*Isopeda leishmanni*			
311.		*Ixodes australiensis*			
312.		*Karaops ellenae*			
313.	33980	*Kawaniphila pachomai (Grey Vernal Katydid (southwest), cricket)*		P1	
314.		*Kiefferulus intertinctus*			
315.		*Lagynochthonius australicus*			

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
316.		*Lampona brevipes*			
317.		*Lampona cylindrata*			
318.		*Lamponella ainslie*			
319.		*Latrodectus hasseltii*			
320.		*Lectrides parilis*			
321.		*Lepidoptera (non-pyralid)*			
322.		*Leptoceridae sp.*			
323.		*Leptoperla australica*			
324.		*Leptophlebiid genus S sp. AV1*			
325.		*Leptophlebiidae sp.*			
326.		*Libellulidae sp.*			
327.		*Lycosa gilberta*			
328.		*Lymnaeidae sp.*			
329.		*Maratus pavonis*			
330.		*Megaloptera sp.*			
331.		*Megapodagrionidae sp.*			
332.		*Mesoveliidae sp.*			
333.		*Microvelia (Austromicrovelia) australiensis*			
334.		*Microvelia sp.*			
335.		*Missulena granulosa*			
336.		*Mituliodon tarantulinus*			
337.		*Naididae sp.*			
338.		*Neboissophlebia occidentalis*			
339.		*Nematoda sp.*			
340.		*Newmanoperla exigua*			
341.		*Notalina sp.*			
342.		*Notalina sp. AV15 (PSW)*			
343.		*Notonectidae sp.*			
344.		*Notoperata tenax*			
345.		*Nousia sp. AV16*			
346.		*Nunciella aspera*			
347.		*Nyungara bunni*			
348.		*Ochthebius sp.*			
349.		*Oligochaeta sp.*			
350.		*Oniscidae sp.*			
351.		*Orthocladiinae 'woodminer' (SAP)*			
352.		*Orthocladiinae sp.*			
353.		*Ostracoda (unident.)*			
354.		*Oxidae sp.*			
355.		*Oxyopes gracilipes*			
356.		*Palaemonidae sp.*			
357.		*Paralimnophyes pullulus (V42)*			
358.		*Paramerina levidensis*			
359.		*Parastacidae sp.*			
360.		*Pentasteron intermedium*			
361.		*Perthiidae sp.*			
362.		*Pholcus phalangioides*			
363.		*Phreatoicidae sp.*			
364.		*Phreodrilidae sp.*			
365.		*Physidae sp.*			
366.		*Pinkfloydia harveii*			
367.		*Planorbidae sp.*			
368.		*Polypedilum nr. convexum (SAP)*			
369.		*Polypedilum watsoni*			
370.		*Prionosternum nitidiceps*			
371.		*Protochelifer cavernarum*			
372.		*Pseudotyrannochthonius giganteus*			
373.		*Pyralidae sp.*			
374.		*Raveniella peckorum*			
375.		*Rheotanytarsus sp. (SFM)*			
376.		*Rheotanytarsus trivittatus*			
377.		*Rheotanytarsus underwoodi*			
378.		*Richardsonianidae sp.*			
379.		*Riekoperla occidentalis*			
380.		*Riethia v4*			
381.		*Sciomyzidae sp.*			
382.		*Scirtidae sp.*			
383.		*Scolopendra laeta*			
384.		*Servaea spinibarbis*			
385.		*Simaetha tenuior*			

