

TARGETED WESTERN RINGTAIL POSSUM SURVEY



Lot 501 Swarbrick Street - Emu Point Aquaculture Development

Emu Point WA 6330

Final

09/02/2022



DOCUMENT CONTROL

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Reviewer (s): C. vd. Mescht and K. Kinnear

Job No.: MSC0296-005

Client: Harvest Road Oceans Pty Ltd

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1. Introduction, Scope and Background Information

Harvest Road Ocean Pty Ltd (the client) are in the process of applying for an application to DWER to clear native vegetation under CPS9246-2 (refer to Figure 1). Bio Diverse Solutions was commissioned as Environmental Consultants to undertake a targeted western ringtail possum (*Pseudocheirus occidentalis*; CR) survey of the approximately 0.05 ha survey area within Lot 501 Swarbrick Street, and the adjacent road reserves to assist with the CPS9246-2 application.

The scope of works included:

- Undertake a targeted threatened fauna survey specifically pertaining to western ringtail possum (WRP; *Pseudocheirus occidentalis*; CR) and their habitat, field GPS fauna habitat and Threatened and Priority fauna (if present);
- Prepare IBSA data package as per EPA guidelines, and provide to client at completion of survey (as required to be submitted via the IBSA website by the client); and
- Preparation of a targeted fauna survey report, which will be aligned with the appropriate government agency legislation and guidelines.

The field survey was undertaken by Bianca Theyer (Ecologist / Conservation and Wildlife Biologist) and Charlize van der Mescht (Environmental Consultant) of Bio Diverse Solutions on the 2nd February 2022.

1.1. Location and Existing Land Use

The “survey area” is defined as the approximately 0.05 ha area within Lot 501 Swarbrick Street, Emu Point in the City of Albany and includes the road reserve to the southwest along Swarbrick Street. The road reserves have been included in the survey area as there are electrical cables proposed to be placed underground along the road reserve (refer to proposed works plan Appendix A). The survey area is located approximately 6 km northeast of the Albany CBD. The survey area is currently vegetated. Refer to Figure 1 for survey area and location mapping.

1.2. Alignment to Legislation, Guidelines and Policies

This survey and subsequent report is aligned to the following legislation, guidelines and policies:

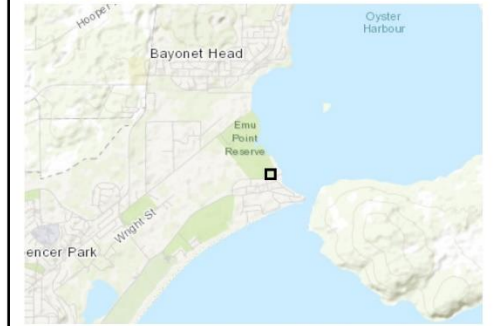
- EPA (2020) Technical Guidance – Terrestrial vertebrate fauna surveys for environmental impact assessment;
- *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act);
- *Environmental Protection Act 1986* (EP Act);
- *Biodiversity Conservation Act 2016* (BC Act); and
- DSEWPoC (2011) Survey guidelines for Australia’s threatened mammals.



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Overview Map Scale 1:100,000

Legend

- Proposed Ammended Clearing Area
- Approved Clearing Area (CPS 9246-1)
- Cadastre



Scale
1:500 @ A3
GDA MGA 94 Zone 50

Data Sources
Aerial Imagery: SLIP Virtual Mosaic WMS Service, Landgate 2016
Cadastre and Contours: Landgate 2016
Overview Map: World Topographic map service, ESRI 2012

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Figure 1: Survey area locality.

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FINAL	MSC0296-005	03/02/2022

1.3. Geology and Soils

Database searches show the survey area's geology lies within the Mount Manypeaks System (242Mm). The Mount Manypeaks System is described as *"Granitic hills and headlands, on the southern edge of the Albany Sandplain Zone, with shallow gravel, bare rock grey shallow sandy duplex and sandy gravel. Low woodland, scrub heath and mosses and lichens on rocks."* (DPIRD, 2021).

The Albany Sandplain Zone (242) is described as *"Gently undulating plain dissected by a number of short rivers flowing south. Eocene marine sediments overlying Proterozoic granitic and metamorphic rocks. Soils are sandy duplex soils, often alkaline and sodic, with some sands and gravels."* (DPIRD, 2018). The soil type within the application area is mapped as the Meerup beach ridges Phase (242MmMRr) and is described as *"Beach ridges; peppermint heath and banksia woodland."* (DPIRD, 2019a).

The survey area is located within "High to moderate" Acid Sulphate Soils (ASS) risk mapping (DWER, 2017) indicating there is a risk of ASS occurring within 3m of the natural soil surface.

1.4. Climate

The closest open Bureau of Meteorology (BoM) site is Albany (009500). The average annual temperature ranges from 8.2 – 22.9°C. The average summer temperature ranges between 14.1-22.9°C, whilst average winter temperatures range between 8.2-16.7°C (BoM, 2022). The annual mean rainfall is 925.2 mm. On average the months of May to September are the months with the highest rainfall (Figure 2). There has been higher than average rainfall across the months of February, April, May, July, September and October with very large rainfall events in April, May and July (Figure 2). Total rainfall in the year previous to the survey (February 2021 – January 2022) was 979.6 mm which is 54.4mm above average and equates to 5.9% increase in the average annual rainfall. Note: there was no rainfall data recorded for the month of June 2021 so the total rainfall is likely to be more than that recorded above.

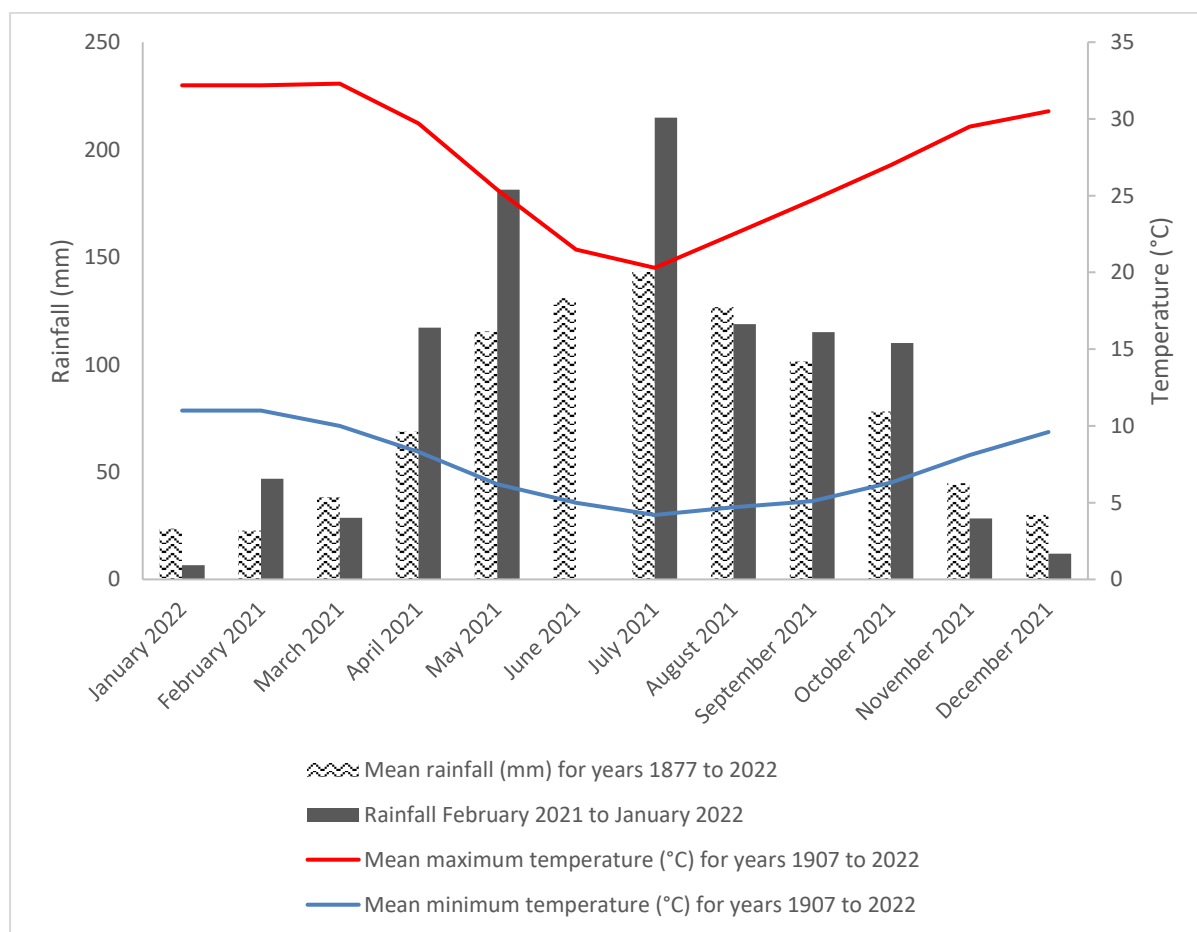


Figure 2: Temperature and rainfall data for Albany BoM Weather Station No. 009500.

1.5. Habitat connectivity

Habitat connectivity assessments rely on a bioregional and landscape-scale approach to evaluate habitat for fauna movement and ecological linkage across a region. Habitat connectivity is largely reliant on remnant vegetation, recognising it plays a very important role in developing corridors between protected areas to assist in achieving long-term biodiversity management outcomes (Wilkins *et al.* 2006). The survey area lies within the semi-developed area of Emu Point, with residential areas of developed lots present to the south and a developed boat harbour to the east of the survey area. To the north and west of the survey area is Boronia Reserve, with the Oyster Harbour to the east. There is existing remnant vegetation present in the surrounding reserve, which provides connection to larger areas of remnant vegetation throughout the broader area (Figure 1).

1.6. Water and Wetlands

The survey area does not lie within any Public Drinking Water Source areas (DWER, 2020a). The survey area lies within the Lake Seppings consanguineous wetland suites dataset (DBCA, 2017a; Figure 3). Lake Seppings is the nearest Conservation Class wetland located approximately 2.89km to the southwest of the survey area (DBCA, 2017b).

Oyster Harbour is located approximately 123m to the east of the survey area, with both minor and major perennial watercourses associated with this system located approximately 325m to the northwest.

1.7. Environmentally Sensitive Areas

The survey area falls within the extent of a mapped Environmentally Sensitive Area (ESA) with the north-eastern corner lying within a mapped ESA area (Figure 3; DWER, 2020b).

1.8. Remnant vegetation

The survey area lies within the Jarrah Forest (JAF02) IBRA Bioregion. Hearn *et al.* (2002) describes the Southern Jarrah Forest Bioregion as “*Duricrusted plateau of Yilgarn Craton characterised by Jarrah-Marri forest on laterite gravels and, in the eastern part, by Wandoo - Marri woodlands on clayey soils. Eluvial and alluvial deposits support Agonis shrublands. In areas of Mesozoic sediments, Jarrah forests occur in a mosaic with a variety of species-rich shrublands.*”

The vegetation of the Western Australia was mapped on a broad scale by J.S. Beard in the 1970's, where a system was devised for state-wide mapping and vegetation classification based on geographic, geological, soil, climate structure, life form and vegetation characteristics (Shepherd *et al.* 2002; Sandiford and Barrett 2010; Beard *et al.* 2013). The survey area is within the Albany Vegetation Association as classified under this mapping system (Figure 4; Beard *et al.* 2013; DPIRD, 2019b).

- **Vegetation Association Name:** Albany.
- **Vegetation Association Number:** 51.
- **Vegetation Description:** Sedgeland.
- **Floristic Description:** Cyperaceae, Restionaceae, Juncaceae (mainly in the South-West).
- **Remnant Vegetation by Beard Association Rarity in LGA:** 32.70% remaining (GoWA, 2019).
- **Remnant Vegetation by Beard Association Rarity in IBRA Region:** 36.01% remaining (GoWA, 2019).

The vegetation of the South Coast of Western Australia has also been mapped at a finer scale as a result of the Albany Regional Vegetation Survey (ARVS) (Sandiford and Barrett 2010). The ARVS vegetation type that has been mapped within the survey area (Figure 4) is:

- Coastal *Banksia ilicifolia*/Peppermint Low Woodland.

1.9. Western Ringtail Possum Habitat

Western ringtail possums (*Pseudocheirus occidentalis*, CR) on the South Coast of Western Australia inhabit a variety of woodland habitats including those dominated by peppermint, marri and eucalypt (jarrah and Albany blackbutt (*Eucalyptus staerlii*)), sheoak (*Allocasuarina fraseriana*), karri (*Eucalyptus diversicolor*), Bullich (*Eucalyptus megacarpa*) and coastal heath (Jones *et al.* 1994a, b; Gilfillan 2008; Department of Parks & Wildlife 2017; Van Helden *et al.* 2018; Bader *et al.* 2019; Mathieson *et al.* 2020). The diet of the western ringtail possum almost exclusively consists of foliage from dominant or co-dominant upper and mid-storey myrtaceous plants such as peppermint, marri and jarrah (Jones *et al.* 1994b). Recent research

in the Albany area has shown that the diet of western ringtail possums in the region may be more varied than previously thought, with other eucalypt species and sheoak also providing suitable foraging opportunities, as well as other non-myrtaceous species such as *Adenanthos spp.*, *Banksia spp.*, *Gastrolobium spp.*, *Hakea spp.* and *Nuytsia floribunda* (Gilfillan 2008; Van Helden *et al.* 2018; Bader *et al.* 2019; Mathieson *et al.* 2020). Based on known habitat preferences for this species the survey area is likely to contain suitable habitat for breeding and foraging.

