



Mangles Bay Lease Area Flora and Vegetation Reconnaissance Survey

Department of Transport, DOT4040417c261

Report

JBS&G 64791 | 158,775

2 April 2024





We acknowledge the Traditional Custodians of Country throughout Australia and their connections to land, sea and community.

We pay respect to Elders past and present and in the spirit of reconciliation, we commit to working together for our shared future.

Caring for Country The Journey of JBS&G
Artist: Patrick Caruso, Eastern Arrernte

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1. Introduction

Cape Peron was identified as a Planning Instrument Area (PIA) in 2018 after a proposal for a marina development at Mangles Bay was withdrawn by the Minister for Planning. PIAs are areas which required further detailed planning to establish an appropriate range of land uses and compatible activities (the study).

The study area (Survey Area; study site), as defined in Appendix A of DOT4040417c261 (RFQ), comprised mostly State-owned land with complex tenure arrangements and the majority reserved under the Metropolitan Region Scheme (MRS) for Parks and Recreation. The Mangles Bay precinct incorporated a number of uses; however, the focus of this study was on the area on which the Mangles Bay Fishing Club and the Cruising Yacht Club were located. The Department of Transport (DOT) was understood to be undertaking further investigations to confirm the long-term location/s of these two clubs.

As a result of the proposed development of Mangles Bay Marina, a number of studies and investigations were completed to support the assessment of the Mangles Bay Marina, including a flora and vegetation assessment over the Survey Area. The Survey Area had been the subject of historical flora and vegetation assessments (Bennett Environmental Consulting, 2005; ENV, 2011; Keating & Trudgen, 1986) so a Reconnaissance level survey was considered adequate to update existing information about flora and vegetation in the Survey Area.

1.1 Survey Area

The Survey Area is understood to comprise the following land parcels:

- Part of Lot 2301 on Plan 241753.
- Lot 1 on Plan 7928.
- Lot 2 on Plan 7928.
- Lot 2 on Plan 7928.
- Lot 303 on Plan 47616.

1.2 Regional Location

The Survey Area is located within the City of Rockingham, approximately 37 km southwest of Perth (Figure 1.1). It is bound to the north by ocean, the south by Point Peron Road and conservation reserve and on the east and west sides by carpark and degraded native vegetation.

1.2.1 Reserves

The Survey Area lies across the road from Department of Biodiversity Conservation and Attractions (DBCA) managed conservation/recreation reserve (R48968) gazetted under the Conservation and Land Management Act 1984 Section 5(1)(h).

1.2.2 Bush Forever

R48968 is also a designated Bush Forever (Government of Western Australia, 2000) site – Point Peron and Adjacent Bushland, Cardup- (Site 355).

Site 355 was inferred to contain the floristic community types (FCTs):

- 16 Highly seasonal wetlands (*Frankenia pauciflora* and *Salicornia blackiana* Low Open Shrubland on Tamala Limestone Cliffs);
- 29a Coastal shrublands on shallow sands;
- 29b Acacia shrublands on taller dunes;
- S13 Northern *Olearia axillaris* - *Scaevola crassifolia* shrublands; and

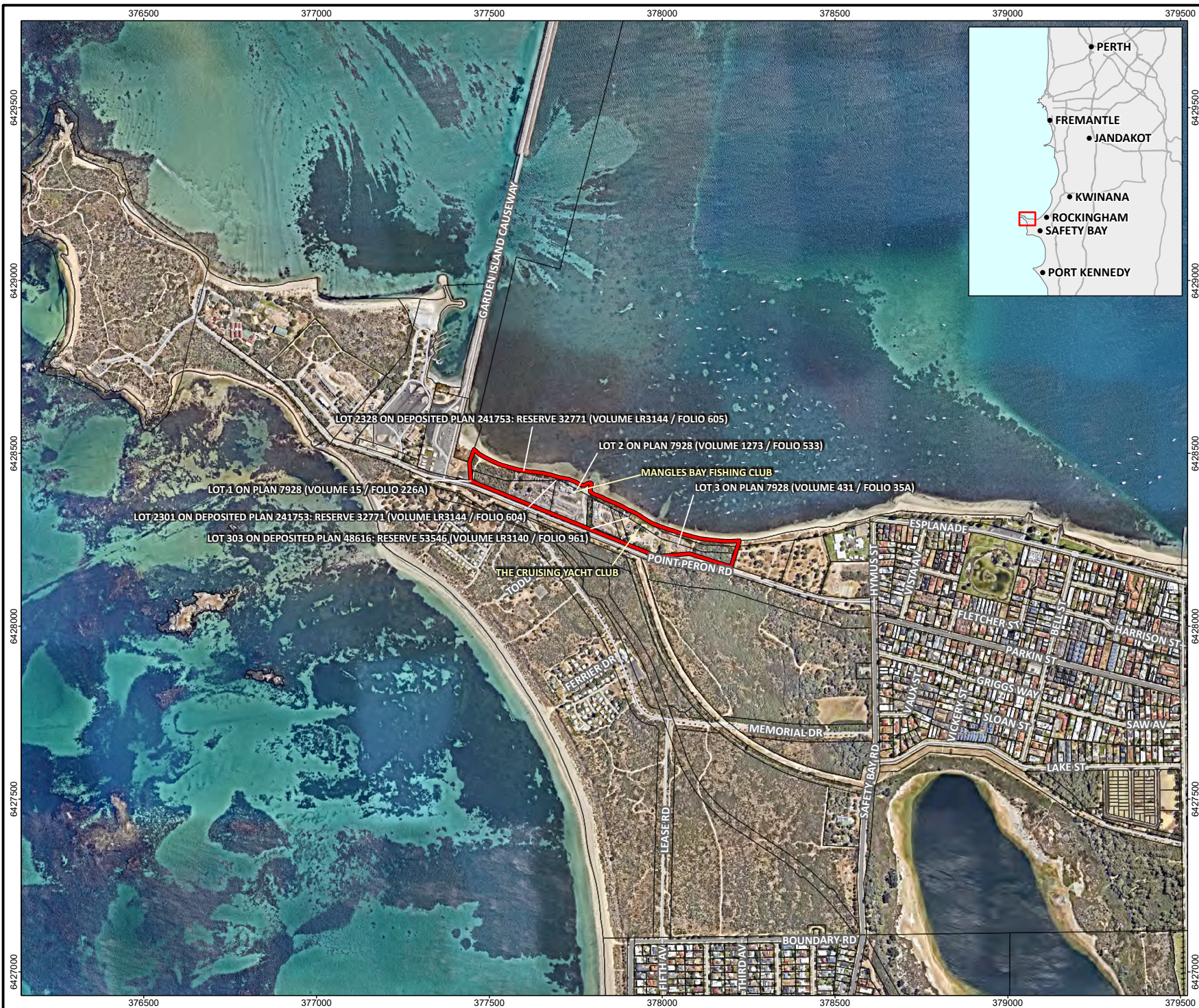
- S14 Spinifex longifolius grasslands and low shrublands.

No significant flora were identified by Bush Forever (Government of Western Australia, 2000).

1.3 Scope of Work

The Scope of Work for DOT4040417c261 was a flora and vegetation survey of the lease area sites, incorporating:

- Desktop Review:
 - Carry out an initial desktop assessment to determine environmental values and conservation significant flora, fauna, habitat, vegetation or other environmental features relating to the project area;
- Survey:
 - Carry out a field survey of the project area to assess flora, vegetation, fauna values relating to the project area.
 - Provide a description of main vegetation communities present within the Survey Area
 - Map vegetation types and condition within the Survey Area;
 - Map locations of conservation significant flora within the Survey Area;
 - Describe the condition of the vegetation communities or areas using a published rating scale; and
 - Provide a comprehensive report outlining key findings from the survey data collected over the field event, including:
 - Review of background information
 - A summary and associated map
 - Methods of survey and review
 - Results of survey and database review, including maps
 - Any other relevant matters for discussion.
 - All relevant mapping/GIS data.



Legend

- Survey area
- Cadastral boundary
- Major road
- Minor road
- Track



Job No: 64791

Client: Department of Transport

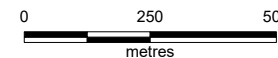
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Date: 2/04/2024

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Checked By: RP

Scale 1:15,000 at A4



Coord. Sys. GDA2020 MGA Zone 50

Mangles Bay Fishing Club
Point Peron Rd, Rockingham, WA

SURVEY AREA AND REGIONAL
LOCATION

FIGURE 1.1

2. Existing Environment

2.1 Biogeography

The Interim Biogeographic Regionalisation for Australia (IBRA) describes a system of 89 'biogeographic regions' (bioregions) and 419 subregions covering the entirety of the Australian continent (Thackway & Creswell, 1995; DEE, 2012). Bioregions are defined on the basis of climate, geology, landforms, vegetation and fauna.