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386.		*Simuliidae sp.*			
387.		*Siphonotus flavomarginatus*			
388.		*Skusella/"V12 ex-WA" (Cranston)*			
389.		*Sphaeriidae sp.*			
390.		*Spinicrus minimus*			
391.		*Spinicrus porongorupensis*			
392.		*Staphylinidae sp.*			
393.		*Steatoda grossa*			
394.		*Sternopriscus sp.*			
395.		*Storena formosa*			
396.		*Storosa tetrica*			
397.		*Stratiomyidae sp.*			
398.		*Styloniscidae sp.*			
399.		*Supunna picta*			
400.		*Synthemistidae sp.*			
401.		*Tabanidae sp.*			
402.		*Talitridae sp.*			
403.		*Tamopsis perthensis*			
404.		*Tanypodinae sp.*			
405.		*Tanytarsus aff manleyensis*			
406.		*Tanytarsus nr K5*			
407.		*Tanytarsus palmatus*			
408.		*Taphiassa robertsi*			
409.		*Tasmanicosa leuckartii*			
410.		*Tasmanocoenis tillyardi*			
411.		*Telephlebiidae sp.*			
412.		*Temnocephalidea sp.*			
413.		*Thaumaleidae sp.*			
414.		*Thienemanniella sp. (V19) (SAP)*			
415.		*Tipulidae sp.*			
416.		*Trachytrema castaneum*			
417.	33995	*Trichosternus relictus (a ground beetle (Margaret River), beetle)*		P3	Y
418.		*Triplectides sp. AV1 (SFM)*			
419.		*Triplectides sp. AV21 (SFM)*			
420.		*Urodacus novaehollandiae*			
421.		*Veliidae sp.*			
422.		*Venator immansueta*			
423.	34113	*Westralunio carteri (Carter's Freshwater Mussel)*		T	
Mammal					
424.	24088	*Antechinus flavipes subsp. leucogaster (Yellow-footed Antechinus, Mardo)*			
425.	24209	*Arctocephalus tropicalis (Subantarctic fur-seal)*		T	
426.	24049	*Balaenoptera musculus subsp. intermedia (Antarctic Blue Whale)*		T	
427.	24161	*Bettongia lesueur subsp. graii (Boodie (inland), Burrowing Bettong (inland))*		□	
428.	24162	*Bettongia penicillata subsp. ogilbyi (Woylie, Brush-tailed Bettong)*		T	
429.		*Capreolus capreolus*			Y
430.	24086	*Cercartetus concinnus (Western Pygmy-possum, Mundarda)*			
431.	24186	*Chalinolobus gouldii (Gould's Wattled Bat)*			
432.	24187	*Chalinolobus morio (Chocolate Wattled Bat)*			
433.	24092	*Dasyurus geoffroii (Chuditch, Western Quoll)*		T	
434.	24258	*Equus caballus (Horse)*	Y		
435.	24189	*Falsistrellus mackenziei (Western False Pipistrelle, Western Falsistrelle)*		P4	
436.	24041	*Felis catus (Cat)*	Y		
437.	24215	*Hydromys chrysogaster (Water-rat, Rakali)*		P4	
438.	48588	*Isoodon fusciventer (Quenda, southwestern brown bandicoot)*		P4	
439.	24132	*Macropus fuliginosus (Western Grey Kangaroo)*			
440.	24168	*Macrotis lagotis (Bilby, Dalgyte, Ninu)*		T	
441.	24078	*Mesoplodon grayi (Gray's Beaked Whale)*			
442.	24213	*Mirounga leonina (Southern Elephant Seal)*			
443.	24146	*Myrmecobius fasciatus (Numbat, Walpurti)*		T	
444.	48024	*Notamacropus eugenii subsp. derbianus (Tammar Wallaby, Tammar)*		P4	
445.	48022	*Notamacropus irma (Western Brush Wallaby)*		P4	
446.	24194	*Nyctophilus geoffroyi (Lesser Long-eared Bat)*			
447.	24142	*Petrogale lateralis subsp. lateralis (Black-flanked Rock-wallaby, Black-footed Rock-wallaby)*		T	
448.	48401	*Petrogale sp. (rock wallaby)*		T	
449.	48070	*Phascogale tapoatafa subsp. wambenger (South-western Brush-tailed Phascogale, Wambenger)*		S	
450.	24073	*Physeter macrocephalus (Sperm Whale)*		T	
451.	24163	*Potorous gilbertii (Gilbert's Potoroo)*		T	
452.	24164	*Potorous platyops (Broad-faced Potoroo)*			

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453.	24166	*Pseudocheirus occidentalis (Western Ringtail Possum, ngwayir)*		T	
454.	24236	*Pseudomys fieldi (Shark Bay Mouse, Djoongari)*		T	
455.	24241	*Pseudomys shortridgei (Heath Mouse, Heath Rat, Dayang)*		T	
456.	24243	*Rattus fuscipes (Western Bush Rat)*			
457.	24245	*Rattus rattus (Black Rat)*	Y		
458.	24145	*Setonix brachyurus (Quokka)*		T	
459.	24109	*Sminthopsis dolichura (Little long-tailed Dunnart)*			
460.	24111	*Sminthopsis gilberti (Gilbert's Dunnart)*			
461.	24259	*Sus scrofa (Pig)*	Y		
462.	24167	*Tarsipes rostratus (Honey Possum, Noolbenger)*			
463.	25521	*Trichosurus vulpecula (Common Brushtail Possum)*			
464.	24158	*Trichosurus vulpecula subsp. vulpecula (Common Brushtail Possum)*			
465.	24069	*Tursiops truncatus (Bottlenose Dolphin)*			
466.	24206	*Vespadelus regulus (Southern Forest Bat)*			
467.	24040	*Vulpes vulpes (Red Fox)*	Y		
Reptile					
468.	42368	*Acritoscincus trilineatus (Western Three-lined Skink)*			
469.	24990	*Aprasia pulchella (Granite Worm-lizard)*			
470.	25335	*Caretta caretta (Loggerhead Turtle)*		T	
471.	43380	*Chelodina colliei (South-western Snake-necked Turtle)*			
472.	24980	*Christinus marmoratus (Marbled Gecko)*			
473.	30893	*Cryptoblepharus buchananii*			
474.	25031	*Ctenotus catenifer*			
475.	25047	*Ctenotus impar*			
476.	25049	*Ctenotus labillardieri*			
477.	25251	*Echiopsis curta (Bardick)*			
478.	25096	*Egernia kingii (King's Skink)*			
479.	25100	*Egernia napoleonis*			
480.	25250	*Elapognathus coronatus (Crowned Snake)*			
481.	30919	*Hemiergis gracilipes (skink)*			
482.	25118	*Hemiergis peronii subsp. tridactyla*			
483.	43384	*Hydrophis platurus (Yellow-bellied Seasnake)*			
484.	25131	*Lerista distinguenda*			
485.	25133	*Lerista elegans*			
486.	25154	*Lerista microtis subsp. microtis*			
487.	25155	*Lerista muelleri*			
488.	25005	*Lialis burtonis*			
489.	41416	*Liopholis pulchra subsp. pulchra (South-western Rock Skink, Spectacled Rock Skink)*			
490.	42413	*Lissolepis luctuosa (Western Swamp Skink)*			
491.	25184	*Menetia greyii*			
492.	25240	*Morelia spilota subsp. imbricata (Carpet Python)*			
493.	25191	*Morethia lineoocellata*			
494.	25192	*Morethia obscura*			
495.	25252	*Notechis scutatus (Tiger Snake)*			
496.	25253	*Parasuta gouldii*			
497.	25255	*Parasuta nigriceps*			
498.	24907	*Pogona minor subsp. minor (Dwarf Bearded Dragon)*			
499.	25259	*Pseudonaja affinis subsp. affinis (Dugite)*			
500.	25008	*Pygopus lepidopodus (Common Scaly Foot)*			
501.	30818	*Rhinoplocephalus bicolor (Square-nosed Snake)*			
502.	25519	*Tiliqua rugosa*			
503.	25207	*Tiliqua rugosa subsp. rugosa*			
504.	25225	*Varanus rosenbergi (Heath Monitor)*			