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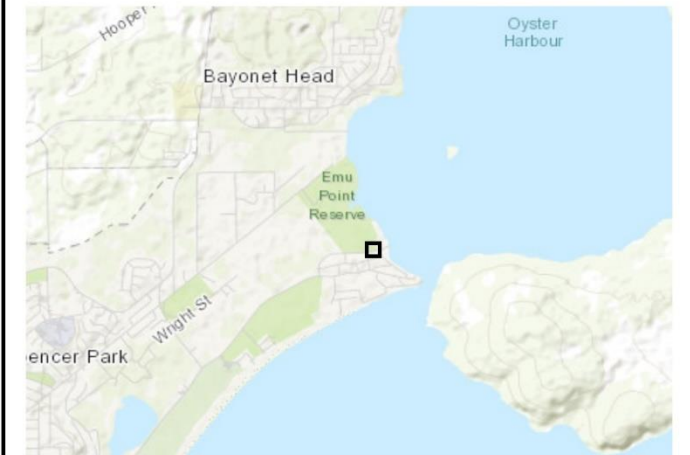


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Overview Map Scale 1:100,000

Legend

- Proposed Ammended Clearing Area
- Approved Clearing Area (CPS 9246-1)
- Cadastre

Clearing Regulations - ESAs (DWER_046)

- Clearing Regulations - ESAs (DWER_046)

Consanguineous Wetlands Suites (DBCA_020)

- Lake Seppings
- Manypeaks



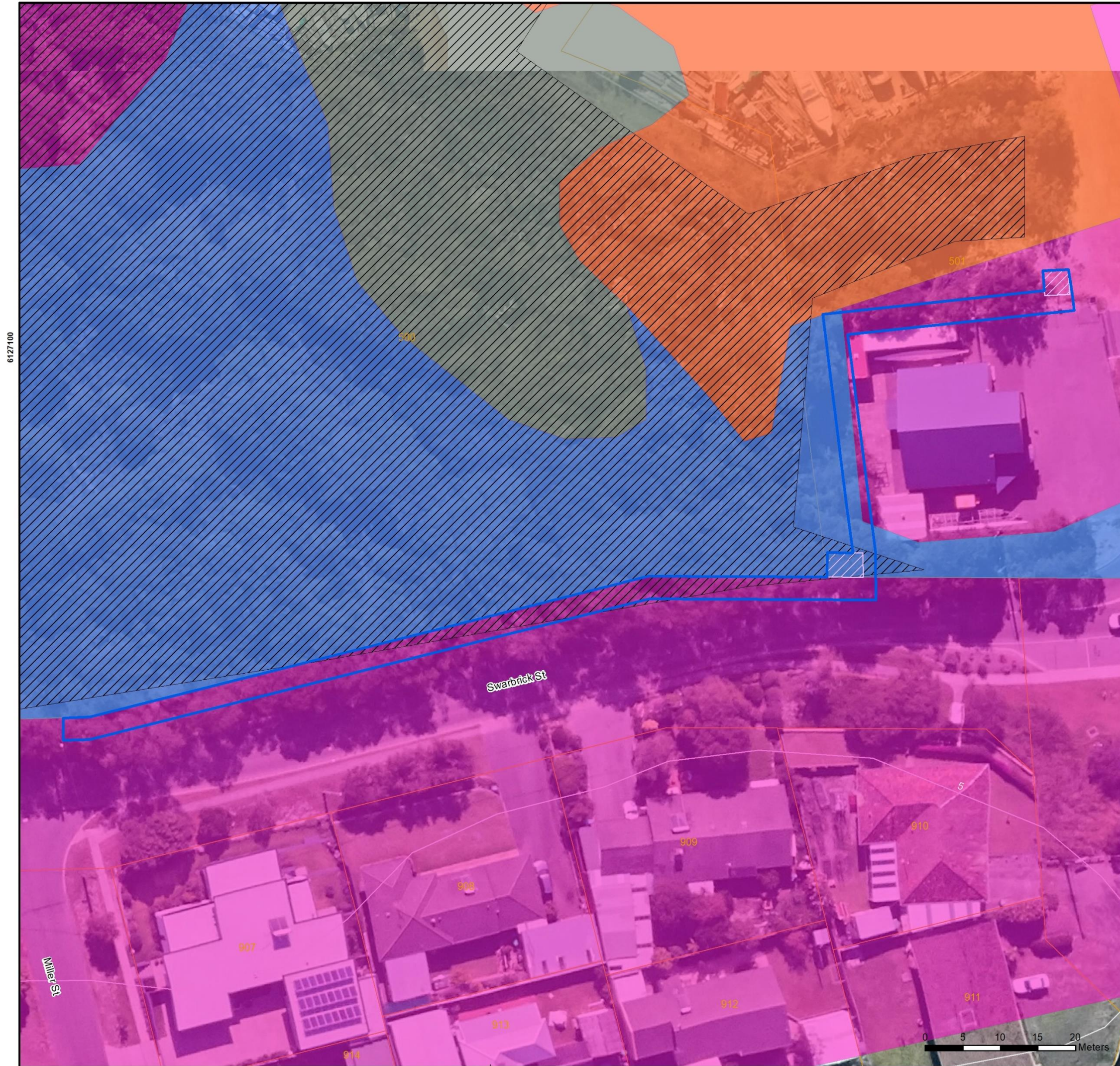
Scale
1:500 @ A3
GDA MGA 94 Zone 50

Data Sources
Aerial Imagery: SLIP Virtual Mosaic WMS Service, Landgate 2016
Cadastre and Contours: Landgate 2016
Overview Map: World Topographic map service, ESRI 2012

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Figure 3: Desktop Wetland and ESA Data

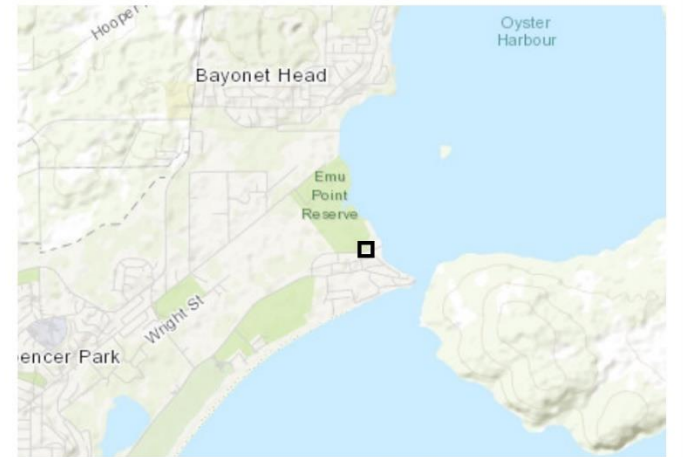
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Overview Map Scale 1:100,000

Legend

- Proposed Amended Clearing Area
- Approved Clearing Area (CPS 9246-1)
- Cadastre
- Native Vegetation Extent (DPIRD_005)

Albany Regional Vegetation Survey (ARVS)

- Coastal Banksia ilicifolia/Peppermint Low Woodland
- Coastal Melaleuca cuticularis Low Forest
- Peppermint Low Forest

Pre European Vegetation (DPIRD_006)

- Albany 51



Scale
1:500 @ A3
GDA MGA 94 Zone 50

Data Sources
Aerial Imagery: SLIP Virtual Mosaic WMS Service, Landgate 2016
Cadastre and Contours: Landgate 2016
Overview Map: World Topographic map service, ESRI 2012

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Figure 4: Desktop Vegetation Data

STATUS	FILE	DATE
FINAL	MSC0296-005	03/02/2022

2. Methodology - Desktop and Field

A desktop inventory of conservation significant fauna species known to occur within 10km of the survey area was undertaken using the following databases to ascertain additional threatened and conservation significant species that may occur within the survey area:

- Atlas of Living Australia Database Search - utilised as NatureMap is currently unavailable (ALA, 2022); and
- Protected matters search tool (DAWE, 2022).

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 Department of Agriculture, Water and the Environment (DAWE); and
- *Biodiversity Conservation Act 2016* (BC Act). Administered by the Western Australian Department of Biodiversity Conservation and Attractions (DBCA).

The scope of this targeted fauna survey was to undertake a linear survey to assess whether the vegetation present in the survey area is suitable for the conservation significant western ringtail possum (*Pseudocheirus occidentalis*; CR [Table 3, Appendix B]). The survey included adjacent habitat and observational sightings of other fauna such as tracks, scats and direct observations to gain a better understanding of the wider habitat. This is to ascertain if suitable habitat for WRP and other threatened and priority fauna is present outside the survey area and whether they are using the linear survey area.

Field survey work was carried out by Bianca Theyer (Ecologist / Conservation and Wildlife Biologist) and Charlize van der Mescht (Environmental Consultant) on 2nd February 2022, in accordance with Technical Guidance: Terrestrial vertebrate fauna surveys for environmental impact assessment (EPA, 2020). Refer to Figure 12 in Appendix A for survey effort.

The assessment was carried out in a manner consistent with the following documents developed by the EPA and Department of Agriculture, Water and the Environment (DAWE) formerly the Department of Sustainability, Water, Population, and Communities (DSEWPac) and Department of the Environment, Water, Heritage and the Arts (DEWHA):

- EPA (2020) Technical Guidance – Terrestrial vertebrate fauna surveys for environmental impact assessment; and
- DSEWPac (2011) Survey guidelines for Australia's threatened mammals.

The results presented are based upon field data collected over a limited period of time and are indicative of the environmental condition of the survey area at the time. Survey limitations are outlined in Table 1, none are deemed to have significantly impacted the targeted survey.

2.1. Western Ringtail Possum Habitat Assessment

The survey area and adjacent vegetation was assessed for indicators of western ringtail possum (*Pseudocheirus occidentalis*) presence through systematic searching for tree scratching, scats, dreys, individuals and any trees with suitably sized hollows (EPA, 2020). Trees were inspected for potential hollows, and if present, hollows were assessed based on size, shape and signs of use through scratch marks, rubbing around the entrance and scats nearby. Indicators of activity were GPS located and photographed. If potentially suitable hollows were detected, these were also GPS'd and the hollow entrance dimensions and entrance type were recorded.

Table 1: Survey Limitations and Constraints

Limitation	Significance of limitation	Comment
Scope	Nil	The scope was a targeted fauna survey aimed at identifying suitable habitat for western ringtail possum.
Disturbances that may affect results	Nil	No recent disturbances were observed to have impacted the vegetation.

Table 1 continued.

Limitation	Significance of limitation	Comment
Intensity of survey	Nil	<p>The targeted assessment was deemed appropriate, given the main cause for concern within the area is western ringtail possums and the potentially suitable habitat within the survey area.</p> <p>With respect to opportunistic observations, the possibility exists that certain species may not have been detected during field investigations.</p>
Sources of information (recent or historic) and availability of contextual information	Minor	<p>No contextual site-specific data is available for the survey area, and no DBCA data was requested prior to undertaking the survey. The DWER RFI letter sighted there were 21 records of WRP within 1km of the area, with the nearest 54m from the proposed clearing location. To Bio Diverse Solutions' knowledge, no other fauna surveys have previously been carried out across the survey area. This is not considered a significant limiting factor for this survey.</p>
Remoteness or access issues	Nil	<p>The property was readily accessible with no access restrictions. The survey area was traversed by foot.</p>
Seasonality of activity and fauna movement patterns	Nil	<p>Western ringtail possums occupy stable and relatively small home ranges and if present in an area are likely to be detected throughout the year.</p>
Survey limitations	Minor	<p>The survey was undertaken during the day, and as such there is the possibility that individuals were not directly observed. However, if present indicators of species presence such as dreys and scats will be evident within the survey area. The relative visibility of the canopy can also be limiting in identifying potential dreys, as they can be obscured by surrounding foliage.</p> <p>Identifying hollows from the ground has limitations, as the full characteristics of a hollow are not evident (e.g., internal dimensions such as depth). The entrance dimensions and size of the branch / trunk into which the hollow was forming were used as indicators of the potential internal dimensions. The relative visibility of the canopy can also be limiting in identifying potential hollows, particularly where hollows are upward facing or obscured by foliage.</p>
Experience of personnel	Nil	<p>Bianca Theyer has 5 years of fauna survey experience through her role at Bio Diverse Solutions and has been mentored by Dr Karlene Bain (Wildlife Ecologist) during this time. She has 6 years' experience assisting other Zoologists (Bush Heritage, Australian Wildlife Conservancy and DBCA) in a voluntary capacity with fauna monitoring surveys.</p> <p>Charlize van der Mescht has been with Bio Diverse Solutions since 2019 and has undertaken the role of Technical Assistant since 2020. She has assisted Bianca Theyer and Dr. Karlene Bain on multiple fauna surveys during this time.</p>

3. Field Survey Results

3.1. Fauna Habitat

Fauna habitat present within the survey area is described as an open woodland of *Agonis flexuosa*. The midstorey consists of occasional *Adenanthos sericeus*, *Spyridium globulosum*, *Leucopogon obovatus*, *Rhagodia baccata*, *Acacia pulchella* and *Acacia* sp. The understorey consists of *Hibbertia* sp., *Lepidosperma gladiatum*, *Lepidosperma* sp., *Desmocladius flexuosus*, *Ficinia nodosa*, *Billardiera fusiformis*, and introduced species such as *Cenchrus clandestinus* (Kikuyu), *Lagurus ovatus* (Hare's Tail Grass), *Pelargonium capitatum* (Rose pelargonium), *Asparagus asparagoides* (Bridal creeper), *Oxalis* sp., *Trifolium* sp., *Asparagus* sp., and *Gladiolus* sp. (Figure 5 and 9). The vegetation located along the northern and western edge of the Albany Boating and Fishing Club building is more open and lacks a consistent mid and understorey layer. The vegetation in the survey area is considered to be in a Good to Very Good condition (Keighery, 1994).



Figure 5: Photographs of fauna habitat present within the survey area.

3.2. Survey Outcomes

3.3. Western Ringtail Possum Survey Outcomes

One western ringtail possum (*Pseudocheirus occidentalis*) drey (Drey 1) was identified on the edge of the survey area / proposed clearing area in an *Agonis flexuosa* tree. An additional three dreys were located in vegetation outside of the survey area (Figure 6 and 10). Drey 1 was noted to have been well maintained and it appeared it may have been occupied at the time of survey. Visual of the drey was somewhat obscured so it cannot be confirmed there was an animal present. In addition, there was a high level of scat observed on the ground in the surrounding area (Figure 7). Drey 2, 3 and 4 were recorded outside of the survey area, in the surrounding vegetation. Drey 2 is located in an *A. flexuosa* tree to the east of the survey area. This drey had some level of maintenance and old scats were observed at the base of the tree. Drey 3 and Drey 4 are located to the north of the survey area, and both had some level of maintenance observed. Drey 3 is located in an *A. flexuosa* tree and Drey 4 was observed in the fork of a dead paperbark tree. A western ringtail possum (*P. occidentalis*) individual was observed in the canopy of the tree in which Drey 3 is located (Figure 7).