The Survey Area occurs within the Swan Coastal Plain 2 (Perth) IBRA subregion which is dominated by *Banksia* or Tuart on sandy soils, *Casuarina obesa* on outwash plains and paperbark (*Melaleuca*) in swampy areas (Mitchell, et al., 2002).

2.2 Climate

The Swan Coastal Plain has a warm Mediterranean climate with hot, dry summers and cool, wet winters (Beard, 1990).

The nearest mainland weather station which records both temperature and rainfall data is at Mandurah (site number 009977) located approximately 20 km south of the Survey Area.

The average annual rainfall at Mandurah from 2001 - 2023 was 634.8 mm, with the highest monthly rainfall occurring from May to September (Error! Reference source not found.) (BOM, 2024). The wettest year on record was 2005, with an annual rainfall of 915.2 mm. The highest monthly rainfall on record, 265.0 mm, was recorded in May 2005 (BOM, 2024). The six months preceding the survey received below average rainfall.

The average monthly maximum temperature at Mandurah from 2001 – 2023 ranged from 17.6 °C in July to 29.9 °C in February. Average monthly minimum temperature ranges from 10.8 °C in July to 19.4 °C in February.

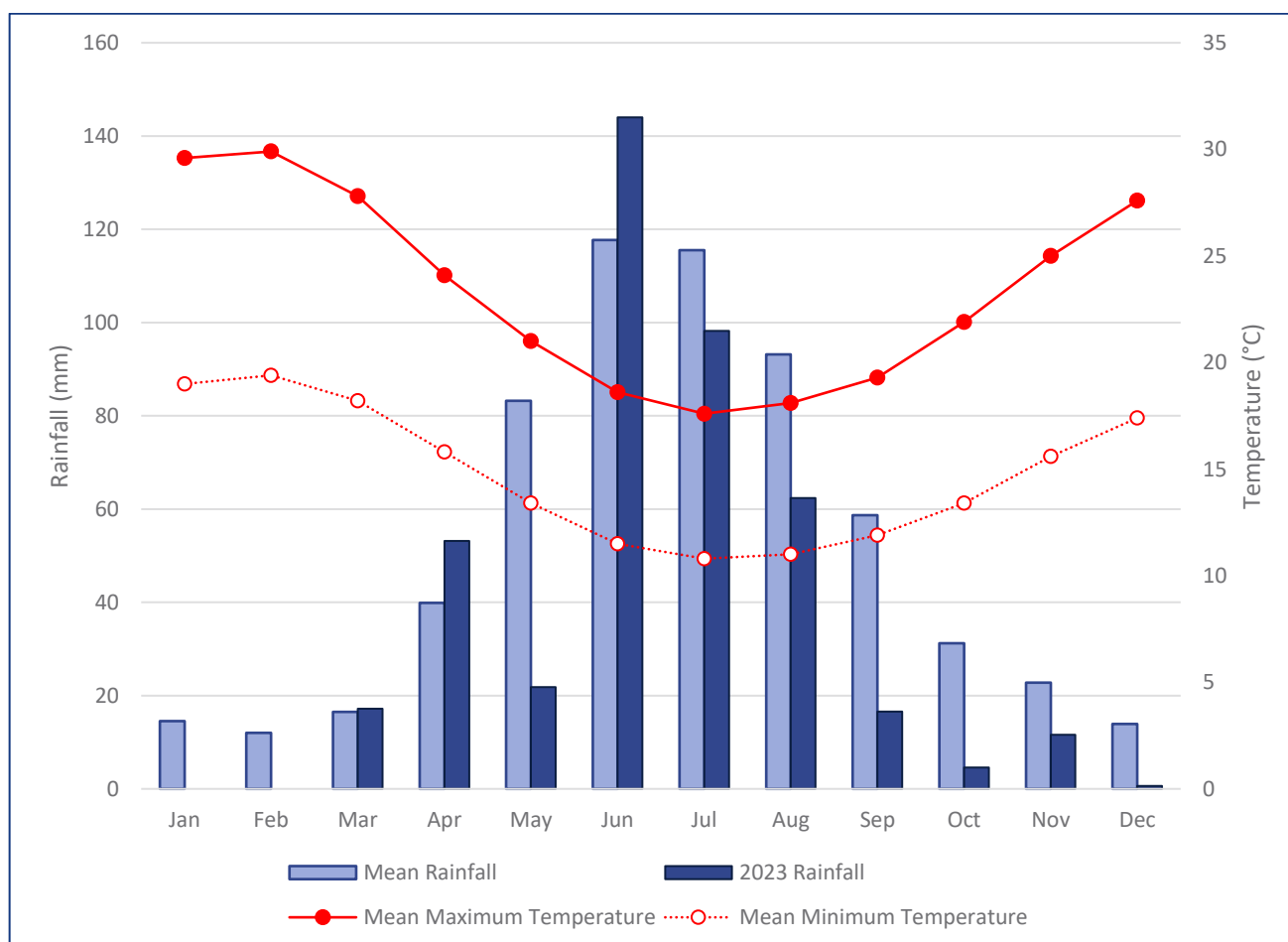


Figure 2.1. Climate data for the Survey/Study Area

2.3 Soils and Landforms

2.3.1 Soil-landscape Systems

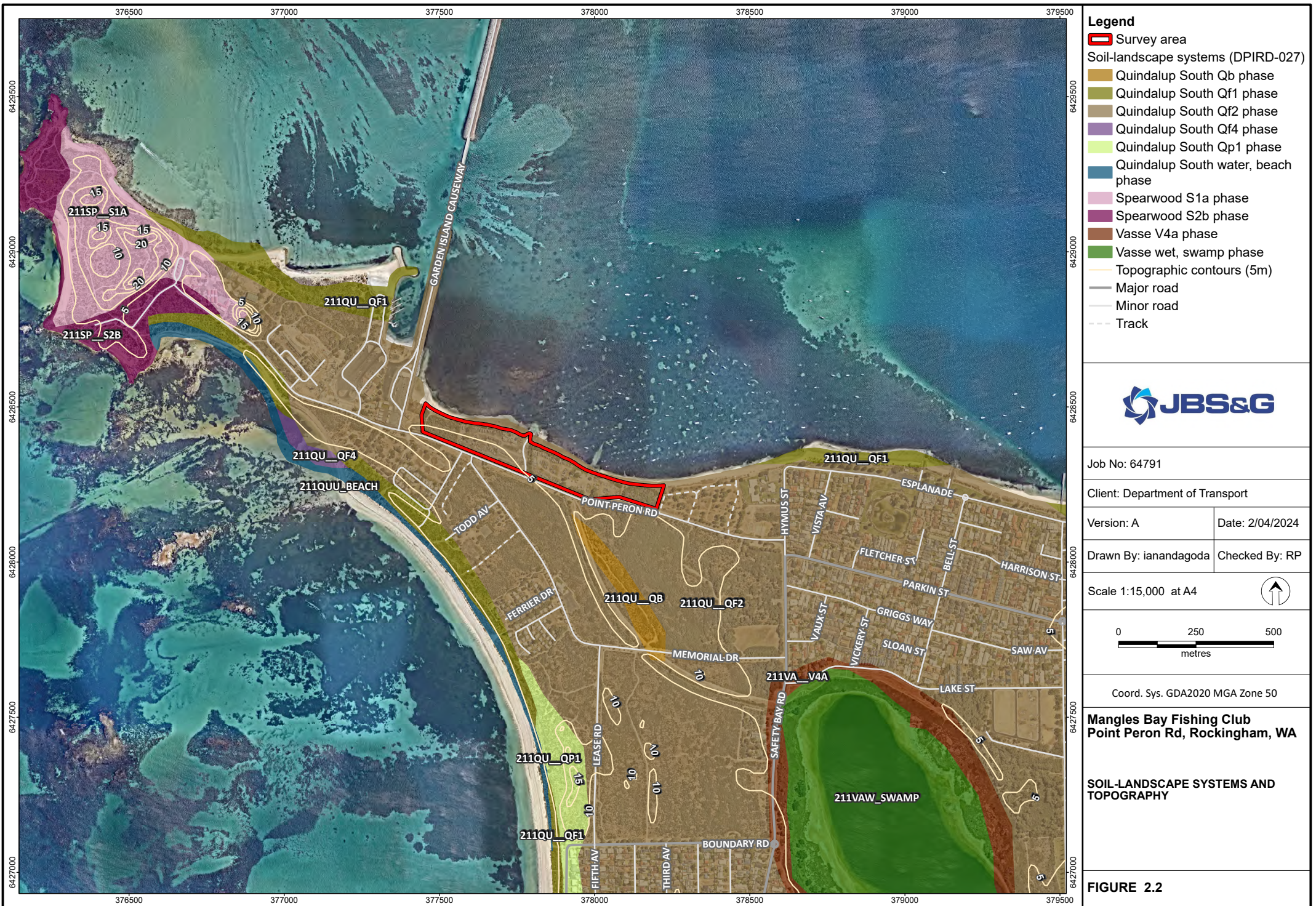
The Survey Area occurs in the Perth Basin on the Swan Coastal Plain. The Swan Coastal Plain is characterised by a series of old dunes which run parallel to the coast. The youngest (Holocene) dunes are the Quindalup dunes near the contemporary coastline, with the secondary (Spearwood dunes) and oldest (Bassendean dunes) occurring further inland (Gozzard, J.R. and Geological Survey of Western Australia, 2007; McArthur, 2004). The soils are typically sandy with limestone and some clay, and a series of wetlands occurs within Spearwood and Bassendean dune swales.