Conservation Codes
T □Rare or likely to become e□tinct
□ □Presumed e□tinct
IA □Protected under international agreement
S □□ther 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 □hose records are □holely contained □ithin the search area. Note that only those records complying □ith the search criterion are included in the calculation. For e□ample, 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 □uery area.

Australian Government
Department of the Environment and Energy

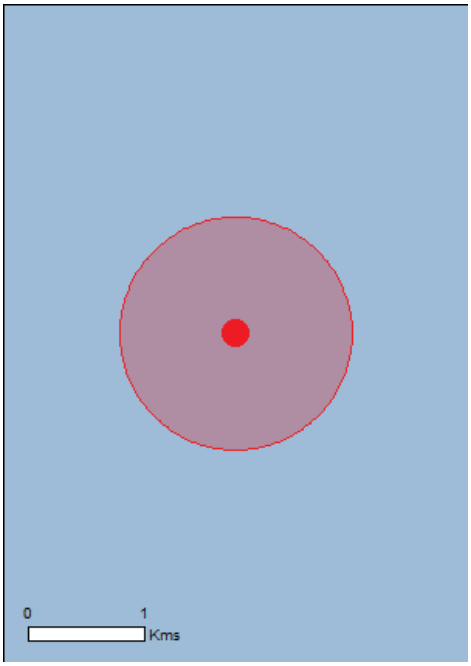
EPBC Act Protected Matters Report

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 □ualifications on data supporting this report are contained in the caveat at the end of the report.

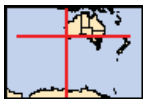
Information is available about Environment Assessments and the EPBC Act including significance guidelines, forms and application process details.

Report created□15□04□19 13□03□16



This map may contain data □hich are □Common□ealth of Australia □Geoscience Australia□, □PSMA 2010

Coordinates
Buffer□1.0□m



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, □hich can be accessed by scrolling or follo□ing the links belo□. 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 □eritage Properties□	None
National □eritage Places□	None
Wetlands of International Importance□	None
Great Barrier Reef Marine Park□	None
Common□ealth Marine Area□	None
□isted Threatened Ecological Communities□	None
□isted Threatened Species□	39
□isted Migratory Species□	39

□ther 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 re□uired for a proposed activity that significantly affects the environment on Common□ealth land, □hen the action is outside the Common□ealth land, or the environment any□here □hen the action is taken on Common□ealth land. Approval may also be re□uired for the Common□ealth or Common□ealth agencies proposing to take an action that is likely to have a significant impact on the environment any□here.

The EPBC Act protects the environment on Common□ealth land, the environment from the actions taken on Common□ealth land, and the environment from actions taken by Common□ealth agencies. As heritage values of a place are part of the 'environment', these aspects of the EPBC Act protect the Common□ealth □eritage values of a Common□ealth □eritage place. Information on the ne□ heritage la□s can be found at http□□□□□.environment.gov.au□heritage

A permit may be re□uired for activities in or on a Common□ealth area that may affect a member of a listed threatened species or ecological community, a member of a listed migratory species, □hales and other cetaceans, or a member of a listed marine species.