There is a high level of canopy connectivity both throughout the survey area and to the surrounding vegetation. This reduces the potential for observation of signs of western ringtail possum presence such as scats and indicators of feeding, particularly when the *Agonis flexuosa* present within the survey area and surrounds is quite tall. No other obvious signs of species presence were observed (excepting the presence of dreys, scats and the one individual) such as chewed flower buds or chewed leaves. Given the high connectivity in the surrounding area it is highly likely the individual utilising these dreys is utilising the surrounding area for feeding and potentially more dreys.



Figure 6: Photographs of dreys within the survey area.

a) Drey 1 located in *Agonis flexuosa* tree within the survey area; b) Drey 2 located in *A. flexuosa* tree outside the survey and proposed clearing area (east of the survey area along Swarbrick Road); c) Drey 3 located in *A. flexuosa* located to the north of the proposed clearing area; d) Drey 4 in dead paperbark tree located to the north of the proposed clearing area. NB location of dreys made it difficult to capture detailed images.



Figure 7: Photographs of evidence of *P. occidentalis* within the survey area and immediately adjacent vegetation.

a) and b) scats of varying ages located near Drey 1; c) Western ringtail possum (*P. occidentalis*) individual located in *Agonis flexuosa* canopy to the north of the survey area (within the same tree as Drey 3).

3.4. Non-target Species Survey Outcomes

During the survey, indicators of non-target species presence were also observed. Non-threatened species observed within the survey area are *Craticus tibicen* (Australian magpie), *Phylidonyris novaehollandiae* (New Holland honeyeater), *Rhipidura albiscapa* (fantail), *Macropus fuliginosus* (western grey kangaroo), *Oryctolagus cuniculus* (European rabbit) and *Rattus fuscipes* (bush rat). These species were observed in the survey area either through direct observation (*R. albiscapa* and *C. tibicen*) scats (*M. fuliginosus*) diggings (*O. cuniculus*) and burrows of suitable entrance size (*R. fuscipes*).

The Priority 4 *Isodon fusciventer* (Quenda) was observed within the survey area and surrounds through detection of runnels, diggings and one individual outside of the survey area (Figure 8). There is also marginal suitable habitat for the Threatened (VU) *Zephyrarchaea mainae* (Main's assassin spider; Figure 8). This species is known to prefer habitats with suspended leaf litter in sedge species such as *L. gladiatum* and *L. effusum* and shrubs which grow under coastal or near-coastal long-unburnt stands of *A. flexuosa* (Rix and Harvey, 2009, 2012). The most suitable areas of this habitat are found within thickly vegetated groves that develop in gullies and depressions in the landscape (Rix and Harvey, 2009). Limiting factors in habitat suitability within the survey area itself is the inconsistent spread of truly suspended leaf litter and the presence of habitat on the edge of the remnant vegetation (i.e., not in depressions or gullies). There is potentially more suitable habitat outside of the survey area to the north in the natural depressions. No other Threatened or Priority species were observed within the survey area and surrounds.



Figure 8: Photographs of indicators of non-target Threatened and Priority fauna presence and fauna habitat within the survey area.

a) and b) *Isoodon fusciventer* runnels c) *I. fusciventer* digging; d) to f) marginal suitable *Zephyrarchaea mainae* habitat.

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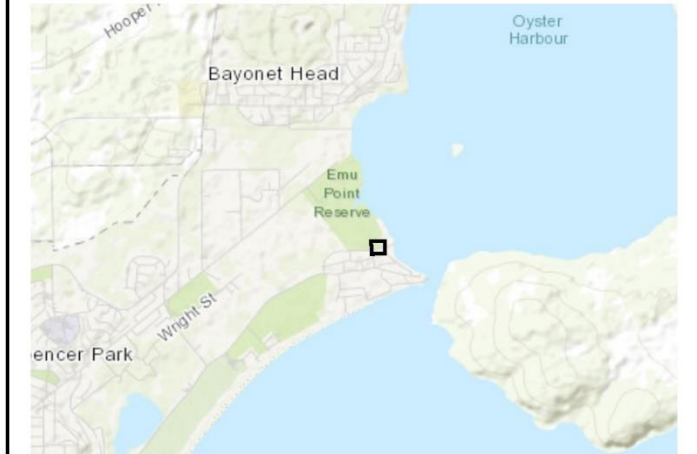


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Overview Map Scale 1:100,000

Legend

- Proposed Ammended Clearing Area
- Approved Clearing Area (CPS 9246-1)
- Cadastre
- Survey Effort

Fauna Habitat

- Agonis flexuosa Woodland
- Main's Assassin Spider (*Z. mainae*) Habitat
- Drey 1
- Drey 2
- Drey 3
- Drey 4
- Main's Assassin Spider (*Z. mainae*) Habitat
- Burrow - Bush Rat
- Runnel



Scale
1:500 @ A3
GDA MGA 94 Zone 50

Data Sources
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Cadastre and Contours: Landgate 2016
Overview Map: World Topographic map service, ESRI 2012

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Figure 9: Fauna Habitat

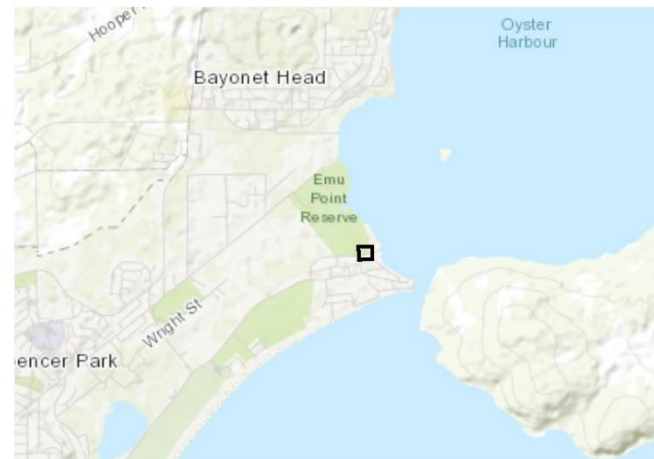
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Esperance, WA 6450
(08) 9072 1382



Overview Map Scale 1:100,000

Legend

- Proposed Amended Clearing
- Approved Clearing Area (CPS 9246-1)
- Cadastre
- Survey Effort

Fauna Habitat

- Agonis flexuosa* Woodland
- Zephyrarchaea mainae* Habitat

Fauna

- Western Ringtail Possum (*P. occidentalis*), CR, Individual Observed
- Western Ringtail Possum (*P. occidentalis*), CR, Scat
- Quenda (*I. fusciventer*), P4, Diggings
- Quenda (*I. fusciventer*), P4, Individual Observed
- Magpie (*C. tibicen*), Seen
- Western Grey Kangaroo (*M. fuliginosus*), Scat
- European Rabbit (*O. cuniculus*), Digging
- New-Holland Honeyeater (*P. novaehollandiae*), Heard
- Fantail (*R. albiscapa*), Seen

Scale
1:500 @ A3
GDA MGA 94 Zone 50

Data Sources
Aerial Imagery: SLIP Virtual Mosaic WMS Service, Landgate 2016
Cadastre and Contours: Landgate 2016
Overview Map: World Topographic map service, ESRI 2012

CLIENT

Harvest Road Oceans Pty Ltd
Lot 501 Swarbrick Street
Emu Point, WA 6330

Figure 10: Fauna Findings

STATUS	FILE	DATE
FINAL	MSC0296-005	09/02/2022

4. Discussion

The scope for this survey was to undertake a targeted western ringtail possum (*Pseudocheirus occidentalis*; CR) survey of the approximately 0.05 ha survey area within Lot 501 Swarbrick Street, and the adjacent road reserves to assist with the CPS9246-2 application. One western ringtail possum drey (Drey 1) was observed on the edge of the survey area, with an additional three observed outside of the survey area / proposed clearing area. Drey 1 is located in a tree which could potentially be left undisturbed for the purpose of the clearing activities (i.e., power upgrade to the area). It is recommended that, if possible, this tree should remain so as to preserve the existing breeding habitat (drey) within the area. Particularly as this drey appeared to be in use at the time of the survey.

The three additional dreys observed outside of the survey area showed varying degrees of maintenance indicating that they have recently or are currently being utilised by a western ringtail possum (*P. occidentalis*). This is further reinforced given that an individual was observed in the canopy of the tree that contains Drey 3. There is a high level of connectivity throughout the survey area, which ultimately extends into the broader, surrounding vegetated areas. It is expected that western ringtail possums (*P. occidentalis*) are utilising the survey area and the surrounding vegetation as part of their home range. Given the amount of vegetation proposed to be cleared under CPS 9246/2 is small in size and equates to approximately 33 individual trees, the overall impact to the broader habitat in the area is unlikely to be significant particularly if Drey 1 is retained and other trees are retained where possible. It would be expected that any individual(s) utilising the survey area will still remain in the general vicinity post clearing activities.

There were no signs of foraging by western ringtail possums (i.e., chewed leaves and flower buds / nuts etc.) observed within the survey area. Given the height of the canopy, feeding signs were difficult to ascertain, however, there is suitable foraging habitat present and it is expected the area is being utilised for this purpose.

The presence of quenda (*Isodon fusciventer*) was also observed during the survey through diggings, runnels and one individual sighted outside of the survey area. This species is quite mobile and have home ranges varying from 1-3 ha for females and 2-7 ha for males (DEC, 2012). The level of disturbance resulting from clearing the survey area is unlikely to result in significant impacts to the broader remnant vegetation and suitable quenda (*I. fusciventer*) habitat. Therefore, it is unlikely this will significantly impact any individual(s) in the area.

The habitat observed within the survey area for Main's assassin spider (*Zephyrarchaea mainae*) is marginal due to the inconsistent nature of the suspended leaf litter present (crucial microhabitat for this species), and the location of the habitat in the landscape (on the edge of the remnant vegetation and not within gullies and depressions, which the species prefers).

5. References

- ALA, Atlas of Living Australia (2022). Accessed February 2022 <https://biocache.ala.org.au/explore/your-area>
- Bader J. C., Van Helden B. E., Close P. G., Speldewinde P. C. & Comer S. J. (2019) Sheoak woodlands: a newly identified habitat for western ringtail possums. *The Journal of Wildlife Management* 83, 1254–60.
- Beard, J. S., Beeston, G.R., Harvey, J.M., Hopkins, A. J. M. and Shepherd, D. P. (2013). The vegetation of Western Australia at the 1:3,000,000 scale. Explanatory memoir. Second edition. *Conservation Science Western Australia* 9: 1-152.
- BoM, Bureau of Meteorology Australia (2022) Climate Statistics for Australian Locations – Albany (Station # 009500). Accessed: February 2022 www.bom.gov.au
- DAWE, Department of Agriculture, Water and Environment (2022). *EPBC Act Protected Matters Search Tool*. URL: <https://pmst.awe.gov.au/#/map?lng=131.52832031250003&lat=-28.671310915880834&zoom=5&baseLayers=Imagery>
- DBCA, Department of Biodiversity, Conservation and Attractions (2017a). Consanguineous Wetlands Suites (DBCA-020) dataset.
- DBCA, Department of Biodiversity, Conservation and Attractions (2017b). South Coast Significant Wetlands (DBCA-018) dataset.
- DEC, Department of Environment and Conservation (2012). Fauna Profiles – Quenda *Isoodon obesulus* (Shaw, 1797).
- DPaW, Department of Parks and Wildlife (2017) Western Ringtail Possum (*Pseudocheirus occidentalis*) Recovery Plan. Wildlife Management Program No. 58. Department of Parks and Wildlife, Perth
- DPIRD, Department of Primary Industries and Regional Development (2018). Soil landscape land quality - Zones (DPIRD-017) dataset.
- DPIRD, Department of Primary Industries and Regional Development (2019a). Soil Landscape Mapping - Best Available (DPIRD-027) dataset.
- DPIRD, Department of Primary Industries and Regional Development (2019b). Pre-European Vegetation (DPIRD-006) dataset.
- DPIRD, Department of Primary Industries and Regional Development (2021). Soil Landscape Mapping - Systems (DPIRD-064) dataset.
- DSEWPaC, Department of Sustainability, Environment, Water, Population and Communities (2011) *Survey guidelines for Australia's threatened mammals*, Commonwealth of Australia,
- DWER, Department of Water and Environmental Regulation (2017). Acid Sulphate Soil Risk Map, Albany-Torbay (DWER-054) dataset.
- DWER, Department of Water and Environmental Regulation (2020a) Public Drinking Water Source Areas (DWER033) dataset accessed January 2021 from <https://maps.slip.wa.gov.au/landgate/locate/>
- DWER, Department of Water and Environmental Regulation (2020b). Clearing Regulations - Environmentally Sensitive Areas (DWER-046) dataset
- EPA, Environmental Protection Authority (2020). *Technical Guidance – Terrestrial vertebrate fauna surveys for environmental impact assessment*, EPA, Western Australia. EPA,
- Gilfillan S. (2008). Western Ringtail Possum (*Pseudocheirus occidentalis*) Survey and Data Collation in the Greater Albany Area, Phase 1 Final Report. Prepared for the Department of Environment and Conservation, Albany, Western Australia.
- GoWA (2019). 2018 Statewide Vegetation Statistics incorporating the CAR Reserve Analysis (Full Report). Current as of March 2019. WA Department of Biodiversity, Conservation and Attractions, Perth.
- Hearn, R., Williams, K., Comer, S., & Beecham, B. (2002). Jarrah Forest 2 (JF2 – Southern Jarrah Forest subregion). *A Biodiversity Audit of Western Australia's 53 Biogeographical Subregions in 2002*. Department of Conservation and Land Management.
- Houston, T. (2018). *A Guide to Native Bees of Australia*. CSIRO Publishing, Clayton South Victoria.