The Survey Area was situated within the Quindalup dune system. The soils are predominantly calcareous sands with little organic matter (McArthur, 2004).

Based on the soil and landform mapping dataset DPIRD-064 maintained by the Department of Primary Industries and Regional Development (DPIRD)(2023), there is a single soil-landscape system overlying the Survey Area, the Quindalup South System (Figure 2.2). The Quindalup South system (211Qu) is described as coastal dunes of the Swan Coastal Plain, with calcareous deep sands and yellow sands and coastal scrub.

2.3.2 Topography

The Survey Area occupies the coastal foreshore and dunes mostly below 5 m above sea level (Figure 2.2). Much of the site is relatively flat, having been evened out for carpark and boat parking facilities.



2.4 Inland Waters

2.4.1 Surface Water

The Survey Area occurs within the Coastal catchment of the Murray River basin (DWER, 2022a; DWER, 2022b). There are no surface water features within the Survey Area. Based on contour mapping, the Survey Area drains into the ocean to the north-north-east.

2.4.2 Groundwater

No groundwater contours are available for the Survey Area (DWER, 2024). Based on the site's proximity to the coast, it's likely that a saltwater intrusion occurs below the surface.

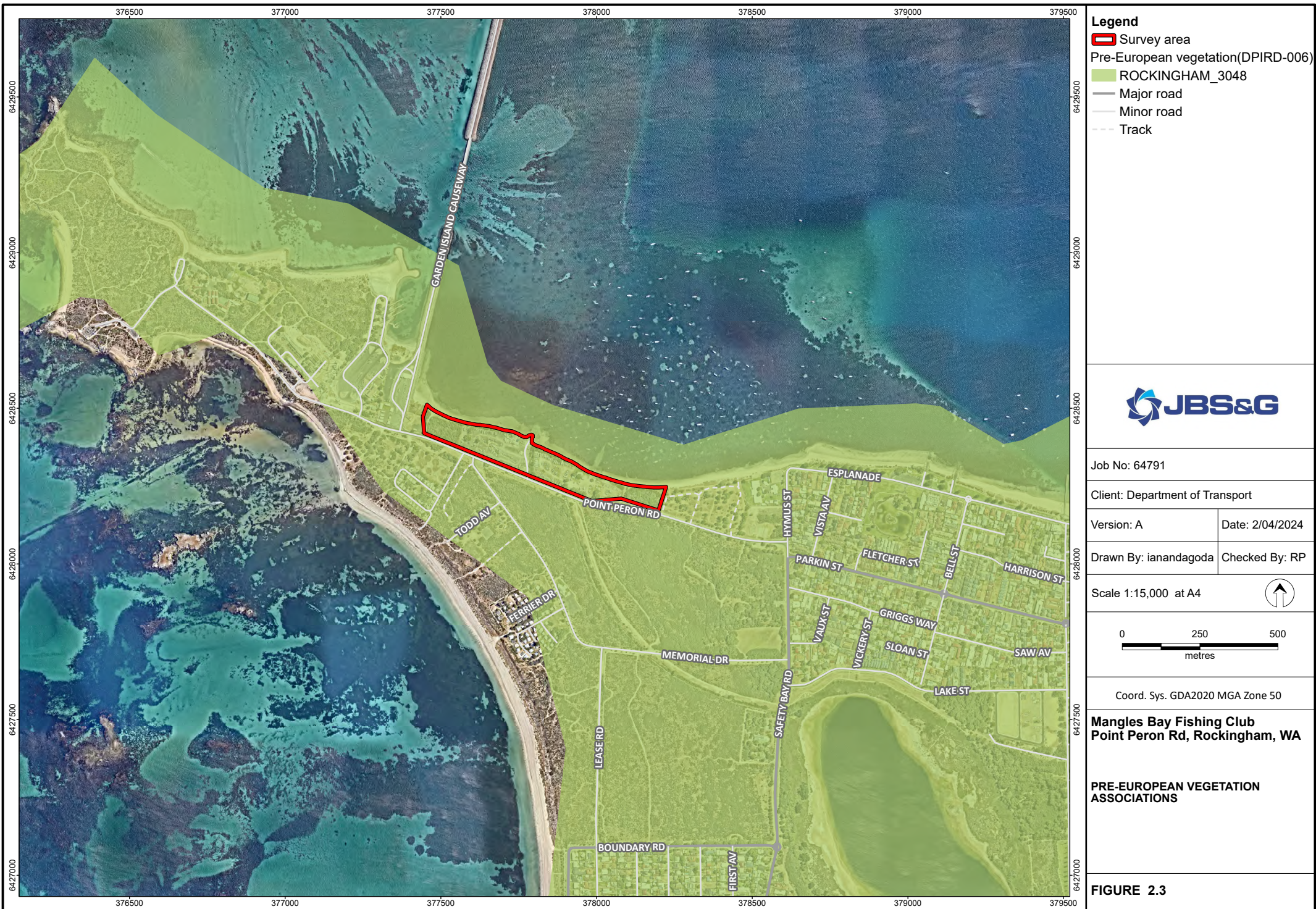
2.5 Regional Vegetation

The National Objectives and Targets for Biodiversity Conservation 2001-2005 recognised that a retention of 30 % or more of the pre-clearing extent of each ecological community was necessary if Australia's biological diversity was to be protected (ANZECC, 2000). The Western Australian Environmental Protection Authority (EPA) has previously adopted the ANZECC 30 % retention target; however, under Position Statement No. 2, they also regarded less than 10 % remaining of the pre-clearing extent of vegetation as being a level representing 'endangered' (ANZECC, 2000). Position Statement No. 2 has subsequently been replaced with EPA's *Environmental Factor Guideline – Flora and Vegetation* (EPA, 2016b) which describes a more qualitative approach to biodiversity conservation and no longer mentions percentage targets.

The Survey Area lies within one pre-European vegetation association; Rockingham 3048 (Mixed heath with scattered tall shrubs – *Acacia* spp., Proteaceae and Myrtaceae). This vegetation association has less than 30% of its pre-European extent remaining (Table 2.1 and Figure 2.3).

Table 2.1 Pre-European vegetation associations/sub-associations and their extent

| Vegetation Sub-Association | Scale | Pre-European Extent (ha) | Current Extent (ha) | % Remaining |
|---|--------------------------------|--------------------------|---------------------|-------------|
| Rockingham 3048 | Western Australia | 12,100.76 | 3,055.38 | 25.25 |
| Mixed heath with scattered tall shrubs – <i>Acacia</i> spp., Proteaceae and Myrtaceae | Swan Coastal Plain IBRA Region | 10,418.06 | 3,043.13 | 29.21 |
| | Perth IBRA Sub-region | 10,418.06 | 3,043.13 | 29.21 |
| | City of Rockingham | 9,147.49 | 2,735.19 | 29.90 |



2.6 Previous Surveys

Three surveys have been undertaken in and around the Survey Area historically:

- A Flora and Vegetation of the Mangles Bay Area (ENV, 2011)
- (Bennett Environmental Consulting, 2005)
- (Keating & Trudgen, 1986)

ENV (2011) rescored Bennett Environmental Consulting's (2005) quadrats to bring the survey into alignment with current guidance. They identified one vegetation community as potentially occurring at the Survey Area, SCP29a – Coastal shrublands on shallow sands (ENV, 2011). This community is a Priority 3 ecological community. None of Bennett Environmental Consulting's (2005) quadrats were within the Survey Area.