Common□ealth □and□	None
Common□ealth □eritage Places□	None
□isted Marine Species□	60
Whales and □ther Cetaceans□	13
Critical □abitats□	None
Common□ealth Reserves Terrestrial□	None
Australian Marine Parks□	None

E□ta Information

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

State and Territory Reserves□	1
Regional Forest Agreements□	1
Invasive Species□	23
Nationally Important Wetlands□	None
□ey Ecological Features □Marine□	None

Details

Matters of National Environmental Significance

□isted Threatened Species		□Resource Information □
Name	Status	Type of Presence
Birds		
Anous tenuirostris melanops Australian □esser Noddy □26000□	□ulnerable	Species or species habitat may occur □ithin area
Botaurus poiciloptilus Australasian Bittern □1001□	Endangered	Species or species habitat may occur □ithin area
Calidris canutus Red □not, □not □855□	Endangered	Species or species habitat may occur □ithin area
Calidris ferruginea Curle□ Sandpiper □856□	Critically Endangered	Species or species habitat may occur □ithin area
Calyptorhynchus banksii naso Forest Red□tailed Black□Cockatoo, □arrak □67034□	□ulnerable	Species or species habitat likely to occur □ithin area
Calyptorhynchus baudinii Baudin's Cockatoo, □ong□billed Black□Cockatoo □769□	Endangered	Breeding kno□n to occur □ithin area
Calyptorhynchus latirostris Carnaby's Cockatoo, Short□billed Black□Cockatoo □59523□	Endangered	Species or species habitat kno□n to occur □ithin area
Diomedea amsterdamensis Amsterdam Albatross □64405□	Endangered	Species or species habitat may occur □ithin area
Diomedea dabbenena Tristan Albatross □66471□	Endangered	Species or species habitat may occur □ithin area
Diomedea epomophora Southern Royal Albatross □89221□	□ulnerable	Foraging, feeding or related behaviour likely to occur □ithin area
Diomedea e□ulans Wandering Albatross □89223□	□ulnerable	Foraging, feeding or related behaviour likely to occur □ithin area
Diomedea sanfordi Northern Royal Albatross □64456□	Endangered	Foraging, feeding or related behaviour likely to occur □ithin area
□imosa lapponica baueri Bar□tailed God□it □baueri□, Western Alaskan Bar□tailed God□it □86380□	□ulnerable	Species or species habitat may occur □ithin

Name	Status	Type of Presence
		area
□imosa lapponica men□bieri Northern Siberian Bar□tailed God□it, Bar□tailed God□it □me□bieri□[86432□]	Critically Endangered	Species or species habitat may occur □ithin area
Macronectes giganteus Southern Giant□Petrel, Southern Giant Petrel [1060□]	Endangered	Species or species habitat may occur □ithin area
Macronectes halli Northern Giant Petrel [1061□]	□ulnerable	Species or species habitat may occur □ithin area
Numenius madagascariensis Eastern Curle□, Far Eastern Curle□ [847□]	Critically Endangered	Species or species habitat may occur □ithin area
Pachyptila turtur subantarctica Fairy Prion □southern□[64445□]	□ulnerable	Species or species habitat kno□n to occur □ithin area
Sternula nereis nereis Australian Fairy Tern [82950□]	□ulnerable	Breeding likely to occur □ithin area
Thalassarche cauta cauta Shy Albatross, Tasmanian Shy Albatross [82345□]	□ulnerable	Foraging, feeding or related behaviour likely to occur □ithin area
Thalassarche cauta steadi White□capped Albatross [82344□]	□ulnerable	Foraging, feeding or related behaviour likely to occur □ithin area
Thalassarche impavida Campbell Albatross, Campbell Black□bro□ed Albatross [64459□]	□ulnerable	Species or species habitat may occur □ithin area
Thalassarche melanophris Black□bro□ed Albatross [66472□]	□ulnerable	Species or species habitat may occur □ithin area
Mammals		
Balaenoptera musculus Blue Whale [36□]	Endangered	Species or species habitat likely to occur □ithin area
Bettongia penicillata ogilbyi Woylie [66844□]	Endangered	Species or species habitat may occur □ithin area
Dasyurus geoffroii Chuditch, Western □uoll [330□]	□ulnerable	Species or species habitat likely to occur □ithin area
Eubalaena australis Southern Right Whale [40□]	Endangered	Breeding kno□n to occur □ithin area
Megaptera novaeangliae □umpback Whale [38□]	□ulnerable	Congregation or aggregation kno□n to occur □ithin area
Neophoca cinerea Australian Sea□lion, Australian Sea □ion [22□]	□ulnerable	Species or species habitat may occur □ithin area
Pseudocheirus occidentalis Western Ringtail Possum, Ng□ayir, Womp, Woder, Ngoor, Ngoolangit [25911□]	Critically Endangered	Species or species habitat may occur □ithin area
Plants		
Drakaea micrantha D□arf □ammer□orchid [56755□]	□ulnerable	Species or species habitat may occur □ithin area

Name	Status	Type of Presence
Sphenotoma drummondii		
Mountain Paper□heath □21160□	Endangered	Species or species habitat may occur □ithin area
Reptiles		
Caretta caretta		
□oggerhead Turtle □1763□	Endangered	Breeding likely to occur □ithin area
Chelonia mydas		
Green Turtle □1765□	□ulnerable	Breeding likely to occur □ithin area
Dermochelys coriacea		
□eatherback Turtle, □eathery Turtle, □uth □1768□	Endangered	Breeding likely to occur □ithin area
Natator depressus		
Flatback Turtle □59257□	□ulnerable	Breeding likely to occur □ithin area
Sharks		
Carcharias taurus □□est coast population□		
Grey Nurse Shark □□est coast population□□68752□	□ulnerable	Species or species habitat kno□n to occur □ithin area
Carcharodon carcharias		
White Shark, Great White Shark □64470□	□ulnerable	Species or species habitat kno□n to occur □ithin area
Rhincodon typus		
Whale Shark □66680□	□ulnerable	Species or species habitat may occur □ithin area