- Jones B. A., How R. A. & Kitchener D. J. (1994a). A field study of *Pseudocheirus occidentalis* (Marsupialia: Petauridae) I. Distribution and habitat. *Wildlife Research* 21, 175–87.
- Jones B. A., How R. A. & Kitchener D. J. (1994b). A field study of *Pseudocheirus occidentalis* (Marsupialia: Petauridae) II. Population studies. *Wildlife Research* 21 189–201
- Keighery, B. (1994). *Bushland plant survey: a guide to plant community survey for the community*. Wildflower Society of WA (Inc.) Nedlands, WA.
- Mathieson T. J., Close, P. G., Van Helden, B. E., Speldewinde, P. C., and Comer, S. J. (2020). New evidence of unexpectedly high animal density and diet diversity will benefit the conservation of the Critically Endangered western ringtail possum. *Austral Ecology* 45, 596–608.
- Rix, M. G., and Harvey, M. S. (2009). Populations of Main's Assassin Spider (*Austrarchaea mainae*) near Albany. *Western Australian Museum*.
- Rix M.G, and Harvey M.S. (2012) Australian Assassins, Part II: A review of the new assassin spider genus *Zephyrarchaea* (Araneae, Archaeidae) from southern Australia', *ZooKeys*, 191, pp. 1-62.
- Sandiford, E.M. and Barrett, S. (2010) *Albany Regional Vegetation Survey, Extent Type and Status, A project funded by the Western Australian Planning Commission (EnviroPlanning "Integrating NRM into Land Use Planning" and State NRM Program), South Coast Natural Resource Management Inc. and City of Albany for the Department of Environment and Conservation*. Unpublished report. Department of Environment and Conservation, Western Australia.
- Shepherd, D.P., Beeston, G.R. and Hopkins, A.J.M. (2002) *Native Vegetation in Western Australia, extent Type and Status, Technical Report 249*, Department of Agriculture WA.
- Van Helden B. E., Speldewinde P. C., Close P. G. & Comer S. J. (2018). Use of urban bushland remnants by the western ringtail possum (*Pseudocheirus occidentalis*): short term home-range size and habitat use in Albany, Western Australia. *Australian Mammalogy* 40, 173–80.
- Wilkins, P., Gilfillan, S., Watson, J. and Sanders, A. (2006) The Western Australian South Coast Macro Corridor Network – a bioregional strategy for nature conservation. Department of Conservation and Land Management (CALM) and South Coast Regional Initiative Planning Team (SCRIPT), Albany, Western Australia.

6. Appendices

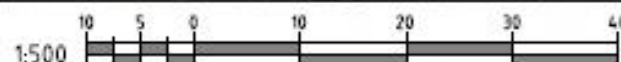
Appendix A – Maps

Appendix B – Likelihood of Occurrence Analysis and Conservation Status Definitions

Appendix C – EPBC Protected Matters Search Tool Database Search

Appendix A

Maps



PLEASE ENSURE YOU PROVIDE WESTERN POWER WITH A COPY OF THE SIGNED CLEARING PERMIT TO THE CONSTRUCTION MANAGER AS SOON AS PRACTICABLE FOR REVIEW AND SUITABILITY CONFIRMATION. FURTHER RELEVANT AND SUPPORTING INFORMATION IS AVAILABLE VIA DWER'S WEBSITE. IF YOU HAVE ANY QUESTIONS, PLEASE CONTACT YOUR ALLOCATED DESIGNER.

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COMMERCIAL SUPPLY UPGRADE

SUPPLY 609AMPS, 415V : NETWORK VOLTAGE 22KV

LOT 501 SWARBRIK RD, EMU POINT

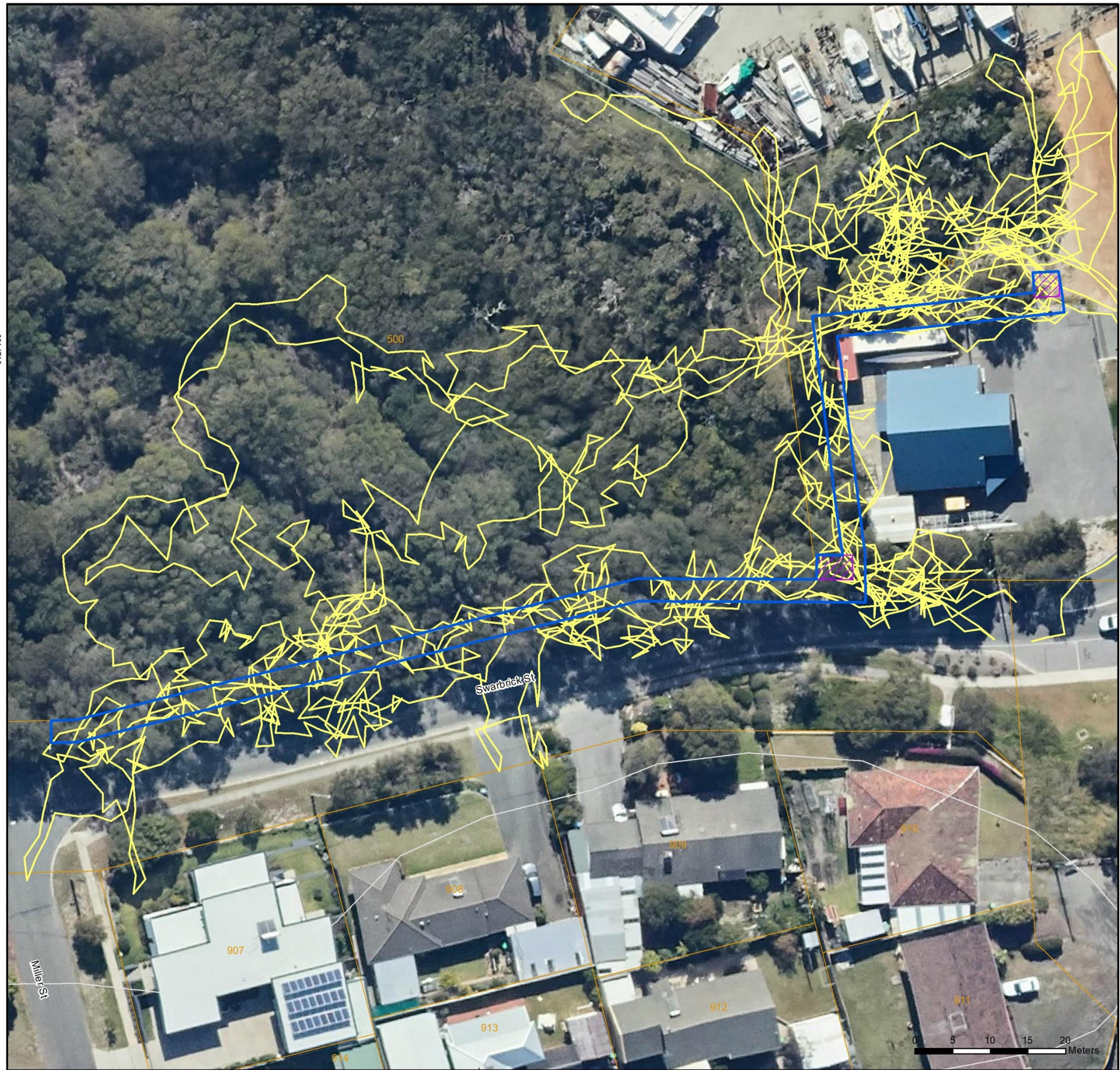
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DATE: 11/20	SCALE: NTS A2
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MAP REF: S/SMART TRAV. ATLAS 80 A1	REV: A ORIGINAL SIZE - A2

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SHEET 2 OF 2

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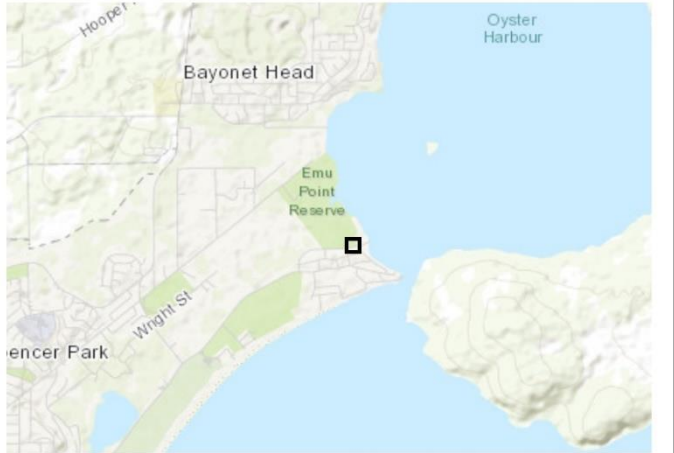


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Overview Map Scale 1:100,000

Legend

- Proposed Ammended Clearing Area
- Approved Clearing Area (CPS 9246-1)
- Cadastre
- Survey Effort



Scale
1:500 @ A3
GDA MGA 94 Zone 50

Data Sources
Aerial Imagery: SLIP Virtual Mosaic WMS Service, Landgate 2016
Cadastre and Contours: Landgate 2016
Overview Map: World Topographic map service, ESRI 2012

CLIENT
Harvest Road Oceans Pty Ltd
Lot 501 Swarbrick Street
Emu Point, WA 6330

Figure 12: Survey Effort

STATUS	FILE	DATE
FINAL	MSC0296-005	03/02/2022

Appendix B

Likelihood of Occurrence Analysis and Conservation Status Definitions

Table 2: Criteria for assessing the likelihood of occurrence of Threatened or Priority flora and fauna within a 10km radius of the survey area

Likelihood	Criteria
Present	Species is recorded within the survey area.
Likely	Species has been previously recorded in close proximity and suitable habitat occurs within the survey area.
Possible	Species previously recorded within 10 km and suitable habitat occurs in the survey area.
Unlikely	<p>The species has been recorded locally through database searches. However, suitable habitat for the species does not occur at the survey area or suitable habitat may occur but the species has a highly restricted distribution, is very rare and only known from a limited number of populations.</p> <p>Species is unlikely to occur due to the site lacking critical habitat, only containing marginally suitable habitat, and/or the survey area is considerably degraded.</p> <p>The species has not been recorded in the survey area despite adequate survey effort.</p>
Highly Unlikely	No suitable habitat within the survey area or the survey area is outside the species' natural distribution.

Table 3: Potential conservation significant fauna located within 10km of the survey area and likelihood of occurrence analysis (post survey).

Note: Species are presented based on likelihood of occurrence. Habitat information taken from publicly available resources such as: DSEWPaC (2011) Survey guidelines for Australia's threatened mammals; DEWHA (2010) Survey guidelines for Australia's threatened birds; SPRAT profiles and species-specific recovery plans

Family	Scientific Name	Vernacular	Status (WA) / EPBC Act	Habitat Description	Likelihood of Occurrence (Post Survey)	Habitat Present (Y/N)	Likelihood of Detection if Present	Species Present (Y/N)	Comment
Pseudocheiridae	<i>Pseudocheirus occidentalis</i>	Western ringtail possum, ngwayir	CR / CR	Suitable habitat in the southern forests includes Jarrah, Marri or Karri dominated forests. South coast habitat includes coastal heath, Jarrah/Marri woodland and forest, Peppermint Tree woodland, myrtaceous heaths and shrublands, Bullich dominated riparian zones and Karri Forest (DPaW 2014).	Present	Y	HIGH	Y	Species detected through scats, dreys and one individual sighted (outside of survey area).
Peramelidae	<i>Isoodon fusciventer</i>	Quenda, southwestern brown bandicoot	P4 / -	Scrubby, often swampy, vegetation with dense cover up to 1 m high, often feeding in adjacent forest and woodland that is burnt on a regular basis. Forest, woodlands, heath and coastal scrub, usually on sandy combination soils.	Present	Y	HIGH	Y	Species detected through diggings, runnels and one individual sighted (outside of survey area).
Bothriembryontidae	<i>Bothriembryon brazieri</i>	Brazier's bothriembryontid land snail	P2 / -	No information available.	Possible	Unsure	LOW	N	No information publicly available on habitat requirements. Therefore, assessed as possible.
Archaeidae	<i>Zephyrarchaea mainae</i>	Main's assassin spider	VU / -	Search for suitable habitat including suspended leaf-litter lodged in the crown of Restionaceae species, <i>L. gladiatum</i> and <i>L. effusum</i> , which grow under long-unburnt stands of weeping peppermint (<i>Agonis flexuosa</i> (Willd.) Sweet; Rix and Harvey, 2009, 2012).	Unlikely	Y	LOW	N	Species can only be confirmed through direct sampling. Has been given a rating of unlikely due to the marginal landscape habitat present within the survey area.
Ardeidae	<i>Botaurus poiciloptilus</i>	Australasian bittern	EN / EN	Wetlands, permanent and seasonal freshwater habitats, particularly those dominated by sedges, rushes and reeds (e.g. Phragmites, Cyperus, Eleocharis, Juncus, Typha, Baumea, Bolboschoenus) or cutting grass (Gahnia) growing over a muddy or peaty substrate.	Unlikely	N	N/A No suitable habitat present	N	
Scolopacidae	<i>Calidris canutus</i>	Red knot, knot	EN / EN & MI	Intertidal mudflats, sandflats and sandy beaches of sheltered coasts, in estuaries, bays, inlets, lagoons and harbours; sometimes on sandy ocean beaches or shallow pools on exposed wave-cut rock platforms or coral reefs.	Unlikely	N	N/A No suitable habitat present	N	
Scolopacidae	<i>Calidris ferruginea</i>	Curlew sandpiper	CR / CR & MI	Intertidal mudflats in sheltered coastal areas, non-tidal swamps, lakes and lagoons near the coast, and occasionally around ephemeral and permanent lakes and dams with bare edges of mud or sand.	Unlikely	N	N/A No suitable habitat present	N	
Scolopacidae	<i>Calidris tenuirostris</i>	Great knot	CR / CR & MI	Intertidal mudflats and sandflats in sheltered coasts, including bays harbours and estuaries.	Unlikely	N	N/A No suitable habitat present	N	
Cacatuidae	<i>Calyptorhynchus banksii</i> subsp. <i>naso</i>	Forest red-tailed black cockatoo	VU / VU	Foraging habitat includes vegetation containing proteaceous heath/woodland, eucalypt woodlands or forest (particularly Marri and Jarrah Forest) and Pinus spp. Breeding habitat includes large, mature trees containing suitable sized hollows, proximate to high quality feeding habitat.	Unlikely	N	N/A No suitable habitat present	N	
Cacatuidae	<i>Calyptorhynchus baudinii</i>	Baudin's cockatoo, White-tailed long-billed black cockatoo	EN / EN	Hollows of large, mature trees. Foraging habitat includes vegetation containing proteaceous heath/woodland, eucalypt woodlands or forest (particularly Marri and Jarrah Forest) and Pinus spp.	Unlikely	N	N/A No suitable habitat present	N	
Cacatuidae	<i>Calyptorhynchus latirostris</i>	Carnaby's cockatoo, White-tailed short-billed black cockatoo	EN / EN	Eucalypt woodlands, especially those that contain salmon gum and wandoo, and in shrubland or kwongan heathland dominated by hakea, dryandra, banksia and grevillea species. It also occurs in remnant patches of native vegetation on land otherwise cleared for agriculture. It also forages in forests containing marri, jarrah or karri.	Unlikely	N	N/A No suitable habitat present	N	
Charadriidae	<i>Charadrius leschenaultii</i>	Greater sand plover	VU / VU & MI	Almost entirely coastal, inhabiting littoral and estuarine habitats. Mainly occur on sheltered sandy, shelly or muddy beaches with large intertidal mudflats or sandbanks, as well as sandy estuarine lagoons. Seldom occur at shallow freshwater wetlands.	Unlikely	N	N/A No suitable habitat present	N	