Keating and Trudgen's (1986) vegetation map for the Survey Area was not legible in the pdf, but two vegetation units could be identified, *Acacia rostellifera* closed scrub and *Acacia rostellifera*, *Melaleuca huegelii* closed scrub.

2.7 Significant Flora

Flora, or populations of flora, may be considered significant for a range of reasons, including:

- Conservation dependent taxa (including those identified as a threatened or priority taxa);
- Being locally endemic, geographically restricted or associated with a restricted habitat type, including phreatophytic species;
- Novel, hybrid or taxonomically unusual taxa;
- Geographically isolated populations and range extensions;
- Bush tucker, bush medicine species and culturally important species; and
- Keystone species or those which provide critical habitat for fauna species.

2.7.1 Significant Flora

Database Searches

Database searches listed 44 significant flora taxa as potentially occurring in the Survey Area (Figure 2.5, Appendix C). Of these, three taxa were considered likely to occur in the Survey Area and 17 were considered to possibly occur in the Survey Area. The three taxa considered likely to occur, based on suitable habitat being present and nearby records, were:

- *Dodonaea hackettiana* (P4)
- *Jacksonia sericea* (P4)
- *Eucalyptus foecunda* subsp. *foecunda* (P4)

Nearby Surveys

ENV. Australia (2011) identified one Priority flora species near the Survey Area, *Dodonaea hackettiana* (P4).

2.7.2 Significant Ecological Communities

Ten threatened ecological communities (TECs) listed under the *Environment Protection Biodiversity and Conservation Act 1999* (EPBC Act), four TECs listed under the *Biodiversity Conservation Act 2016* (BC Act) and a further two listed as priority ecological communities (PECs) by DBCA were identified by the database searches as potentially occurring in the Survey Area (Table 2.2, Figure 2.7).

Of these four were considered likely to occur in the Survey Area based on habitat and distribution:

- Woodlands over Sedgelands in Holocene dune swales of the southern Swan Coastal Plain (floristic community type 19 as originally described in Gibson et al. 1994) (CR/EN)
- Sedgelands in Holocene dune swales of the southern Swan Coastal Plain (floristic community type 19 as originally described in in Gibson et al. 1994) (CR/EN)
- Southern *Eucalyptus gomphocephala*-*Agonis flexuosa* woodlands (P3/CR)
- *Callitris preissii* (or *Melaleuca lanceolata*) forests and woodlands of the Swan Coastal Plain (floristic community type 30a as originally described in Gibson et al. 1994) (CR/Not listed)

Several State listed communities fall under the umbrella of a Commonwealth listed community.

Table 2.2 Significant Ecological Community Database Searches

| Community Name | State | Cth |
|--|-------|-----|
| Sedgelands in Holocene dune swales of the southern Swan Coastal Plain (floristic community type 19 as originally described in Gibson et al. 1994) | | EN |
| • Woodlands over Sedgelands in Holocene dune swales of the southern Swan Coastal Plain (floristic community type 19 as originally described in Gibson et al. 1994) | CR | |
| • Sedgelands in Holocene dune swales of the southern Swan Coastal Plain (floristic community type 19 as originally described in Gibson et al. 1994) | CR | |
| Banksia Woodlands of the Swan Coastal Plain ecological community | | EN |
| • Northern Spearwood shrublands and woodlands | P3 | |
| Subtropical and Temperate Coastal Saltmarsh | P3 | VU |
| Tuart (<i>Eucalyptus gomphocephala</i>) woodlands and forests of the Swan Coastal Plain | | CR |
| • Southern <i>Eucalyptus gomphocephala</i> - <i>Agonis flexuosa</i> woodlands | P3 | |
| Coastal shrublands on shallow sands | P3 | |
| <i>Callitris preissii</i> (or <i>Melaleuca lanceolata</i>) forests and woodlands of the Swan Coastal Plain (floristic community type 30a as originally described in Gibson et al. 1994) | CR | |
| Thrombolite (microbial) community of coastal freshwater lakes of the Swan Coastal Plain (Lake Richmond) | | EN |
| • Stromatolite like microbialite community of coastal freshwater lakes (Lake Richmond) | CR | |
| Microbial community of a coastal saline lake (Lake Walyungup) | P1 | |
| Assemblages of plants and invertebrate animals of tumulus (organic mound) springs of the Swan Coastal Plain | | EN |
| <i>Corymbia calophylla</i> - <i>Kingia australis</i> woodlands on heavy soils of the Swan Coastal Plain (floristic community type 3a as originally described in Gibson et al. 1994) | | EN |
| Clay Pans of the Swan Coastal Plain | | CR |
| <i>Corymbia calophylla</i> - <i>Xanthorrhoea preissii</i> woodlands and shrublands of the Swan Coastal Plain (floristic community type 3c as originally described in Gibson et al. 1994) | | EN |