□isted 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 S□ift □678□		Species or species habitat likely to occur □ithin area
Ardenna carneipes		
Flesh□footed Shear□ater, Fleshy□footed Shear□ater □82404□		Species or species habitat likely to occur □ithin area
Diomedea amsterdamensis		
Amsterdam Albatross □64405□	Endangered	Species or species habitat may occur □ithin area
Diomedea dabbenena		
Tristan Albatross □66471□	Endangered	Species or species habitat may occur □ithin area
Diomedea epomophora		
Southern Royal Albatross □89221□	□ulnerable	Foraging, feeding or related behaviour likely to occur □ithin area
Diomedea e□ulans		
Wandering Albatross □89223□	□ulnerable	Foraging, feeding or related behaviour likely to occur □ithin area
Diomedea sanfordi		
Northern Royal Albatross □64456□	Endangered	Foraging, feeding or related behaviour likely to occur □ithin area
□ydroprogne caspia		
Caspian Tern □808□		Foraging, feeding or related behaviour kno□n to occur □ithin area
Macronectes giganteus		
Southern Giant□Petrel, Southern Giant Petrel □1060□	Endangered	Species or species habitat may occur □ithin area

Name	Threatened	Type of Presence
Macronectes halli Northern Giant Petrel [1061]	[ulnerable	Species or species habitat may occur [ithin area
[nychoprion anaethetus Bridled Tern [82845]		Foraging, feeding or related behaviour likely to occur [ithin area
Thalassarche cauta Tasmanian Shy Albatross [89224]	[ulnerable[	Foraging, feeding or related behaviour likely to occur [ithin area
Thalassarche impavida Campbell Albatross, Campbell Black[bro[ed Albatross [64459]	[ulnerable	Species or species habitat may occur [ithin area
Thalassarche melanophris Black[bro[ed Albatross [66472]	[ulnerable	Species or species habitat may occur [ithin area
Thalassarche steadi White[capped Albatross [64462]	[ulnerable[	Foraging, feeding or related behaviour likely to occur [ithin area
Migratory Marine Species		
Balaena glacialis australis Southern Right Whale [75529]	Endangered[	Breeding kno[n to occur [ithin area
Balaenoptera edeni Bryde's Whale [35]		Species or species habitat may occur [ithin area
Balaenoptera musculus Blue Whale [36]	Endangered	Species or species habitat likely to occur [ithin area
Caperea marginata Pygmy Right Whale [39]		Species or species habitat may occur [ithin area
Carcharodon carcharias White Shark, Great White Shark [64470]	[ulnerable	Species or species habitat kno[n to occur [ithin area
Caretta caretta [oggerhead Turtle [1763]	Endangered	Breeding likely to occur [ithin area
Chelonia mydas Green Turtle [1765]	[ulnerable	Breeding likely to occur [ithin area
Dermochelys coriacea [eatherback Turtle, [eathery Turtle, [uth [1768]	Endangered	Breeding likely to occur [ithin area
[agenorhynchus obscurus Dusky Dolphin [43]		Species or species habitat may occur [ithin area
[amna nasus Porbeagle, Mackerel Shark [83288]		Species or species habitat may occur [ithin 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 [ithin area
Manta birostris Giant Manta Ray, Chevron Manta Ray, Pacific Manta Ray, Pelagic Manta Ray, [ceanic Manta Ray [84995]		Species or species habitat may occur [ithin area
Megaptera novaeangliae [umpback Whale [38]	[ulnerable	Congregation or aggregation kno[n to occur [ithin area

Name	Threatened	Type of Presence
Natator depressus		
Flatback Turtle [59257]	□ulnerable	Breeding likely to occur □ithin area
□rcinus orca		
□iller Whale, □rca [46]		Species or species habitat may occur □ithin area
Rhincodon typus		
Whale Shark [66680]	□ulnerable	Species or species habitat may occur □ithin area
Migratory Wetlands Species		
Actitis hypoleucos		
Common Sandpiper [59309]		Species or species habitat likely to occur □ithin area
Calidris acuminata		
Sharp□tailed Sandpiper [874]		Species or species habitat may occur □ithin area
Calidris canutus		
Red □not, □not [855]	Endangered	Species or species habitat may occur □ithin area
Calidris ferruginea		
Curle□ Sandpiper [856]	Critically Endangered	Species or species habitat may occur □ithin area
Calidris melanotos		
Pectoral Sandpiper [858]		Species or species habitat may occur □ithin area
□imosa lapponica		
Bar□tailed God□it [844]		Species or species habitat may occur □ithin area
Numenius madagascariensis		
Eastern Curle□, Far Eastern Curle□ [847]	Critically Endangered	Species or species habitat may occur □ithin area
Pandion haliaetus		
□sprey [952]		Breeding kno□n to occur □ithin area