Table 3 continued

Family	Scientific Name	Vernacular	Status (WA) / EPBC Act	Habitat Description	Likelihood of Occurrence (Post Survey)	Habitat Present (Y/N)	Likelihood of Detection if Present	Species Present (Y/N)	Comment
Charadriidae	<i>Charadrius mongolus</i>	Lesser sand plover	EN / EN & MI	Inhabits large intertidal sandflats or mudflats in sheltered bays, harbours and estuaries, and occasionally sandy ocean beaches, coral reefs, wave-cut rock platforms and rocky outcrops.	Unlikely	N	N/A No suitable habitat present	N	
Dasyornithidae	<i>Dasyornis longirostris</i>	Western bristlebird	EN / EN	Preferred habitat includes floristically diverse low dense coastal heathland.	Unlikely	N	N/A No suitable habitat present	N	
Dasyuridae	<i>Dasyurus geoffroii</i>	Chuditch, Western quoll	VU / VU	Woodland or forest. Logs must have a diameter > 30 cm and a hollow with 7–20 cm diameter and 1 m length (Dunlop and Morris 2012). Burrows are constructed beneath habitat features such as stumps, logs, trees or rock outcrops.	Unlikely	N	N/A No suitable habitat present	N	
Elapidae	<i>Elapognathus minor</i>	Short-nosed snake	P2 / -	Heath, swamps and wet sclerophyll forest. Inhabits heaths edging swamps and shelters in low dense vegetation such as tussocks and sedges.	Unlikely	N	N/A No suitable habitat present	N	
Falconidae	<i>Falco hypoleucos</i>	Grey falcon	VU / -	Usually in lightly timbered country, especially stony plains and lightly timbered acacia shrublands.	Unlikely	N	N/A No suitable habitat present	N	
Colletidae	<i>Hylaeus globuliferus</i>	Woolybush bee	P3 /	Proteaceae specialist, mainly forages on <i>Adenanthos</i> spp. (Houston, 2018).	Unlikely	N	N/A No suitable habitat present	N	One or two <i>Adenanthos sericeus</i> observed within or directly adjacent to survey area. Marginal habitat.
Dasyuridae	<i>Phascogale tapoatafa</i> subsp. <i>wambenger</i>	South-western brush-tailed phascogale	CD / -	Sclerophyll forests and open woodlands that contain hollow-bearing trees.	Unlikely	N	N/A No suitable habitat present	N	
Macropodidae	<i>Setonix brachyurus</i>	Quokka	VU / VU	Woodland, forest, coastal heath, thicket and riparian vegetation.	Unlikely	N	N/A No suitable habitat present	N	
Atrichornithidae	<i>Atrichornis clamosus</i>	Noisy scrub bird	EN / EN	Preferred habitat is dense, unburnt understorey vegetation of low forest, scrub thicket and occasionally heath that occur in gullies, drainage lines and lowland areas.	Highly Unlikely	N	N/A No suitable habitat present	N	
Diomedidae	<i>Diomedea antipodensis</i>	Antipodean albatross	EN / VU & MI	Marine, pelagic and aerial species. Nests in open patchy vegetation, such as among tussock grassland or shrubs on ridges, slopes and plateaus.	Highly Unlikely	N	N/A No suitable habitat present	N	
Diomedidae	<i>Diomedea dabbenena</i>	Tristan albatross	CR/ EN & MI	Marine, pelagic seabird that sleeps and rests on ocean waters when not breeding.	Highly Unlikely	N	N/A No suitable habitat present	N	
Diomedidae	<i>Diomedea epomophora</i>	Southern royal albatross	VU / VU & MI	Marine, pelagic seabird that sleeps and rests on ocean waters when not breeding.	Highly Unlikely	N	N/A No suitable habitat present	N	
Diomedidae	<i>Diomedea exulans</i>	Wandering albatross	VU / VU & MI	Marine, pelagic seabird that sleeps and rests on ocean waters when not breeding.	Highly Unlikely	N	N/A No suitable habitat present	N	
Diomedidae	<i>Diomedea exulans</i> subsp. <i>exulans</i>	Snowy albatross	VU / VU & MI	Marine, pelagic seabird that sleeps and rests on ocean waters when not breeding.	Highly Unlikely	N	N/A No suitable habitat present	N	
Diomedidae	<i>Diomedea sanfordi</i>	Northern royal albatross	EN / EN & MI	Marine, pelagic and aerial. Habitat includes subantarctic, subtropical, and occasionally Antarctic waters.	Highly Unlikely	N	N/A No suitable habitat present	N	
Galaxiidae	<i>Galaxias truttaceus</i>	Western trout minnow	EN / CR	Prefer cool, still or flowing rivers in forested catchments with excellent riparian vegetation, good water quality and cover in the form of boulders, sunken logs and overhanging banks. Inhabits streams and lakes in flowing or still waters; tolerant of acidic and tannin-stained waters. Streams include riffles over granite bedrock.	Highly Unlikely	N	N/A No suitable habitat present	N	
Geotriidae	<i>Geotria australis</i>	Pouched lamprey	P3 / -	Species is anadromous and requires estuaries and coastal waters connected to freshwater rivers and streams with slow flowing, fine sediment microhabitats where spawning and development of ammocoetes occurs.	Highly Unlikely	N	N/A No suitable habitat present	N	

Table 3 continued

Family	Scientific Name	Vernacular	Status (WA) / EPBC Act	Habitat Description	Likelihood of Occurrence (Post Survey)	Habitat Present (Y/N)	Likelihood of Detection if Present	Species Present (Y/N)	Comment
Procellariidae	<i>Halobaena caerulea</i>	Blue petrel	- / VU	Pelagic, occasionally over shallow waters.	Highly Unlikely	N	N/A No suitable habitat present	N	
Muridae	<i>Hydromys chrysogaster</i>	Water-rat, rakali	P4 / -	Permanent fresh or brackish water, subalpine streams and other inland waterways to lakes, swamps, and farm dams.	Highly Unlikely	N	N/A No suitable habitat present	N	
Megapodiidae	<i>Leipoa ocellata</i>	Malleefowl	VU / VU	Arid and semi-arid areas dominated by mallee eucalypts on sandy soils. They are known to also occur in Mulga (<i>Acacia aneura</i>), Broombush (<i>Melaleuca uncinata</i>), Scrub Pine (<i>Callitris verrucosa</i>), Eucalyptus woodlands and coastal heathlands. Malleefowl require abundant leaf litter and a sandy substrate for the successful construction of nest mounds.	Highly Unlikely	N	N/A No suitable habitat present	N	
Scolopacidae	<i>Limosa lapponica menzbieri</i>	Northern Siberian bar-tailed godwit	CR (& MI at sp. level) / CR (& MI at sp. level) /	Occurs mainly in coastal habitats such as large intertidal sandflats, banks, mudflats, estuaries, inlets, harbours, coastal lagoons and bays. It has also been recorded in coastal sewage farms and saltworks, saltlakes and brackish wetlands near coasts, sandy ocean beaches, rock platforms, and coral reef-flats.	Highly Unlikely	N	N/A No suitable habitat present	N	
Procellariidae	<i>Macronectes giganteus</i>	Southern giant-petrel	MI / VU & MI	Marine; Antarctic to subtropical waters.	Highly Unlikely	N	N/A No suitable habitat present	N	
Procellariidae	<i>Macronectes halli</i>	Northern giant petrel	MI / EN & MI	Marine, oceanic; mainly in subantarctic waters.	Highly Unlikely	N	N/A No suitable habitat present	N	
Percichthyidae	<i>Nannatherina balstoni</i>	Balston's pygmy perch	VU / VU	Acidic, tannin-stained freshwater pools, streams and lakes in peat flats within 30 km of the coast of south-west Western Australia. The species prefers shallow water, and is commonly associated with tall sedge thickets and inundated riparian vegetation (Allen et al. 2002; Morgan et al. 1998).	Highly Unlikely	N	N/A No suitable habitat present	N	
Macropodidae	<i>Notamacropus irma</i>	Western brush wallaby	P4 / -	Preferred habitat includes open forest or woodland, particularly open, seasonally-wet flats with low grasses and open scrubby thickets.	Highly Unlikely	N	N/A No suitable habitat present	N	
Scolopacidae	<i>Numenius madagascariensis</i>	Eastern curlew	CR / CR & MI	Intertidal mudflats and sandflats, often with beds of seagrass, on sheltered coasts, especially estuaries, mangrove swamps, bays, harbours and lagoons.	Highly Unlikely	N	N/A No suitable habitat present	N	
Procellariidae	<i>Pachyptila turtur subantarctica</i>	Fairy prion (southern)	- / VU	Sub-antarctic seas and islands while breeding. Subtropical seas non breeding time; rarely inshore expect when sheltering from storms.	Highly Unlikely	N	N/A No suitable habitat present	N	
Dasyuridae	<i>Parantechinus apicalis</i>	Dibbler	EN / EN	Old-growth mallee heath. Prefer vegetation with a dense canopy greater than 1 m high which has been unburnt for at least 10 years or more.	Highly Unlikely	N	N/A No suitable habitat present	N	
Dasyuridae	<i>Phascogale calura</i>	Red tailed phascogale, kenngoos	CD / VU	Inhabits Wandoo (<i>Eucalyptus wandoo</i>) and Sheoak (<i>Allocasuarina huegeliana</i>) woodland associations, with populations being most dense in the latter vegetation type. They show a preference for long unburnt habitat with a continuous canopy, as well as tree hollows.	Highly Unlikely	N	N/A No suitable habitat present	N	

Table 3 continued

Family	Scientific Name	Vernacular	Status (WA) / EPBC Act	Habitat Description	Likelihood of Occurrence (Post Survey)	Habitat Present (Y/N)	Likelihood of Detection if Present	Species Present (Y/N)	Comment
Psophodidae	<i>Psophodes nigrogularis</i>	Western whip bird	EN / EN	Dense heath-like shrubby thickets on coastal dunes, and mallee woodland or shrubland with an open upperstorey above a dense shrubby understorey. Preferred habitat is usually 2–3 metres tall and dominated by shrubs such as <i>Agonis marginata</i> , hakeas (e.g. <i>Hakea elliptica</i> and <i>H. trifurcata</i>), Showy Dryandra (<i>Banksia formosa</i>), <i>Eutaxia obovata</i> , <i>Acacia myrtifolia</i> and Heart-leaf Poison-bush (<i>Gastrolobium bilobum</i>), usually with a dense shrubby understorey, and sometimes intermixed with stunted eucalypts such as Marri (<i>Eucalyptus calophylla</i>) and Jarrah (<i>E. marginata</i>).	Highly Unlikely	N	N/A No suitable habitat present	N	
Psophodidae	<i>Psophodes nigrogularis</i> subsp. <i>nigrogularis</i>	Western heath whipbird	EN / EN	Dense heath-like shrubby thickets on coastal dunes, and mallee woodland or shrubland with an open upperstorey above a dense shrubby understorey. Preferred habitat is usually 2–3 metres tall and dominated by shrubs such as <i>Agonis marginata</i> , hakeas (e.g. <i>Hakea elliptica</i> and <i>H. trifurcata</i>), Showy Dryandra (<i>Banksia formosa</i>), <i>Eutaxia obovata</i> , <i>Acacia myrtifolia</i> and Heart-leaf Poison-bush (<i>Gastrolobium bilobum</i>), usually with a dense shrubby understorey, and sometimes intermixed with stunted eucalypts such as Marri (<i>Eucalyptus calophylla</i>) and Jarrah (<i>E. marginata</i>).	Highly Unlikely	N	N/A No suitable habitat present	N	
Procellariidae	<i>Pterodroma mollis</i>	Soft-plumaged petrel	- / VU	Is a marine, oceanic species.	Highly Unlikely	N	N/A No suitable habitat present	N	
Laridae	<i>Sternula nereis nereis</i>	Australian fairy tern	VU / VU	Coastal areas and embayments of a variety of habitats including offshore, estuarine or lacustrine (lake) islands, wetlands and mainland coastline.	Highly Unlikely	N	N/A No suitable habitat present	N	
Diomedidae	<i>Thalassarche carteri</i>	Indian yellow-nosed albatross	EN / VU & MI	Marine bird, located in subtropical and warmer subantarctic waters (Marchant & Higgins 1990).	Highly Unlikely	N	N/A No suitable habitat present	N	
Diomedidae	<i>Thalassarche cauta cauta</i>	Shy albatross	VU / VU & MI	Marine species. Breeds on rock islands.	Highly Unlikely	N	N/A No suitable habitat present	N	
Diomedidae	<i>Thalassarche cauta steadi</i>	White-capped albatross	VU / VU & MI	Shelf-waters around breeding islands and over adjacent rises. During the non-breeding season, birds have been observed over continental shelves around continents. The species occurs both inshore and offshore and enters harbours and bays. The species is scarce in pelagic waters. Birds gather to scavenge at commercial fishing grounds.	Highly Unlikely	N	N/A No suitable habitat present	N	
Diomedidae	<i>Thalassarche chlororhynchos</i>	Atlantic yellow-nosed albatross	VU / MI	Marine species. Builds nests built on tussock grass, on rocks and under trees.	Highly Unlikely	N	N/A No suitable habitat present	N	
Diomedidae	<i>Thalassarche impavida</i>	Campbell albatross	VU / VU & MI	Marine sea bird inhabiting sub-Antarctic and subtropical waters from pelagic to shelf-break water habitats.	Highly Unlikely	N	N/A No suitable habitat present	N	
Diomedidae	<i>Thalassarche melanophris</i>	Black-browed albatross	EN / VU & MI	Marine species that inhabits Antarctic, subantarctic and temperate waters and occasionally enters the tropics.	Highly Unlikely	N	N/A No suitable habitat present	N	
Triozidae	<i>Trioza barrettae</i>	Banksia brownii plant louse	EN / -	<i>Trioza barrettae</i> is associated with its host plant <i>B. brownii</i> , which is associated with a range of habitats including thickets and mallee-heath and mallee heath shrublands and woodlands. The associated habitat is rich in proteaceous and myrtaceous species.	Highly Unlikely	N	N/A No suitable habitat present	N	