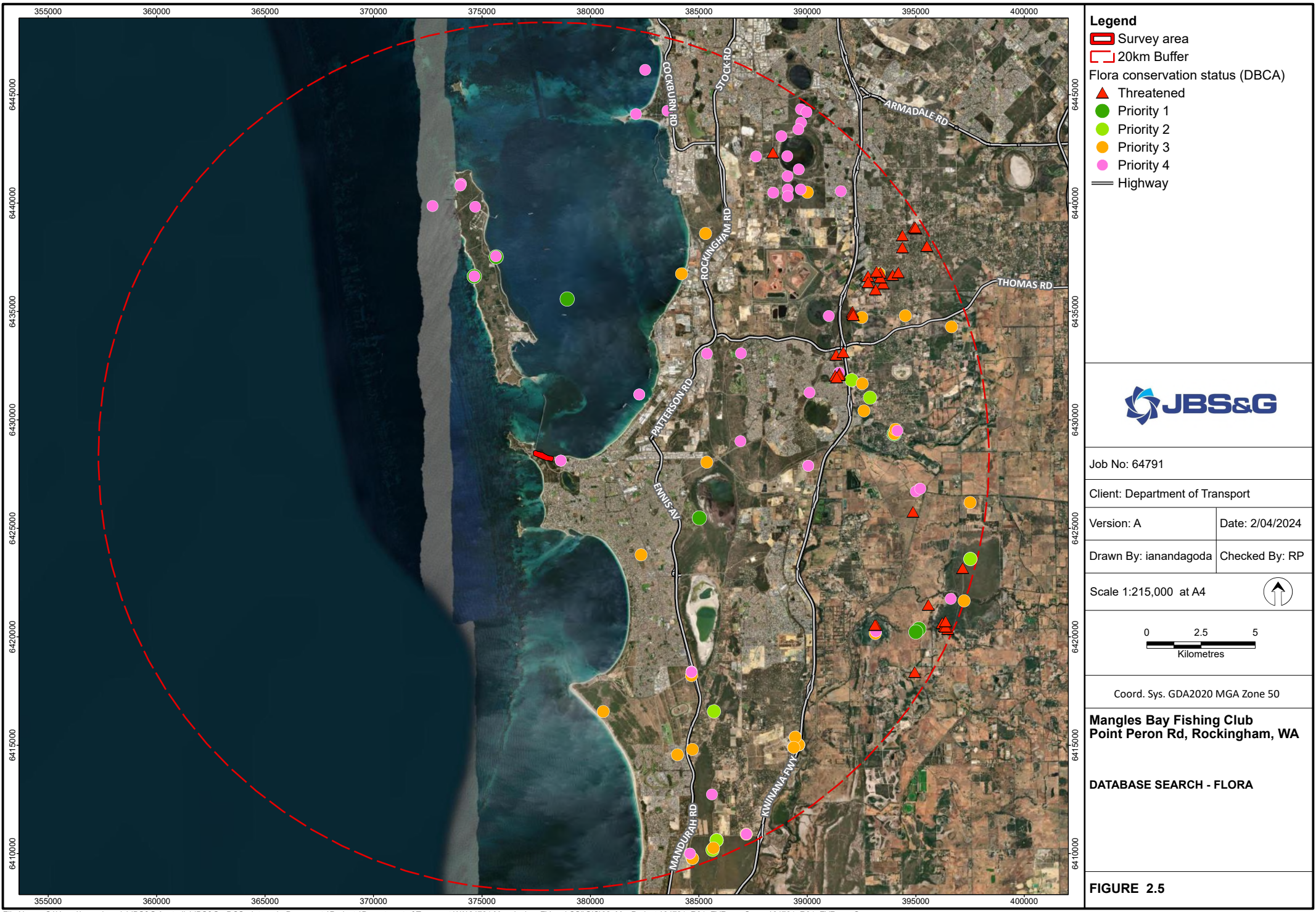
2.8 Significant Fauna

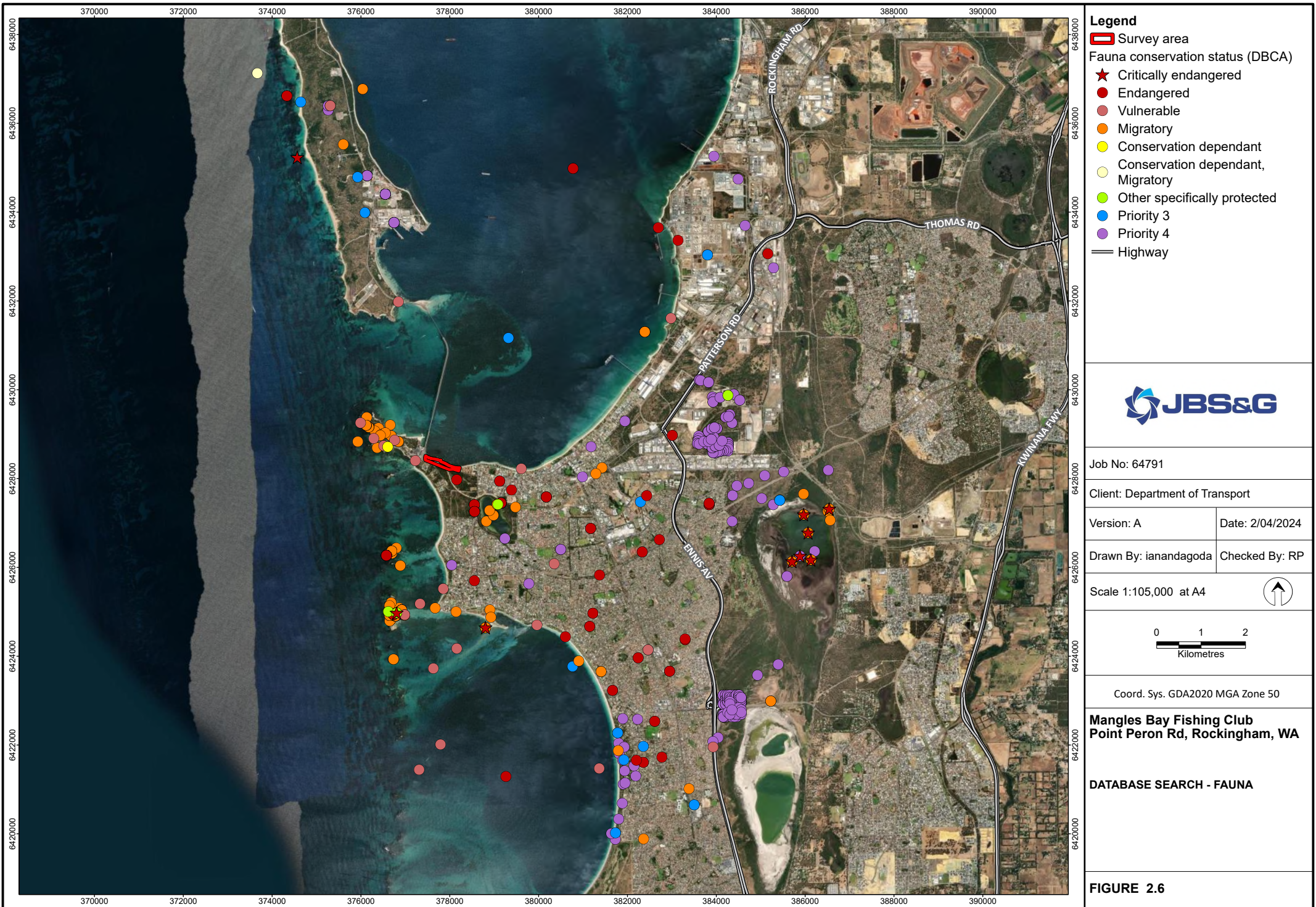
Fifty-nine significant fauna taxa were listed by database searches as potentially occurring in the Survey Area. Of these, nineteen were considered likely to occur based on habitat preferences and nearby records (Figure 2.6, Appendix C).

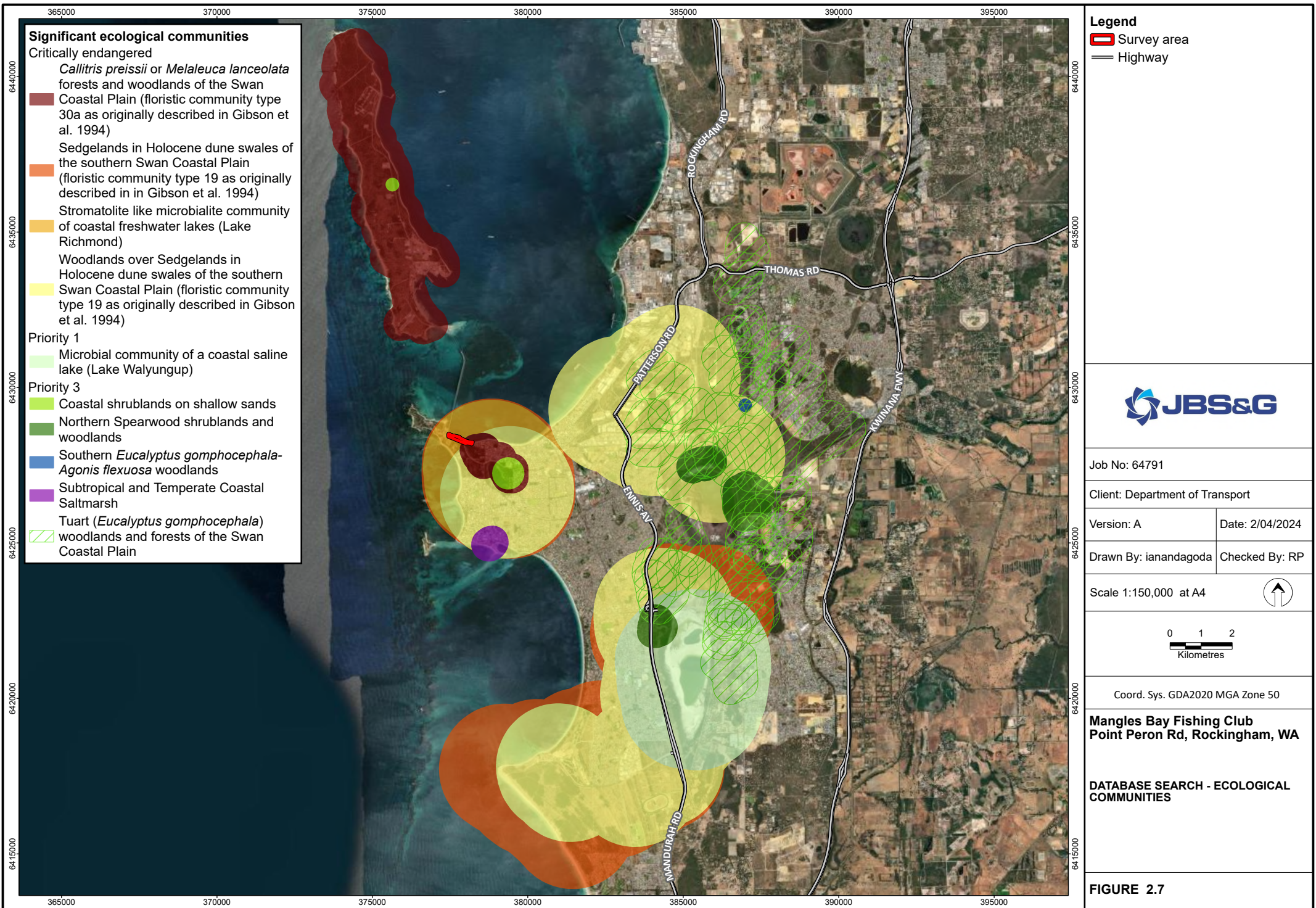
The taxa considered likely to occur were:

- *Arenaria interpres* (ruddy turnstone)
- *Calidris alba* (sanderling)
- *Calidris canutus* (red knot)
- *Calidris ruficollis* (red-necked stint)
- *Calidris tenuirostris* (great knot)
- *Calyptorhynchus banksii naso* (forest red-tailed black cockatoo)
- *Zanda baudinii* (Baudin's black cockatoo)
- *Zanda latirostris* (Carnaby's black cockatoo)

- *Falco peregrinus* (peregrine falcon)
- *Hydroprogne caspia* (Caspian tern)
- *Isoodon fusciventer* (quenda, southwestern brown bandicoot)
- *Lerista lineata* (Perth slider, lined skink)
- *Limosa lapponica menzbieri* (bar-tailed godwit (Northern Siberian))
- *Neelaps calonotos* (black-striped snake, black-striped burrowing snake)
- *Pandion cristatus* (Osprey, eastern osprey)
- *Sterna dougallii* (roseate tern)
- *Sternula nereis nereis* (fairy tern)
- *Thalasseus bergii* (crested tern)







3. Methods

3.1 Personnel

The field assessment of the Survey was led by an experienced botanist from JBS&G (Table 3.1), with more than 5 years' experience in the bioregion as required by EPA guidance. The survey was conducted in accordance with guidelines provided in Technical Guidance – Flora and Vegetation Surveys for Environmental Impact Assessment (EPA 2016).