□ther Matters Protected by the EPBC Act

□isted 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 likely to occur □ithin area
Anous tenuirostris melanops		
Australian □esser Noddy [26000]	□ulnerable	Species or species habitat may occur □ithin area
Apus pacificus		
Fork□tailed S□ift [678]		Species or species habitat likely to occur □ithin area
Ardea alba		
Great Egret, White Egret [59541]		Species or species habitat likely to occur □ithin area
Ardea ibis		
Cattle Egret [59542]		Species or species

Name	Threatened	Type of Presence
		habitat may occur □ithin area
Calidris acuminata Sharp□tailed Sandpiper □874□		Species or species habitat may occur □ithin area
Calidris canutus Red □not, □not □855□	Endangered	Species or species habitat may occur □ithin area
Calidris ferruginea Curle□ Sandpiper □856□	Critically Endangered	Species or species habitat may occur □ithin area
Calidris melanotos Pectoral Sandpiper □858□		Species or species habitat may occur □ithin area
Diomedea amsterdamensis Amsterdam Albatross □64405□	Endangered	Species or species habitat may occur □ithin area
Diomedea dabbenena Tristan Albatross □66471□	Endangered	Species or species habitat may occur □ithin area
Diomedea epomophora Southern Royal Albatross □89221□	□ulnerable	Foraging, feeding or related behaviour likely to occur □ithin area
Diomedea e□ulans Wandering Albatross □89223□	□ulnerable	Foraging, feeding or related behaviour likely to occur □ithin area
Diomedea sanfordi Northern Royal Albatross □64456□	Endangered	Foraging, feeding or related behaviour likely to occur □ithin area
□aliaeetus leucogaster White□bellied Sea□Eagle □943□		Species or species habitat likely to occur □ithin area
□imosa lapponica Bar□tailed God□it □844□		Species or species habitat may occur □ithin area
Macronectes giganteus Southern Giant□Petrel, Southern Giant Petrel □1060□	Endangered	Species or species habitat may occur □ithin area
Macronectes halli Northern Giant Petrel □1061□	□ulnerable	Species or species habitat may occur □ithin area
Merops ornatus Rainbo□ Bee□eater □670□		Species or species habitat may occur □ithin area
Numenius madagascariensis Eastern Curle□, Far Eastern Curle□ □847□	Critically Endangered	Species or species habitat may occur □ithin area
Pachyptila turtur Fairy Prion □1066□		Species or species habitat kno□n to occur □ithin area
Pandion haliaetus □sprey □952□		Breeding kno□n to occur □ithin area
Puffinus assimilis □ittle Shear□ater □59363□		Foraging, feeding or related behaviour kno□n to occur □ithin area

Name	Threatened	Type of Presence
Puffinus carneipes Flesh□footed Shear□ater, Fleshy□footed Shear□ater □1043□		Species or species habitat likely to occur □ithin area
Sterna anaethetus Bridled Tern □814□		Foraging, feeding or related behaviour likely to occur □ithin area
Sterna caspia Caspian Tern □59467□		Foraging, feeding or related behaviour kno□n to occur □ithin area
Thalassarche cauta Tasmanian Shy Albatross □89224□	□ulnerable□	Foraging, feeding or related behaviour likely to occur □ithin area
Thalassarche impavida Campbell Albatross, Campbell Black□bro□ed Albatross □64459□	□ulnerable	Species or species habitat may occur □ithin area
Thalassarche melanophris Black□bro□ed Albatross □66472□	□ulnerable	Species or species habitat may occur □ithin area
Thalassarche steadi White□capped Albatross □64462□	□ulnerable□	Foraging, feeding or related behaviour likely to occur □ithin area
Thinornis rubricollis □ooded Plover □59510□		Species or species habitat kno□n to occur □ithin area
Fish		
Acentronura australe Southern Pygmy Pipehorse □66185□		Species or species habitat may occur □ithin area
Campichthys galei Gale's Pipefish □66191□		Species or species habitat may occur □ithin area
□eraldia nocturna □pside□do□n Pipefish, Eastern □pside□do□n Pipefish, Eastern □pside□do□n Pipefish □66227□		Species or species habitat may occur □ithin area
□ippocampus angustus Western Spiny Seahorse, Narro□□bellied Seahorse □66234□		Species or species habitat may occur □ithin area
□ippocampus breviceps Short□head Seahorse, Short□snouted Seahorse □66235□		Species or species habitat may occur □ithin area
□ippocampus subelongatus West Australian Seahorse □66722□		Species or species habitat may occur □ithin area
□istiogamphelus cristatus Rhino Pipefish, Macleay's Crested Pipefish, Ring□back Pipefish □66243□		Species or species habitat may occur □ithin area
□issocampus caudalis Australian Smooth Pipefish, Smooth Pipefish □66249□		Species or species habitat may occur □ithin area
□issocampus fatilo□uus Prophet's Pipefish □66250□		Species or species habitat may occur □ithin area
□issocampus runa □avelin Pipefish □66251□		Species or species habitat may occur □ithin area