Table 3 continued

Family	Scientific Name	Vernacular	Status (WA) / EPBC Act	Habitat Description	Likelihood of Occurrence (Post Survey)	Habitat Present (Y/N)	Likelihood of Detection if Present	Species Present (Y/N)	Comment
Bivalvia	<i>Westralunio carteri</i>	Carter's freshwater mussel	VU / -	Patchily distributed in sandy/muddy sediments of freshwater lakes, rivers and streams with greatest densities associated with woody debris and overhanging riparian vegetation near stream banks and edges of lakes/dams.	Highly Unlikely	N	N/A No suitable habitat present	N	
Anatidae	<i>Cereopsis novaehollandiae grisea</i>	Cape Barren goose (south-western), Recherche Cape Barren goose	VU / VU	offshore islands and rocks, and at adjacent sites on the mainland. It inhabits grasslands and low fields of succulent herbs (comprised of <i>Carpobrotus</i> sp.), and occasionally occurs in open areas in taller and denser vegetation (although islands that are covered by woodlands or thickets support few birds).	Highly Unlikely	N	N/A No suitable habitat present	N	
Potoroidae	<i>Potorous gilbertii</i>	Gilbert's potoroo	CR / CR	Populations known from Two Peoples Bay. core habitat patches is largely uniform and can be described as follows: <i>Melaleuca striata</i> (a shrub) and <i>M. uncinata</i> (broom honey-myrtle) shrubland between 1.5–2 m tall with 70–100 percent canopy cover, with a dense understorey of sedges including <i>Lepidosperma</i> sp. and <i>Anarthria scabra</i> (a herb) (WA DEC 2009b). Gilbert's potoroo uses <i>Gastrolobium</i> spp. thickets and sometimes shelters under deep accumulations of 'needles' in <i>Allocasuarina fraseriana</i> (Western Sheoak) clumps.	Highly Unlikely	N	N/A No suitable habitat present	N	
Castniidae	<i>Synemon gratiosa</i>	Graceful sunmoth	P4	Graceful Sun Moth is associated with two habitat types: (1) Coastal heathland on Quindalup dunes where it is restricted to secondary sand dunes due to the abundance of the preferred host plant <i>Lomandra maritima</i> . (2) <i>Banksia</i> woodland on Spearwood and Bassendean dunes, where the second known host plant <i>L. hermaphrodita</i> is widespread.	Highly Unlikely	N	N/A No suitable habitat present	N	
Centrophorus	<i>Onychogalea lunata</i>	Crescent nailtail wallaby, tjawalpa	EX / EX	Presumed extinct.	Extinct	N/A	N/A	N/A	
Muridae	<i>Notomys longicaudatus</i>	Long-tailed hopping-mouse, koolawa	EX / EX	Presumed extinct.	Extinct	N/A	N/A	N/A	
Potoroidae	<i>Bettongia lesueur</i>	Burrowing bettong	EX / EX	Presumed extinct.	Extinct	N/A	N/A	N/A	

Table 4: Conservation code definitions for fauna listed as threatened or specially protected

Threatened, Extinct and Specially Protected fauna or flora are species which have been adequately searched for and are deemed to be, in the wild, threatened, extinct or in need of special protection, and have been gazetted as such.

Threat Category	Definition
Threatened - Critically endangered species (CR)	Facing an extremely high risk of extinction in the wild in the immediate future
Threatened - Endangered species (EN)	Facing a very high risk of extinction in the wild in the near future
Threatened - Vulnerable species (VU)	Facing a high risk of extinction in the wild in the medium-term future
Threatened - Extinct (EX)	There is no reasonable doubt that the last member of the species has died
Threatened – Extinct in the wild (EW)	Species is known only to survive in cultivation, in captivity or as a naturalised population well outside its past range; and it has not been recorded in its known habitat or expected habitat, at appropriate seasons, anywhere in its past range, despite surveys over a time frame appropriate to its life cycle and form
Specially protected species - Migratory species (MI)	Fauna that periodically or occasionally visit Australia or an external Territory or the exclusive economic zone; or the species is subject of an international agreement that relates to the protection of migratory species and that binds the Commonwealth; Includes 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 fauna subject to the Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention), an environmental treaty under the United Nations Environment Program. Migratory species listed under the BC Act are a subset of the migratory animals that are known to visit Western Australia, protected under the international agreements or treaties, excluding species that are listed as Threatened species.
Specially protected species – Conservation Dependent (CD)	Fauna of special conservation need being species dependent on ongoing conservation intervention to prevent it becoming eligible for listing as threatened,
Specially protected species – Other specially protected species (OS)	Fauna otherwise in need of special protection to ensure their conservation

Table 5: Conservation code definitions for fauna listed as Priority

Possibly threatened species that do not meet survey criteria, or are otherwise data deficient, are added to the Priority Fauna Lists under Priorities 1, 2 or 3.

Threat Category	Definition
Priority 1: Poorly-known species	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.
Priority 2: Poorly-known species	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.
Priority 3: Poorly-known species	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.
Priority 4: Rare, Near Threatened and other species in need of monitoring	(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.

Appendix C

EPBC Protected Matters Search Tool Database Search



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. Please see the caveat for interpretation of information provided here.

Report created: 02-Feb-2022

[Summary](#)

[Details](#)

[Matters of NES](#)

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

[Extra Information](#)

[Caveat](#)

[Acknowledgements](#)

Summary

Matters of National Environment Significance

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

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Importance (Ramsar	None
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	2
Listed Threatened Species:	64
Listed Migratory Species:	60

Other Matters Protected by the EPBC Act

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

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

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

Commonwealth Lands:	15
Commonwealth Heritage Places:	None
Listed Marine Species:	88
Whales and Other Cetaceans:	12
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Australian Marine Parks:	None
Habitat Critical to the Survival of Marine Turtles:	None

Extra Information

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

State and Territory Reserves:	13
Regional Forest Agreements:	None
Nationally Important Wetlands:	1
EPBC Act Referrals:	23
Key Ecological Features (Marine):	None
Biologically Important Areas:	9
Bioregional Assessments:	None
Geological and Bioregional Assessments:	None

Details

Matters of National Environmental Significance

Listed Threatened Ecological Communities

[Resource Information]

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

Status of Vulnerable, Disallowed and Ineligible are not MNES under the EPBC Act.

Community Name	Threatened Category	Presence Text	Buffer Status
Proteaceae Dominated Kwongan Shrublands of the Southeast Coastal Floristic Province of Western Australia	Endangered	Community may occur within area	In feature area
Subtropical and Temperate Coastal Saltmarsh	Vulnerable	Community likely to occur within area	In feature area

Listed Threatened Species

[Resource Information]

Status of Conservation Dependent and Extinct are not MNES under the EPBC Act.

Number is the current name ID.

Scientific Name	Threatened Category	Presence Text	Buffer Status
BIRD			
Botaurus poiciloptilus Australasian Bittern [1001]	Endangered	Species or species habitat known to occur within area	In feature area
Calidris canutus Red Knot, Knot [855]	Endangered	Species or species habitat known to occur within area	In feature area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area	In feature area
Calidris tenuirostris Great Knot [862]	Critically Endangered	Roosting known to occur within area	In feature area
Calyptorhynchus banksii naso Forest Red-tailed Black-Cockatoo, Karrak [67034]	Vulnerable	Species or species habitat known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Cereopsis novaehollandiae grisea Cape Barren Goose (south-western), Recherche Cape Barren Goose [25978]	Vulnerable	Species or species habitat known to occur within area	In feature area
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat known to occur within area	In feature area
Charadrius mongolus Lesser Sand Plover, Mongolian Plover [879]	Endangered	Roosting known to occur within area	In feature area
Dasyornis longirostris Western Bristlebird [515]	Endangered	Species or species habitat likely to occur within area	In feature area
Diomedea antipodensis Antipodean Albatross [64458]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
Diomedea dabbenena Tristan Albatross [66471]	Endangered	Species or species habitat may occur within area	In feature area
Diomedea epomophora Southern Royal Albatross [89221]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
Diomedea exulans Wandering Albatross [89223]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
Diomedea sanfordi Northern Royal Albatross [64456]	Endangered	Foraging, feeding or related behaviour likely to occur within area	In feature area
Falco hypoleucos Grey Falcon [929]	Vulnerable	Species or species habitat may occur within area	In feature area
Halobaena caerulea Blue Petrel [1059]	Vulnerable	Species or species habitat may occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Limosa lapponica menzbieri Northern Siberian Bar-tailed Godwit, Russkoye Bar-tailed Godwit [86432]	Critically Endangered	Species or species habitat known to occur within area	In feature area
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area	In feature area
Macronectes halli Northern Giant Petrel [1061]	Vulnerable	Species or species habitat may occur within area	In feature area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area	In feature area
Pachyptila turtur subantarctica Fairy Prion (southern) [64445]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Psophodes nigrogularis nigrogularis Western Heath Whipbird [64449]	Endangered	Species or species habitat known to occur within area	In feature area
Pterodroma mollis Soft-plumaged Petrel [1036]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Sternula nereis nereis Australian Fairy Tern [82950]	Vulnerable	Foraging, feeding or related behaviour known to occur within area	In feature area
Thalassarche carteri Indian Yellow-nosed Albatross [64464]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Thalassarche cauta Shy Albatross [89224]	Endangered	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Thalassarche impavida Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Thalassarche melanophris Black-browed Albatross [66472]	Vulnerable	Species or species habitat may occur within area	In feature area
Thalassarche steadi White-capped Albatross [64462]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
Zanda baudinii listed as Calyptorhynchus baudinii Baudin's Black-Cockatoo, Long-billed Black-cockatoo [87736]	Endangered	Breeding known to occur within area	In feature area
Zanda latirostris listed as Calyptorhynchus latirostris Carnaby's Black Cockatoo, Short-billed Black-cockatoo [87737]	Endangered	Species or species habitat known to occur within area	In feature area
FISH			
Nannatherina balstoni Balston's Pygmy Perch [66698]	Vulnerable	Species or species habitat known to occur within area	In buffer area only
Thunnus maccoyii Southern Bluefin Tuna [69402]	Conservation Dependent	Species or species habitat likely to occur within area	In feature area
INSECT			
Trioza barrettae Banksia brownii plant louse [87805]	Endangered	Species or species habitat known to occur within area	In feature area
MAMMAL			
Balaenoptera musculus Blue Whale [36]	Endangered	Species or species habitat likely to occur within area	In feature area
Dasyurus geoffroii Chuditch, Western Quoll [330]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Eubalaena australis Southern Right Whale [40]	Endangered	Breeding known to occur within area	In feature area
Megaptera novaeangliae Humpback Whale [38]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Neophoca cinerea Australian Sea-lion, Australian Sea Lion [22]	Endangered	Species or species habitat likely to occur within area	In feature area
Parantechinus apicalis Dibbler [313]	Endangered	Species or species habitat known to occur within area	In feature area
Pseudocheirus occidentalis Western Ringtail Possum, Ngwayir, Womp, Woder, Ngoor, Ngoolangit [25911]	Critically Endangered	Species or species habitat known to occur within area	In feature area
OTHER			
Westralunio carteri Carter's Freshwater Mussel, Freshwater Mussel [86266]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
PLANT			
Banksia brownii Brown's Banksia, Feather-leaved Banksia [8277]	Endangered	Species or species habitat known to occur within area	In feature area
Banksia goodii Good's Banksia [16727]	Vulnerable	Species or species habitat known to occur within area	In buffer area only
Banksia verticillata Granite Banksia, Albany Banksia, River Banksia [8333]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Caladenia granitora [65292]	Endangered	Species or species habitat may occur within area	In feature area
Caladenia harringtoniae Harrington's Spider-orchid, Pink Spider-orchid [56786]	Vulnerable	Species or species habitat known to occur within area	In buffer area only
Calectasia cyanea Blue Tinsel Lily [7669]	Critically Endangered	Species or species habitat likely to occur within area	In buffer area only
Chordifex abortivus Manypeaks Rush [64868]	Endangered	Species or species habitat known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Conostylis misera Grass Conostylis [21320]	Endangered	Species or species habitat likely to occur within area	In buffer area only
Diuris drummondii Tall Donkey Orchid [4365]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Drakaea micrantha Dwarf Hammer-orchid [56755]	Vulnerable	Species or species habitat known to occur within area	In feature area
Isopogon uncinatus Albany Cone Bush, Hook-leaf Isopogon [20871]	Endangered	Species or species habitat known to occur within area	In feature area
Kennedia glabrata Northcliffe Kennedia [16452]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Microtis globula South-Coast Mignonette Orchid [6780]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
Sphenotoma drummondii Mountain Paper-heath [21160]	Endangered	Species or species habitat may occur within area	In buffer area only
Verticordia fimbrileps subsp. australis Southern Shy Featherflower [24630]	Vulnerable	Species or species habitat known to occur within area	In buffer area only
REPTILE			
Caretta caretta Loggerhead Turtle [1763]	Endangered	Breeding likely to occur within area	In feature area
Chelonia mydas Green Turtle [1765]	Vulnerable	Species or species habitat may occur within area	In feature area
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Breeding likely to occur within area	In feature area
SHARK			