Table 3.1 Key Personnel

| Name | Experience | Role | Flora Collection Permit |
|---------------|-----------------------|-------------|---|
| Rachael Pratt | >20 years' experience | Survey lead | FB62000141-2 (13 Sep 2022-12 Sep 2025) TFL 2223-0029 (26 Jul 2022-31 Jul 2025) |

3.2 Desktop Assessment

Requests were made to the Department of Climate Change, Energy, the Environment and Water (DCCEEW) and DBCA for data from key databases to generate a list of significant vascular flora and Threatened and Priority ecological communities previously recorded within, and in the vicinity of, the Survey Area (Table 3.2). Database searches were conducted within a 20 km buffer of the Survey Area.

Table 3.2 Database searches

| Data Custodian | Database | Reference | Search Buffer |
|----------------|--|-----------|---------------|
| DCCEEW | Protected Matters Search Tool | n/a | 20 km |
| DBCA | Threatened and Priority Ecological Communities | 43-0523EC | 20 km |
| DBCA | Threatened (Declared Rare) and Priority Flora (TPFL) | 14-0623FL | 20 km |
| DBCA | WA Herbarium | 14-0623FL | 20 km |
| DBCA | Threatened and Priority Fauna | 7728 | 20 km |

Reports/datasets from previous surveys documenting the flora and vegetation near the Survey Area were also reviewed prior to the field assessment.

Species identified by database searches and nearby survey work were assessed for their likelihood of occurring in the Survey Area based on proximity to the Survey Area and the presence of suitable habitat (Table 3.3).

Table 3.3 Likelihood assessment categories

| Likelihood | Definition |
|------------|--|
| Present | The taxon has been recorded within the Survey Area. |
| Likely | The Survey Area contains suitable habitat for the taxon and it is likely the taxon may occur based on presence of a recent historical record close to (within 5 km) the Survey Area. |
| Possible | The Survey Area contains suitable habitat for the taxon but there is no other information to suggest that the taxon may occur within or close to the Survey Area, or habitat information is lacking for the taxon. |
| Unlikely | The Survey Area does not contain suitable habitat for the taxon, regional records suggest the taxon does not occur near the Survey Area , or the Survey Area contains suitable habitat for the taxon within which thorough targeted searches were completed and conclusion has been made that the taxon is unlikely to be present. |
| Absent | Habitats present within the Survey Area preclude the possibility of this taxon occurring. E.g. aquatic taxa at a Survey Area where no seasonally inundated areas occur. |

3.3 Survey Rationale

JBS&G plan and implement flora and vegetation surveys to comply with legislation, regulations and standards detailed in the guidelines required for environmental impact assessment (EIA). The purpose of the survey was to update existing knowledge of the flora and vegetation within the Survey Area. The Survey Area had been subject to a “level 2” flora and vegetation survey in 2009 (ENV, 2011) in accordance with the now redundant *Guidance Statement No. 51 Terrestrial Flora and Vegetation Surveys for Environmental Impact Assessment in Western Australia* (EPA, 2004) as well as earlier surveys. Given the survey history of the site, a reconnaissance survey, with a targeted flora survey, was considered adequate to describe the flora and vegetation of the Survey Area.

The Survey Area was located within the South-west botanical province. For the South-west, EPA (2016) recommends that the primary survey be undertaken in Spring (Table 3.4).

Table 3.4 Survey Timing

| Survey Phase | Dates |
|--|------------|
| Reconnaissance Flora and Vegetation Survey | 13/10/2023 |
| Targeted flora survey | 13/10/2023 |

3.4 Field Survey

3.4.1 Reconnaissance Flora Survey

The Survey Area was traversed on foot, with an attempt made to visit all vegetation units within the Survey Area based on observations of aerial photography.

For each vegetation unit, a description was prepared of structural form and dominant species and likely vegetation boundaries were marked on a map or recorded by GPS. A minimum of one relevé was recorded for each vegetation unit, unless they were too small to map at the scale of the survey.

Within each relevé, the following were recorded:

- Site code;
- Location, with GPS coordinate and datum;
- Photograph of vegetation;

- Landform and soil description;
- Vegetation structural description and dominant species;
- Assessment of vegetation condition in accordance with the Keighery (1994) scale (Table 3.5); and
- A species list, including weeds.

The location of all Tuarts (*Eucalyptus gomphocephala*) greater than 150 mm diameter at breast height (DBH) were recorded with a handheld GPS, including several across the road from the Survey Area.

Table 3.5 Vegetation Condition Scale

| Vegetation Condition | South-west and Interzone Botanical Provinces Adapted from Keighery (1994) |
|----------------------|--|
| Pristine | Pristine or nearly so, no obvious signs of disturbance or damage caused by human activities since European settlement. |
| Excellent | Vegetation structure intact, disturbance affecting individual species and weeds are non-aggressive species. Damage to trees caused by fire, the presence of non-aggressive weeds and occasional vehicle tracks. |
| Very Good | Vegetation structure altered, obvious signs of disturbance. Disturbance to vegetation structure caused by repeated fires, the presence of some more aggressive weeds, dieback, logging and grazing. |
| Good | Vegetation structure significantly altered by very obvious signs of multiple disturbances. Retains basic vegetation structure or ability to regenerate it. Disturbance to vegetation structure caused by very frequent fires, the presence of very aggressive weeds, partial clearing, dieback and grazing. |
| Degraded | Basic vegetation structure severely impacted by disturbance. Scope for regeneration but not to a state approaching good condition without intensive management. Disturbance to vegetation structure caused by very frequent fires, the presence of very aggressive weeds at high density, partial clearing, dieback and grazing. |
| Completely Degraded | The structure of the vegetation is no longer intact and the area is completely or almost completely without native species. These areas are often described as 'parkland cleared' with the flora comprising weed or crop species with isolated native trees and shrubs. |

3.4.2 Targeted Flora Survey

A targeted flora survey was undertaken in potential habitat for significant flora species by traversing the vegetation at 10 m intervals. The locations of potentially significant flora were recorded, notes were made regarding habitat and a specimen was collected from each population.

Note: current DBCA terms and conditions for the collection of threatened flora prevent the disclosure of specific locality information of threatened flora populations to other persons without the written permission of the CEO.

3.5 Specimen Identification

Flora samples collected during the survey had information recorded that allows for identification and allocation to the correct sample site or collection location. Specimens were pressed in the field so that as many identifiable characteristics were preserved and to ensure that they dried correctly. Taxonomic work was completed with reference to appropriate keys and other works by personnel with adequate skills and training. Samples that could be identified, were conservation significant, potential novel species or range extensions were submitted to the Western Australian Herbarium for identification. Nomenclature followed Florabase (WAHerb, 1998-).

3.6 Data analysis

3.6.1 Vegetation units

Vegetation units were delineated using a combination of sample site data, site observations and cluster analysis. Aerial photography interpretation and field notes taken during the survey were then used to develop vegetation mapping polygon boundaries over the Survey Area. These polygon boundaries were then digitised using GIS software.

Vegetation descriptions have been adapted from the (NVIS) Australian Vegetation Attribute Manual Version 7.0 (NVIS Technical Working Group 2017), a system of describing structural vegetation units (based on dominant taxa). This model follows nationally agreed guidelines to describe and represent vegetation types, so that comparable and consistent data is produced nation-wide.