Name	Threatened	Type of Presence
Maroubra perserrata Sa□tooth Pipefish [66252]		Species or species habitat may occur □ithin area
Mitotichthys meraculus Western Crested Pipefish [66259]		Species or species habitat may occur □ithin area
Nannocampus subosseus Bonyhead Pipefish, Bony□headed Pipefish [66264]		Species or species habitat may occur □ithin area
Phycodurus e□ues □eafy Seadragon [66267]		Species or species habitat may occur □ithin area
Phylloptery□taeniolatus Common Seadragon, Weedy Seadragon [66268]		Species or species habitat may occur □ithin area
Pugnaso curtirostris Pugnose Pipefish, Pug□nosed Pipefish [66269]		Species or species habitat may occur □ithin area
Solegnathus lettiensis Gunther's Pipehorse, Indonesian Pipefish [66273]		Species or species habitat may occur □ithin area
Stigmatopora argus Spotted Pipefish, Gulf Pipefish, Peacock Pipefish [66276]		Species or species habitat may occur □ithin area
Stigmatopora nigra Widebody Pipefish, Wide□bodied Pipefish, Black Pipefish [66277]		Species or species habitat may occur □ithin area
□rocampus carinirostris □airy Pipefish [66282]		Species or species habitat may occur □ithin area
□anacampus margaritifer Mother□of□pearl Pipefish [66283]		Species or species habitat may occur □ithin area
□anacampus phillipi Port Phillip Pipefish [66284]		Species or species habitat may occur □ithin area
□anacampus poecilolaemus □ongsnout Pipefish, Australian □ong□snout Pipefish, □ong□snouted Pipefish [66285]		Species or species habitat may occur □ithin area
Mammals		
Arctocephalus forsteri □ong□nosed Fur□seal, Ne□ □ealand Fur□seal [20]		Species or species habitat may occur □ithin area
Neophoca cinerea Australian Sea□ion, Australian Sea □ion [22]	□ulnerable	Species or species habitat may occur □ithin area
Reptiles		
Caretta caretta □oggerhead Turtle [1763]	Endangered	Breeding likely to occur □ithin area
Chelonia mydas Green Turtle [1765]	□ulnerable	Breeding likely to occur □ithin area
Dermochelys coriacea □eatherback Turtle, □eathery Turtle, □uth [1768]	Endangered	Breeding likely to occur □ithin area
Natator depressus Flatback Turtle [59257]	□ulnerable	Breeding likely to occur

Name	Threatened	Type of Presence
		□ithin area

Whales and other Cetaceans — □Resource Information □

Name	Status	Type of Presence
Mammals		
Balaenoptera acutorostrata Minke Whale □33□		Species or species habitat may occur □ithin area
Balaenoptera edeni Bryde's Whale □35□		Species or species habitat may occur □ithin area
Balaenoptera musculus Blue Whale □36□	Endangered	Species or species habitat likely to occur □ithin area
Caperea marginata Pygmy Right Whale □39□		Species or species habitat may occur □ithin area
Delphinus delphis Common Dophin, Short□beaked Common Dolphin □60□		Species or species habitat may occur □ithin area
Eubalaena australis Southern Right Whale □40□	Endangered	Breeding kno□n to occur □ithin area
Grampus griseus Risso's Dolphin, Grampus □64□		Species or species habitat may occur □ithin area
□agenorhynchus obscurus Dusky Dolphin □43□		Species or species habitat may occur □ithin area
Megaptera novaeangliae □umpback Whale □38□	□ulnerable	Congregation or aggregation kno□n to occur □ithin area
□rcinus orca □iller Whale, □rca □46□		Species or species habitat may occur □ithin area
Stenella attenuata Spotted Dolphin, Pantropical Spotted Dolphin □51□		Species or species habitat may occur □ithin area
Tursiops aduncus Indian □cean Bottlenose Dolphin, Spotted Bottlenose Dolphin □68418□		Species or species habitat likely to occur □ithin area
Tursiops truncatus s. str. Bottlenose Dolphin □68417□		Species or species habitat may occur □ithin area

E□ta Information

State and Territory Reserves — □Resource Information □

Name	State
□eeu□in□Naturaliste	WA

Regional Forest Agreements — □Resource Information □

Note that all areas □ith 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 senegalensis Laughing Turtledove, Laughing Dove [781]		Species or species habitat likely to occur within area
Sturnus vulgaris Common Starling [389]		Species or species habitat likely to occur within area
Mammals		
Bos taurus Domestic Cattle [16]		Species or species 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 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 asparagoides Bridal Creeper, Bridal Veil Creeper, Smilax, Florist's Smilax, Smilax Asparagus [22473]		Species or species habitat likely to occur within area
Cenchrus ciliaris Buffelgrass, Black Buffelgrass [20213]		Species or species habitat may occur within area
Chrysanthemoides monilifera subsp. monilifera Boneseed [16905]		Species or species habitat likely to occur