Scientific Name	Threatened Category	Presence Text	Buffer Status
Carcharias taurus (west coast population)			
Grey Nurse Shark (west coast population) [68752]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Carcharodon carcharias			
White Shark, Great White Shark [64470]	Vulnerable	Foraging, feeding or related behaviour known to occur within area	In feature area
Galeorhinus galeus			
School Shark, Eastern School Shark, Snapper Shark, Tope, Soupfin Shark [68453]	Conservation Dependent	Species or species habitat may occur within area	In buffer area only
Rhincodon typus			
Whale Shark [66680]	Vulnerable	Species or species habitat may occur within area	In feature area

Listed Migratory Species		[Resource Information]	
Scientific Name	Threatened Category	Presence Text	Buffer Status
Migratory Marine Birds			
Apus pacificus			
Fork-tailed Swift [678]		Species or species habitat likely to occur within area	In feature area
Ardenna carneipes			
Flesh-footed Shearwater, Fleshy-footed Shearwater [82404]		Breeding known to occur within area	In feature area
Ardenna grisea			
Sooty Shearwater [82651]		Species or species habitat may occur within area	In feature area
Diomedea antipodensis			
Antipodean Albatross [64458]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
Diomedea dabbenena			
Tristan Albatross [66471]	Endangered	Species or species habitat may occur within area	In feature area
Diomedea epomophora			
Southern Royal Albatross [89221]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Diomedea exulans Wandering Albatross [89223]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
Diomedea sanfordi Northern Royal Albatross [64456]	Endangered	Foraging, feeding or related behaviour likely to occur within area	In feature area
Hydroprogne caspia Caspian Tern [808]		Breeding known to occur within area	In feature area
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area	In feature area
Macronectes halli Northern Giant Petrel [1061]	Vulnerable	Species or species habitat may occur within area	In feature area
Thalassarche carteri Indian Yellow-nosed Albatross [64464]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Thalassarche cauta Shy Albatross [89224]	Endangered	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Thalassarche impavida Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area	In feature area
Thalassarche melanophris Black-browed Albatross [66472]	Vulnerable	Species or species habitat may occur within area	In feature area
Thalassarche steadi White-capped Albatross [64462]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
Migratory Marine Species			

Scientific Name	Threatened Category	Presence Text	Buffer Status
Balaenoptera edeni Bryde's Whale [35]		Species or species habitat may occur within area	In buffer area only
Balaenoptera musculus Blue Whale [36]	Endangered	Species or species habitat likely to occur within area	In feature area
Caperea marginata Pygmy Right Whale [39]		Species or species habitat may occur within area	In buffer area only
Carcharhinus longimanus Oceanic Whitetip Shark [84108]		Species or species habitat may occur within area	In feature area
Carcharodon carcharias White Shark, Great White Shark [64470]	Vulnerable	Foraging, feeding or related behaviour known to occur within area	In feature area
Caretta caretta Loggerhead Turtle [1763]	Endangered	Breeding likely to occur within area	In feature area
Chelonia mydas Green Turtle [1765]	Vulnerable	Species or species habitat may occur within area	In feature area
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Breeding likely to occur within area	In feature area
Eubalaena australis as Balaena glacialis australis Southern Right Whale [40]	Endangered	Breeding known to occur within area	In feature area
Lagenorhynchus obscurus Dusky Dolphin [43]		Species or species habitat may occur within area	In buffer area only
Lamna nasus Porbeagle, Mackerel Shark [83288]		Species or species habitat may occur within area	In feature area
Megaptera novaeangliae Humpback Whale [38]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status	
Mobula alfredi as Manta alfredi Reef Manta Ray, Coastal Manta Ray [90033]		Species or species habitat known to occur within area	In feature area	
Mobula birostris as Manta birostris Giant Manta Ray [90034]		Species or species habitat known to occur within area	In feature area	
Orcinus orca Killer Whale, Orca [46]		Species or species habitat may occur within area	In feature area	
Rhincodon typus Whale Shark [66680]		Vulnerable	Species or species habitat may occur within area	In feature area
Migratory Terrestrial Species				
Motacilla cinerea Grey Wagtail [642]		Species or species habitat may occur within area	In feature area	
Migratory Wetlands Species				
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat known to occur within area	In feature area	
Arenaria interpres Ruddy Turnstone [872]		Roosting known to occur within area	In feature area	
Calidris acuminata Sharp-tailed Sandpiper [874]		Roosting known to occur within area	In feature area	
Calidris alba Sanderling [875]		Roosting known to occur within area	In feature area	
Calidris canutus Red Knot, Knot [855]	Endangered	Species or species habitat known to occur within area	In feature area	
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area	In feature area	

Scientific Name	Threatened Category	Presence Text	Buffer Status
Calidris melanotos Pectoral Sandpiper [858]	Critically Endangered	Species or species habitat known to occur within area	In feature area
Calidris ruficollis Red-necked Stint [860]		Roosting known to occur within area	In feature area
Calidris tenuirostris Great Knot [862]		Roosting known to occur within area	In feature area
Charadrius bicinctus Double-banded Plover [895]		Roosting known to occur within area	In feature area
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat known to occur within area	In feature area
Charadrius mongolus Lesser Sand Plover, Mongolian Plover [879]	Endangered	Roosting known to occur within area	In feature area
Gallinago megala Swinhoe's Snipe [864]	Critically Endangered	Roosting likely to occur within area	In feature area
Gallinago stenura Pin-tailed Snipe [841]		Roosting likely to occur within area	In feature area
Limosa lapponica Bar-tailed Godwit [844]		Species or species habitat known to occur within area	In feature area
Limosa limosa Black-tailed Godwit [845]		Roosting known to occur within area	In feature area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area	In feature area
Numenius minutus Little Curlew, Little Whimbrel [848]		Roosting likely to occur within area	In feature area
Numenius phaeopus Whimbrel [849]		Roosting known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Pandion haliaetus Osprey [952]		Breeding known to occur within area	In feature area
Pluvialis fulva Pacific Golden Plover [25545]		Roosting known to occur within area	In feature area
Pluvialis squatarola Grey Plover [865]		Roosting known to occur within area	In feature area
Thalasseus bergii Greater Crested Tern [83000]		Breeding known to occur within area	In buffer area only
Tringa brevipes Grey-tailed Tattler [851]		Roosting known to occur within area	In feature area
Tringa nebularia Common Greenshank, Greenshank [832]		Species or species habitat known to occur within area	In feature area
Tringa stagnatilis Marsh Sandpiper, Little Greenshank [833]		Roosting known to occur within area	In feature area
Xenus cinereus Terek Sandpiper [59300]		Roosting known to occur within area	In feature area

Other Matters Protected by the EPBC Act

Commonwealth Lands		[Resource Information]
The Commonwealth area listed below may indicate the presence of Commonwealth land in this vicinity. Due to the unreliability of the data source, all proposals should be checked as to whether it impacts on a Commonwealth area, before making a definitive decision. Contact the State or Territory government land department for further information.		
Commonwealth Land Name	State	Buffer Status
Defence		
Defence - ALBANY TRAINING DEPOT [50137]	WA	In buffer area only
Defence - ALBANY TRAINING DEPOT [50136]	WA	In buffer area only
Defence - ALBANY TRAINING DEPOT ; AIRTC ALBANY [50116]	WA	In buffer area only
Defence - ALBANY TRAINING DEPOT ; AIRTC ALBANY [50115]	WA	In buffer area only
Unknown		
Commonwealth Land - [51030]	WA	In buffer area only

Commonwealth Land Name	State	Buffer Status
Commonwealth Land - [50308]	WA	In buffer area only
Commonwealth Land - [51033]	WA	In buffer area only
Commonwealth Land - [50309]	WA	In buffer area only
Commonwealth Land - [51399]	WA	In buffer area only
Commonwealth Land - [51032]	WA	In buffer area only
Commonwealth Land - [51398]	WA	In buffer area only
Commonwealth Land - [51038]	WA	In buffer area only
Commonwealth Land - [51036]	WA	In buffer area only
Commonwealth Land - [51035]	WA	In buffer area only
Commonwealth Land - [51034]	WA	In buffer area only