3.6.2 Tuart TEC Assessment

A tuart patch map was developed by digitising the canopies of Tuarts (*Eucalyptus gomphocephala*) over 150 mm DBH and using ArcGIS to calculate a 30 m buffer to these areas. The patches were then assessed against the criteria in the *Approved Conservation Advice (incorporating listing advice) for the Tuart (Eucalyptus gomphocephala) woodlands and forests of the Swan Coastal Plain ecological community* (TSSC, 2019) to determine whether patches met threshold criteria for an EPBC Act referral.

3.7 Constraints and Limitations

The survey was evaluated against a range of standard limitations (Table 3.6) identified by EPA (2016) which are required to be addressed for every survey. Based on this evaluation, the assessment was subject to limitations or constraints that have affected the thoroughness of the assessment and the conclusions reached.

Table 3.6 Flora and Vegetation Survey Potential Limitations and Constraints

| Potential Limitation | Impact on Assessment | Comment |
|---|----------------------|--|
| Availability of contextual information at a regional and local scale | Not a constraint | The survey was undertaken in the Swan Coastal Plain which has sufficient data and literature available to adequately contextualise the Survey Area. |
| Proportion of flora Recorded and/or collected, any identification issues | Not a constraint | The proportion of flora surveyed was adequate. The entire Survey Area was traversed, and flora species were recorded systematically. |
| Was the appropriate area fully surveyed (extent and effort) | Minor constraint | The information collected during the survey was inadequate to assess the presence of potential Priority ecological communities due to the scope of the survey. |
| Survey timing, rainfall, season of survey | Not a constraint | The field assessments were conducted in October and during the peak flowering season for the majority of taxa present in the bioregion. |
| Disturbance that may have affected the results of the survey such as fire, flood or clearing | Not a constraint | The Survey Area was not subject to recent disturbances that would impact the outcomes of the survey. |
| Access problems (i.e., ability to access Survey Area). | Not a constraint | The Survey Area was traversable on foot. |
| Competency/experience of the team carrying out the survey, including experience in the bioregion surveyed | Not a constraint | Survey personnel have the appropriate training in sampling and identifying the flora of the region. |



Legend

- Survey area
- Cadastral boundary
- Tracks
- Releve
- Minor road
- Track

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| | |
|-----------------------|-----------------|
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| Drawn By: ianandagoda | Checked By: RP |

Scale 1:4,000 at A4

Coord. Sys. GDA2020 MGA Zone 50

Mangles Bay Fishing Club
Point Peron Rd, Rockingham, WA

SURVEY EFFORT

FIGURE 3.1

4. Results

4.1 Flora

4.1.1 Flora Assemblage

Twenty-four terrestrial vascular flora taxa were recorded during the survey including nine native flora taxa and 15 introduced taxa from 14 families and 23 genera. The most common family was the Poaceae (7 taxa), with the remainder of families represented by one or two taxa.

4.1.2 Introduced Flora

Fifteen introduced flora taxa were recorded in the Survey Area:

- **Agave sp.*
- **Avena barbata*
- **Bromus diandrus*
- **Cenchrus clandestinus*
- **Cynodon dactylon*
- **Ehrharta calycina*
- **Erigeron bonariensis*
- **Euphorbia peplus*
- **Euphorbia terracina*
- **Fumaria capreolata*
- **Lagurus ovatus*
- **Mesembryanthemum crystallinum*
- **Pelargonium capitatum*
- **Rhamnus alaternus*
- **Schinus terebinthifolia*

None of the introduced flora found were declared weeds or weeds of national significance.

4.1.3 Significant Flora


No significant flora were identified by the targeted flora survey.

4.2 Vegetation

4.2.1 Vegetation Units

One native vegetation unit was present in the Survey Area: *Acacia rostellifera* and *Schinus terebinthifolia* tall closed shrubland over *Ehrharta calycina*. The remainder of the Survey Area had been cleared and contained a mixture of carparks, buildings and landscaping or was unvegetated beach sand. Native vegetation occupied 29 % of the Survey Area (Table 4.1, Figure 4.1).

Table 4.1 Vegetation Units

| Vegetation Type | Sites | Area (ha) | Proportion of Survey Area | Photo |
|---|----------|-------------|---------------------------|---|
| <i>Acacia rostellifera</i> and <i>Schinus terebinthifolia</i> tall closed shrubland over <i>Ehrharta calycina</i> | R01, R02 | 2.02 | 29.21 % |  |
| No native vegetation | n/a | 4.88 | 70.79 % | |
| Total | | 6.90 | 100.00% | |



Legend

- Survey area
- Cadastral boundary
- Vegetation units
 - Acacia rostellifera* and **Schinus terebinthifolia* tall closed shrubland over *Ehrharta calycina*
 - Parkland cleared (Tuart) *Eucalyptus gomphocephala* woodland
 - Unvegetated
 - Minor road
 - Track

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Client: Department of Transport

Version: A

Date: 2/04/2024

Drawn By: ianandagoda

Checked By: RP

Scale 1:4,000 at A4

Coord. Sys. GDA2020 MGA Zone 50

Mangles Bay Fishing Club
Point Peron Rd, Rockingham, WA

VEGETATION

FIGURE 4.1

4.2.2 Vegetation Condition

The condition of the Survey Area was worse than recorded by previous surveys, with native vegetation areas being in Degraded condition due to a paucity of native species and high foliage cover of weed species. There were numerous dead plants in both the canopy and understory, possibly due to herbicide application given the broadscale death of plants at point locations. Several tents/camps were present in native vegetation at the western side of the Survey Area and people were observed in one these at the time of the survey. Some appeared abandoned and rubbish was strewn about (Plate 1). Approximately 71% of the Survey Area was in Completely Degraded condition, having been cleared historically (Table 4.2, **Error! Reference source not found.**).

Table 4.2 Vegetation Condition

| Vegetation Type | Sites | Area (ha) | Proportion of Survey Area |
|---|----------|-------------|---------------------------|
| <i>Acacia rostellifera</i> and <i>Schinus terebinthifolia</i> tall closed shrubland over <i>Ehrharta calycina</i> | R01, R02 | 2.02 | 29.21 % |
| No native vegetation | n/a | 4.88 | 70.79 % |
| Total | | 6.90 | 100.00% |



Plate 1 Abandoned camp below Brazilian peppertree (*Schinus terebinthifolia*)



- Legend**
- Survey area
 - Cadastral boundary
 - Vegetation condition**
 - Degraded
 - Completely degraded
 - Minor road
 - Track



Job No: 64791

Client: Department of Transport

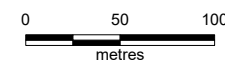
Version: A

Date: 2/04/2024

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Checked By: RP

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Mangles Bay Fishing Club
Point Peron Rd, Rockingham, WA

VEGETATION CONDITION

FIGURE 4.2

4.2.3 Significant Vegetation

Two potentially significant vegetation units were present in the Survey Area ():

- Acacia shrublands on taller dunes, southern Swan Coastal Plain ('floristic community type 29b') (Priority 3)
- Tuart (*Eucalyptus gomphocephala*) Woodlands and Forests of the Swan Coastal Plain (Priority 3/Critically Endangered)

Native vegetation in the Survey Area may be equivalent to the Priority 3 ecological community *Acacia shrublands on taller dunes, southern Swan Coastal Plain* ('floristic community type 29b'). This community is dominated by Acacia shrublands or mixed heaths on larger dunes, with *Acacia rostellifera*, *Rhagodia baccata* and *Acanthocarpus preissii* (all recorded in this survey) being common dominant species.

There were 20 Tuarts recorded within the Survey Area and several outside the Survey Area, but within 60 m of the canopy of Tuarts within the Survey Area. These constituted three Tuart patches, with the largest being 2.39 ha. All Tuart patches were parkland cleared and in Completely Degraded condition with no native understory. Patches between 2 ha and 5 ha in size are not considered part of the protected ecological community if their condition is Poor (TSSC, 2019).