Name	Status	Type of Presence
		□ithin area
Genista linifolia Fla□□leaved Broom, Mediterranean Broom, Fla□Broom □2800□		Species or species habitat likely to occur □ithin area
Genista monspessulana Montpellier Broom, Cape Broom, Canary Broom, Common Broom, French Broom, Soft Broom □20126□		Species or species habitat likely to occur □ithin area
Genista sp. □ Genista monspessulana Broom □67538□		Species or species habitat may occur □ithin area
□ycium ferocissimum African Bo□thorn, Bo□thorn □19235□		Species or species habitat likely to occur □ithin area
Pinus radiata Radiata Pine Monterey Pine, Insignis Pine, Wilding Pine □20780□		Species or species habitat may occur □ithin area
Rubus fruticosus aggregate Blackberry, European Blackberry □68406□		Species or species habitat likely to occur □ithin area
Tamari□aphylla Athel Pine, Athel Tree, Tamarisk, Athel Tamarisk, Athel Tamari□, Desert Tamarisk, Flo□ering Cypress, Salt Cedar □16018□		Species or species habitat likely to occur □ithin area

Caveat

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

This report is designed to assist in identifying the locations of places □hich may be relevant in determining obligations under the Environment Protection and Biodiversity Conservation Act 1999. It holds mapped locations of World and National □eritage properties, Wetlands of International and National Importance, Common□ealth and State□Territory reserves, listed threatened, migratory and marine species and listed threatened ecological communities. Mapping of Common□ealth 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 belo□ □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 □ualifications belo□ and may need to seek and consider other information sources.

For threatened ecological communities □here the distribution is □ell kno□n, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less □ell kno□n, e□isting 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 □ell kno□n and if time permits, maps are derived using either thematic spatial data □i.e. vegetation, soils, geology, elevation, aspect, terrain, etc□together □ith point locations and described habitat□or environmental modelling □MA□ENT or BI□C□IM habitat modelling□using point locations and environmental data layers.

Where very little information is available for species or large number of maps are re□uired 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 techni□ues □static t□o kilometre grid cells, alpha□hull and conve□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 □ere defined by degree blocks, 100□ or 250□ map sheets to rapidly create distribution maps. More reliable distribution mapping methods are used to update these distributions as time permits.

□nly selected species covered by the follo□ing provisions of the EPBC Act have been mapped□

- □migratory and
- □marine

The follo□ing species and ecological communities have not been mapped and do not appear in reports produced from this database□

- □threatened species listed as e□tinct or considered as vagrants
- □some species and ecological communities that have only recently been listed
- □some terrestrial species that overfly the Common□ealth marine area
- □migratory species that are very □idespread, vagrant, or only occur in small numbers

The follo□ing groups have been mapped, but may not cover the complete distribution of the species□

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

Such breeding sites may be important for the protection of the Common□ealth Marine environment.

Coordinates

□33.97104 114.99517

Ackno□ledgements

This database has been compiled from a range of data sources. The department ackno□ledges the follo□ing custodians □ho have contributed valuable data and advice□

- □□ffice of Environment and □eritage, Ne□ South Wales
- □Department of Environment and Primary Industries, □ictoria
- □Department of Primary Industries, Parks, Water and Environment, Tasmania
- □Department of Environment, Water and Natural Resources, South Australia
- □Department of □and and Resource Management, Northern Territory
- □Department of Environmental and □eritage Protection, □ueensland
- □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 □ictoria
- □Australian Museum
- □South Australian Museum
- □□ueensland Museum
- □□nline □oological Collections of Australian Museums
- □□ueensland □erbarium
- □National □erbarium of NSW
- □Royal Botanic Gardens and National □erbarium of □ictoria
- □Tasmanian □erbarium
- □State □erbarium of South Australia
- □Northern Territory □erbarium
- □Western Australian □erbarium
- □Australian National □erbarium, Canberra
- □□niversity of Ne□ England
- □□cean Biogeographic Information System
- □Australian Government, Department of Defence
- Forestry Corporation, NSW
- □Geoscience Australia
- □CSIR□
- □Australian Tropical □erbarium, 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 □ife Survey Australia
- □American Museum of Natural □istory
- □□ueen □ictoria Museum and Art Gallery, Inveresk, Tasmania
- □Tasmanian Museum and Art Gallery, □obart, Tasmania
- □□ther groups and individuals

The Department is e□tremely grateful to the many organisations and individuals □ho provided e□pert advice and information on numerous draft distributions.

Please feel free to provide feedback via the Contact □s page.

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APPENDIX D

BLACK COCKATOO HABITAT TREE DETAILS

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

Waypoint Number	Zone	mE	mN	Tree Species	Tree Height (m)	DBH (cm)	Number of Hollows	Estimated Hollow Entrance Size	Occupancy	Chew Marks	Potential Cockatoo Nest Hollow	Comments
wpt005	50H	314908	6239457	Marri	15-20	>50	2+	Small	No Signs	No Signs	No	
wpt010	50H	314881	6239453	Marri	15-20	>50	0					
wpt011	50H	314871	6239423	Marri	15-20	>50	0					

DISCLAIMER

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

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

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

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

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