Listed Marine Species			[Resource Information]
Scientific Name	Threatened Category	Presence Text	Buffer Status
Bird			
Actitis hypoleucos			
Common Sandpiper [59309]		Species or species habitat known to occur within area	In feature area
Apus pacificus			
Fork-tailed Swift [678]		Species or species habitat likely to occur within area overfly marine area	In feature area
Ardenna carneipes as Puffinus carneipes			
Flesh-footed Shearwater, Fleshy-footed Shearwater [82404]		Breeding known to occur within area	In feature area
Ardenna grisea as Puffinus griseus			
Sooty Shearwater [82651]		Species or species habitat may occur within area	In feature area
Arenaria interpres			
Ruddy Turnstone [872]		Roosting known to occur within area	In feature area
Bubulcus ibis as Ardea ibis			
Cattle Egret [66521]		Species or species habitat may occur within area overfly marine area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Calidris acuminata Sharp-tailed Sandpiper [874]	Endangered	Roosting known to occur within area	In feature area
Calidris alba Sanderling [875]		Roosting known to occur within area	In feature area
Calidris canutus Red Knot, Knot [855]		Species or species habitat known to occur within area overfly marine area	In feature area
Calidris ferruginea Curlew Sandpiper [856]		Species or species habitat known to occur within area overfly marine area	In feature area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat known to occur within area overfly marine area	In feature area
Calidris ruficollis Red-necked Stint [860]	Critically Endangered	Roosting known to occur within area overfly marine area	In feature area
Calidris tenuirostris Great Knot [862]		Roosting known to occur within area overfly marine area	In feature area
Cereopsis novaehollandiae grisea Cape Barren Goose (south-western), Recherche Cape Barren Goose [25978]		Species or species habitat known to occur within area overfly marine area	In feature area
Chalcites osculans as Chrysococcyx osculans Black-eared Cuckoo [83425]	Vulnerable	Species or species habitat likely to occur within area overfly marine area	In feature area
Charadrius bicinctus Double-banded Plover [895]		Roosting known to occur within area overfly marine area	In feature area
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]		Species or species habitat known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Charadrius mongolus Lesser Sand Plover, Mongolian Plover [879]	Endangered	Roosting known to occur within area	In feature area
Charadrius ruficapillus Red-capped Plover [881]		Roosting known to occur within area overfly marine area	In feature area
Chroicocephalus novaehollandiae as Larus novaehollandiae Silver Gull [82326]		Breeding known to occur within area	In feature area
Diomedea antipodensis Antipodean Albatross [64458]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
Diomedea dabbenena Tristan Albatross [66471]	Endangered	Species or species habitat may occur within area	In feature area
Diomedea epomophora Southern Royal Albatross [89221]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
Diomedea exulans Wandering Albatross [89223]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
Diomedea sanfordi Northern Royal Albatross [64456]	Endangered	Foraging, feeding or related behaviour likely to occur within area	In feature area
Eudyptula minor Little Penguin [1085]		Breeding known to occur within area	In buffer area only
Gallinago megala Swinhoe's Snipe [864]		Roosting likely to occur within area overfly marine area	In feature area
Gallinago stenura Pin-tailed Snipe [841]		Roosting likely to occur within area overfly marine area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Haliaeetus leucogaster White-bellied Sea-Eagle [943]	Vulnerable	Species or species habitat known to occur within area	In feature area
Halobaena caerulea Blue Petrel [1059]		Species or species habitat may occur within area	In buffer area only
Himantopus himantopus Pied Stilt, Black-winged Stilt [870]		Roosting known to occur within area overfly marine area	In feature area
Hydroprogne caspia as Sterna caspia Caspian Tern [808]		Breeding known to occur within area	In feature area
Larus pacificus Pacific Gull [811]		Breeding known to occur within area	In buffer area only
Limosa lapponica Bar-tailed Godwit [844]	Endangered	Species or species habitat known to occur within area	In feature area
Limosa limosa Black-tailed Godwit [845]		Roosting known to occur within area overfly marine area	In feature area
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]		Species or species habitat may occur within area	In feature area
Macronectes halli Northern Giant Petrel [1061]		Species or species habitat may occur within area	In feature area
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area overfly marine area	In feature area
Motacilla cinerea Grey Wagtail [642]		Species or species habitat may occur within area overfly marine area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area	In feature area
Numenius minutus Little Curlew, Little Whimbrel [848]		Roosting likely to occur within area overfly marine area	In feature area
Numenius phaeopus Whimbrel [849]		Roosting known to occur within area	In feature area
Pachyptila turtur Fairy Prion [1066]		Species or species habitat likely to occur within area	In feature area
Pandion haliaetus Osprey [952]	Vulnerable	Breeding known to occur within area	In feature area
Pelagodroma marina White-faced Storm-Petrel [1016]		Breeding known to occur within area	In buffer area only
Pluvialis fulva Pacific Golden Plover [25545]		Roosting known to occur within area	In feature area
Pluvialis squatarola Grey Plover [865]		Roosting known to occur within area overfly marine area	In feature area
Pterodroma macroptera Great-winged Petrel [1035]	Vulnerable	Breeding known to occur within area	In buffer area only
Pterodroma mollis Soft-plumaged Petrel [1036]		Species or species habitat may occur within area	In buffer area only
Recurvirostra novaehollandiae Red-necked Avocet [871]		Roosting known to occur within area overfly marine area	In feature area
Stercorarius skua as Catharacta skua Great Skua [823]		Species or species habitat may occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Thalassarche carteri Indian Yellow-nosed Albatross [64464]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Thalassarche cauta Shy Albatross [89224]	Endangered	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Thalassarche impavida Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area	In feature area
Thalassarche melanophris Black-browed Albatross [66472]	Vulnerable	Species or species habitat may occur within area	In feature area
Thalassarche steadi White-capped Albatross [64462]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
Thalasseus bergii as Sterna bergii Greater Crested Tern [83000]		Breeding known to occur within area	In buffer area only
Thinornis cucullatus as Thinornis rubricollis Hooded Dotterel, Hooded Plover [87735]		Species or species habitat known to occur within area overfly marine area	In feature area
Tringa brevipes as Heteroscelus brevipes Grey-tailed Tattler [851]		Roosting known to occur within area	In feature area
Tringa nebularia Common Greenshank, Greenshank [832]		Species or species habitat known to occur within area overfly marine area	In feature area
Tringa stagnatilis Marsh Sandpiper, Little Greenshank [833]		Roosting known to occur within area overfly marine area	In feature area
Xenus cinereus Terek Sandpiper [59300]		Roosting known to occur within area overfly marine area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Acentronura australe Southern Pygmy Pipehorse [66185]		Species or species habitat may occur within area	In feature area
Campichthys galei Gale's Pipefish [66191]		Species or species habitat may occur within area	In feature area
Heraldia nocturna Upside-down Pipefish, Eastern Upside-down Pipefish, Eastern Upside-down Pipefish [66227]		Species or species habitat may occur within area	In feature area
Hippocampus breviceps Short-head Seahorse, Short-snouted Seahorse [66235]		Species or species habitat may occur within area	In feature area
Histiogamphelus cristatus Rhino Pipefish, Macleay's Crested Pipefish, Ring-back Pipefish [66243]		Species or species habitat may occur within area	In feature area
Leptoichthys fistularius Brushtail Pipefish [66248]		Species or species habitat may occur within area	In feature area
Lissocampus caudalis Australian Smooth Pipefish, Smooth Pipefish [66249]		Species or species habitat may occur within area	In feature area
Lissocampus runa Javelin Pipefish [66251]		Species or species habitat may occur within area	In feature area
Maroubra perserrata Sawtooth Pipefish [66252]		Species or species habitat may occur within area	In feature area
Nannocampus subosseus Bonyhead Pipefish, Bony-headed Pipefish [66264]		Species or species habitat may occur within area	In feature area
Notiocampus ruber Red Pipefish [66265]		Species or species habitat may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Phycodurus eques Leafy Seadragon [66267]		Species or species habitat may occur within area	In feature area
Phyllopteryx taeniolatus Common Seadragon, Weedy Seadragon [66268]		Species or species habitat may occur within area	In feature area
Pugnaso curtirostris Pugnose Pipefish, Pug-nosed Pipefish [66269]		Species or species habitat may occur within area	In feature area
Solegnathus lettiensis Gunther's Pipehorse, Indonesian Pipefish [66273]		Species or species habitat may occur within area	In feature area
Stigmatopora argus Spotted Pipefish, Gulf Pipefish, Peacock Pipefish [66276]		Species or species habitat may occur within area	In feature area
Stigmatopora nigra Widebody Pipefish, Wide-bodied Pipefish, Black Pipefish [66277]		Species or species habitat may occur within area	In feature area
Urocampus carinirostris Hairy Pipefish [66282]		Species or species habitat may occur within area	In feature area
Vanacampus margaritifer Mother-of-pearl Pipefish [66283]		Species or species habitat may occur within area	In feature area
Vanacampus phillipi Port Phillip Pipefish [66284]		Species or species habitat may occur within area	In feature area
Vanacampus poecilolaemus Longsnout Pipefish, Australian Long-snout Pipefish, Long-snouted Pipefish [66285]		Species or species habitat may occur within area	In feature area
Mammal			
Arctocephalus forsteri Long-nosed Fur-seal, New Zealand Fur-seal [20]		Species or species habitat likely to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Neophoca cinerea			
Australian Sea-lion, Australian Sea Lion [22]	Endangered	Species or species habitat likely to occur within area	In feature area
Reptile			
Caretta caretta			
Loggerhead Turtle [1763]	Endangered	Breeding likely to occur within area	In feature area
Chelonia mydas			
Green Turtle [1765]	Vulnerable	Species or species habitat may occur within area	In feature area
Dermochelys coriacea			
Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Breeding likely to occur within area	In feature area
Whales and Other Cetaceans [Resource Information]			
Current Scientific Name	Status	Type of Presence	Buffer Status
Mammal			
Balaenoptera acutorostrata			
Minke Whale [33]		Species or species habitat may occur within area	In feature area
Balaenoptera edeni			
Bryde's Whale [35]		Species or species habitat may occur within area	In buffer area only
Balaenoptera musculus			
Blue Whale [36]	Endangered	Species or species habitat likely to occur within area	In feature area
Caperea marginata			
Pygmy Right Whale [39]		Species or species habitat may occur within area	In buffer area only
Delphinus delphis			
Common Dolphin, Short-beaked Common Dolphin [60]		Species or species habitat may occur within area	In feature area
Eubalaena australis			
Southern Right Whale [40]	Endangered	Breeding known to occur within area	In feature area
Grampus griseus			
Risso's Dolphin, Grampus [64]		Species or species habitat may occur within area	In feature area

Current Scientific Name	Status	Type of Presence	Buffer Status
Lagenorhynchus obscurus Dusky Dolphin [43]		Species or species habitat may occur within area	In buffer area only
Megaptera novaeangliae Humpback Whale [38]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
Orcinus orca Killer Whale, Orca [46]		Species or species habitat may occur within area	In feature area
Tursiops aduncus Indian Ocean Bottlenose Dolphin, Spotted Bottlenose Dolphin [68418]		Species or species habitat likely to occur within area	In feature area
Tursiops truncatus s. str. Bottlenose Dolphin [68417]		Species or species habitat may occur within area	In feature area

Extra Information

State and Territory Reserves			[Resource Information]
Protected Area Name	Reserve Type	State	Buffer Status
Bakers Junction	Nature Reserve	WA	In buffer area only
Bon Accord Road	Nature Reserve	WA	In buffer area only
Green Island	Nature Reserve	WA	In buffer area only
Gull Rock	National Park	WA	In buffer area only
Michaelmas Island	Nature Reserve	WA	In buffer area only
Mistaken Island	Nature Reserve	WA	In buffer area only
Mount Mason	Nature Reserve	WA	In buffer area only
Seal Island (WA32199)	Nature Reserve	WA	In buffer area only
Torndirrup	National Park	WA	In buffer area only
Unnamed WA30791	Nature Reserve	WA	In buffer area only
Unnamed WA33308	5(1)(h) Reserve	WA	In feature area
Voyagers Park	5(1)(h) Reserve	WA	In feature area

Protected Area Name	Reserve Type	State	Buffer Status
West Mount Mason	Nature Reserve	WA	In buffer area only

Nationally Important Wetlands		[Resource Information]	
Wetland Name		State	Buffer Status
Oyster Harbour		WA	In feature area

EPBC Act Referrals		[Resource Information]		
Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Controlled action				
Albany Heritage Park Link Trail, WA	2019/8480	Controlled Action	Assessment Approach	In buffer area only
Albany Heritage Park Trail Network Concept Plan	2017/7943	Controlled Action	Completed	In buffer area only
Albany Port Authority dredging project	2006/2540	Controlled Action	Post-Approval	In buffer area only
Albany Ring Road Stages 2 and 3B, WA	2020/8769	Controlled Action	Post-Approval	In buffer area only
Bayonet Head Residential Development, Albany, WA	2015/7624	Controlled Action	Further Information Request	In buffer area only
Emu Point Residential Area Project	2010/5479	Controlled Action	Completed	In buffer area only
Southdown Magnetite Mine	2006/2544	Controlled Action	Completed	In buffer area only

Not controlled action				
Albany Port Maintenance Dredging, Albany, WA	2014/7246	Not Controlled Action	Completed	In buffer area only
Anzac Centre Development, Albany, WA	2012/6571	Not Controlled Action	Completed	In buffer area only
Anzac Interpretive Centre Development, Albany, WA	2013/6903	Not Controlled Action	Completed	In buffer area only
Eradication of the European House Borer, Perth metropolitan area, WA	2009/5027	Not Controlled Action	Completed	In buffer area only
Firebreak Creation, Kalgan, WA	2020/8681	Not Controlled Action	Completed	In buffer area only
Improving rabbit biocontrol: releasing another strain of RHDV, sthrn two thirds of Australia	2015/7522	Not Controlled Action	Completed	In feature area
INDIGO Central Submarine Telecommunications Cable	2017/8127	Not Controlled Action	Completed	In feature area

Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Not controlled action				
Mount Barker to Albany Water Supply Pipeline	2013/6720	Not Controlled Action	Completed	In buffer area only
Prescribed burn of Cells 5, 6 & 8 of Crown Land Reserve 35381, Napier, WA	2013/6798	Not Controlled Action	Completed	In buffer area only
Protected Harbour Development	2006/3091	Not Controlled Action	Completed	In buffer area only
Scuttling of the HMAS Perth	2001/171	Not Controlled Action	Completed	In buffer area only
Seismic Survey, Bremer Basin, Mentelle Basin and Zeewyck Sub-basin	2004/1700	Not Controlled Action	Completed	In feature area
South Coast Highway Widening 8.2-14.16 SLK	2017/8009	Not Controlled Action	Completed	In buffer area only
Sth Coast Hwy Road Widening, Albany, WA	2018/8279	Not Controlled Action	Completed	In buffer area only

Not controlled action (particular manner)				
INDIGO Marine Cable Route Survey (INDIGO)	2017/7996	Not Controlled Action (Particular Manner)	Post-Approval	In feature area

Referral decision				
Albany Port Maintenance Dredging	2010/5527	Referral Decision	Completed	In buffer area only

Biologically Important Areas				
Scientific Name		Behaviour	Presence	Buffer Status
Seabirds				
Eudyptula minor Little Penguin [1085]		Foraging (provisioning young)	Known to occur	In feature area
Hydroprogne caspia Caspian Tern [808]		Foraging (provisioning young)	Known to occur	In feature area
Larus pacificus Pacific Gull [811]		Foraging (in high numbers)	Known to occur	In buffer area only
Sternula nereis Fairy Tern [82949]		Foraging (in high numbers)	Known to occur	In buffer area only

Scientific Name	Behaviour	Presence	Buffer Status
Sharks			
Carcharodon carcharias			
White Shark [64470]	Foraging	Known to occur	In feature area
Whales			
Balaenoptera musculus brevicauda			
Pygmy Blue Whale [81317]	Distribution	Known to occur	In buffer area only
Eubalaena australis			
Southern Right Whale [40]	Calving buffer	Known to occur	In buffer area only
Eubalaena australis			
Southern Right Whale [40]	Seasonal calving habitat	Known to occur	In buffer area only
Megaptera novaeangliae			
Humpback Whale [38]	Migration (north)	Known to occur	In buffer area only

Caveat

1 PURPOSE

This report is designed to assist in identifying the location of matters of national environmental significance (MNES) and other matters protected by the Environment Protection and Biodiversity Conservation Act 1999 (Cth) (EPBC Act) which may be relevant in determining obligations and requirements under the EPBC Act.

The report contains the mapped locations of:

- World and National Heritage properties;
- Wetlands of International and National Importance;
- Commonwealth and State/Territory reserves;
- distribution of listed threatened, migratory and marine species;
- listed threatened ecological communities; and
- other information that may be useful as an indicator of potential habitat value.

2 DISCLAIMER

This report is not intended to be exhaustive and should only be relied upon as a general guide as mapped data is not available for all species or ecological communities listed under the EPBC Act (see below). Persons seeking to use the information contained in this report to inform the referral of a proposed action under the EPBC Act should consider the limitations noted below and whether additional information is required to determine the existence and location of MNES and other protected matters.

Where data are available to inform the mapping of protected species, the presence type (e.g. known, likely or may occur) that can be determined from the data is indicated in general terms. It is the responsibility of any person using or relying on the information in this report to ensure that it is suitable for the circumstances of any proposed use. The Commonwealth cannot accept responsibility for the consequences of any use of the report or any part thereof. To the maximum extent allowed under governing law, the Commonwealth will not be liable for any loss or damage that may be occasioned directly or indirectly through the use of, or reliance

3 DATA SOURCES

Threatened ecological communities

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

Threatened, migratory and marine species

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

Where little information is available for a species or large number of maps are required in a short time-frame, maps are derived either from 0.04 or 0.02 decimal degree cells; by an automated process using polygon capture techniques (static two kilometre grid cells, alpha-hull and convex hull); or captured manually or by using topographic features (national park boundaries, islands, etc.).

In the early stages of the distribution mapping process (1999-early 2000s) distributions were defined by degree blocks, 100K or 250K map sheets to rapidly create distribution maps. More detailed distribution mapping methods are used to update these distributions

4 LIMITATIONS

The following species and ecological communities have not been mapped and do not appear in this report:

- threatened species listed as extinct or considered vagrants;
- some recently listed species and ecological communities;
- some listed migratory and listed marine species, which are not listed as threatened species; and
- migratory species that are very widespread, vagrant, or only occur in Australia in small numbers.

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

- listed migratory and/or listed marine seabirds, which are not listed as threatened, have only been mapped for recorded
- seals which have only been mapped for breeding sites near the Australian continent

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

Refer to the metadata for the feature group (using the Resource Information link) for the currency of the information.

Acknowledgements

This database has been compiled from a range of data sources. The department acknowledges the following custodians who have contributed valuable data and advice:

- [-Office of Environment and Heritage, New South Wales](#)
- [-Department of Environment and Primary Industries, Victoria](#)
- [-Department of Primary Industries, Parks, Water and Environment, Tasmania](#)
- [-Department of Environment, Water and Natural Resources, South Australia](#)
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