Table 4.3 Assessment of Tuart patches against key diagnostic criteria for Tuart Woodlands of the Swan Coastal Plan TEC

| Key diagnostic criteria (TSSC 2019) | Assessment of vegetation within the Survey Area |
|--|---|
| <u>Location:</u> Occurs in the Swan Coastal Plain Bioregion, Western Australia (IBRA v7. Department of the Environment 2012). | Yes. The Survey Area is located within the Swan Coastal Plain Bioregion. |
| <u>Soils and landform:</u> Primarily occurs on the Spearwood and Quindalup dune systems, but can also occur on the Bassendean dunes and Pinjarra Plain. It can occur on the banks of rivers and wetlands. | Yes. The Survey Area occurs on Quindalup dune systems. |
| <u>Structure and composition:</u> Defining features include: the presence of at least two living established <i>Eucalyptus gomphocephala</i> (Tuart) trees in the uppermost canopy layer, although they may co-occur with trees of other species. a gap of no more than 60 m between the outer edges of the canopies of adjacent Tuart trees. These trees may occur either as single stemmed trees or as a mallee growth form. woodland structure, or other structural forms such as forest, open forest, woodland, open woodland, and various mallee forms an understorey of native plants which may include grasses, herbs and shrubs; though this is typically present, it is often modified by disturbance other tree species may be present in the canopy or sub-canopy, commonly including: <i>Agonis flexuosa</i> (Peppermint) and <i>Banksia grandis</i> (Bull Banksia) (both in the southern part of the range), <i>Banksia attenuata</i> (Candlestick Banksia), <i>Eucalyptus marginata</i> (Jarrah); and less commonly, <i>Corymbia calophylla</i> (Marri), <i>Banksia menziesii</i> (Firewood Banksia) and <i>Banksia prionotes</i> (Acorn Banksia). | No. Vegetation within this patch occurs as an open woodland of <i>Eucalyptus gomphocephala</i> with no native understory. |



- Legend**
- Survey area
 - Cadastral boundary
 - Tuart canopy
 - WA PEC Acacia shrublands on taller dunes, southern Swan Coastal Plain
 - WA PEC, EPBC TEC Tuart woodlands and forests of the Swan Coastal Plain
 - *Eucalyptus gomphocephala*
 - Minor road
 - Track



Job No: 64791

Client: Department of Transport

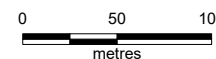
Version: A

Date: 2/04/2024

Drawn By: ianandagoda

Checked By: RP

Scale 1:4,000 at A4



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**Mangles Bay Fishing Club
Point Peron Rd, Rockingham, WA**

SIGNIFICANT COMMUNITIES

FIGURE 4.3

5. Discussion

5.1 Flora

The species richness in the Survey Area was very low. Gibson et al. (1994) recorded a mean species richness for similar vegetation units of 35.6 (FCT 29b) to 40.7 (FCT 29a). The low species richness was likely caused by the high density of invasive weeds which would have crowded out native flora.

No significant flora taxa were recorded in the Survey Area. Four EPBC listed threatened orchid taxa, six perennial flora taxa and one aquatic species were listed as occurring locally. Of these, it is unlikely any are present given that the Survey Area was thoroughly traversed at an appropriate time of year, suitable habitat was not present for most taxa and high densities of invasive species ensured that diversity was low.

5.2 Vegetation

Remnant native vegetation in the Survey area was described by ENV. Australia (2011) as SCP29a – Coastal shrublands on shallow sands, however, no quadrats were scored in the Survey Area and the typical species recorded in SCP29a were restricted to *Acanthocarpus preissii* and *Rhagodia baccata*. Five taxa typical to SCP29b were present in the Survey Area (*Acacia rostellifera*, *Acanthocarpus preissii*, *Rhagodia baccata*, *Olearia axillaris* and **Bromus diandrus*). The landform was more consistent with SCP29a (shallow sands), however, there is no description of the dune height given by Gibson et al. (1994).

To definitively identify the floristic community, quadrat data would be required, however, the Survey Area was so degraded that quadrat data may not contain sufficient native flora taxa to definitively identify a floristic community.

ENV (2011) described the remnant vegetation in the Survey Area as being in Good to Very Good condition. The condition observed in this survey was significantly worse, with the condition being Degraded. The worse condition was due to the presence of invasive weeds at all structural layers, at high densities, which would require intensive management to regenerate the vegetation structure. This would involve mechanical removal of woody weeds, herbicide treatment of invasive species and planting to return native understory and shrub species. Campsites and trash would also need to be removed and the vegetation mulched and fenced. The campsites and high densities of weedy grasses also contribute to an increased risk of fire.

Although vegetation in the Survey Area did not meet threshold criteria for inclusion in the protected TEC *Tuart (Eucalyptus gomphocephala) woodlands and forests of the Swan Coastal Plain*, Tuarts within the Survey Area should still be treated as significant because they provide habitat for fauna and contribute to landscape function (TSSC, 2019). Many of these trees would also have met criteria for consideration as Potential Nesting Trees in accordance with the EPBC referral guidelines for black cockatoos (DAWE, 2022).

6. Conclusion

The key results and outcomes of the flora and vegetation reconnaissance survey were:

- The Survey Area had low diversity, containing 24 flora taxa, including 15 introduced taxa;
- No significant flora taxa were present;
- One native vegetation type was present, accounting for 29 % of the Survey Area;
- Two potentially significant ecological communities were present:
 - Acacia shrublands on taller dunes, southern Swan Coastal Plain ('floristic community type 29b') (Priority 3);
 - Tuart (*Eucalyptus gomphocephala*) Woodlands and Forests of the Swan Coastal Plain (Priority 3/Critically Endangered;
- Tuart woodlands in the Survey Area did not meet referral thresholds for EPBC listed TEC; and
- Native vegetation in the Survey Area was in Degraded condition.

7. Limitations

Scope of services

This report ("the report") has been prepared by JBS&G in accordance with the scope of services set out in the contract, or as otherwise agreed, between the Client and JBS&G. In some circumstances, a range of factors such as time, budget, access and/or site disturbance constraints may have limited the scope of services. This report is strictly limited to the matters stated in it and is not to be read as extending, by implication, to any other matter in connection with the matters addressed in it.

Reliance on data

In preparing the report, JBS&G has relied upon data and other information provided by the Client and other individuals and organisations, most of which are referred to in the report ("the data"). Except as otherwise expressly stated in the report, JBS&G has not verified the accuracy or completeness of the data. To the extent that the statements, opinions, facts, information, conclusions and/or recommendations in the report ("conclusions") are based in whole or part on the data, those conclusions are contingent upon the accuracy and completeness of the data. JBS&G has also not attempted to determine whether any material matter has been omitted from the data. JBS&G will not be liable in relation to incorrect conclusions should any data, information or condition be incorrect or have been concealed, withheld, misrepresented or otherwise not fully disclosed to JBS&G. The making of any assumption does not imply that JBS&G has made any enquiry to verify the correctness of that assumption.

The report is based on conditions encountered and information received at the time of preparation of this report or the time that site investigations were carried out. JBS&G disclaims responsibility for any changes that may have occurred after this time. This report and any legal issues arising from it are governed by and construed in accordance with the law as at the date of this report.

Environmental conclusions

Within the limitations imposed by the scope of services, the preparation of this report has been undertaken and performed in a professional manner, in accordance with generally accepted environmental consulting practices. No other warranty, whether express or implied, is made, including to any third parties, and no liability will be accepted for use or interpretation of this report by any third party.

The advice herein relates only to this project and all results conclusions and recommendations made should be reviewed by a competent person with experience in environmental investigations, before being used for any other purpose.

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8. References

- ANZECC. (2000). *Review of the National Strategy for the Conservation of Australia's Biological Diversity*. Canberra: Australian and New Zealand Environment and Conservation Council (ANZECC), Environment Australia.
- Beard, J. (1990). *The Plant Life of Western Australia*. Kenthurst, NSW: Kangaroo Press.
- Bennett Environmental Consulting. (2005). *Flora and Vegetation Point Peron Western Australia*. Kalamunda: Unpublished report prepared for Strategen by Bennett Environmental Consulting Pty Ltd.
- Blatant Fabrications Pty Ltd. (2012). PATN© software. (PATN Version 4.00). Blatant Fabrications Pty Ltd 2013.
- BOM. (2017). Groundwater Dependent Ecosystems Atlas (Information Sheet). Bureau of Meteorology (BOM).
- BOM. (2024). Climate Data Online. (Station 009225, Perth Metro WA). Bureau of Meteorology (BOM). Retrieved March 27, 2024, from <http://www.bom.gov.au/climate/data>
- Canham, C. A., Froend, R., & Stock, W. (2009). Water stress vulnerability of four Banksia species in contrasting ecohydrological habitats on the Gnaragana Mound, Western Australia. *Plant, Cell and Environment*, 32(1), 64-72.
- Colwell, R. (2013). Estimates: Statistical Estimation of Species Richness and Shared Species from Samples. Version 9. User's Guide and Application. Retrieved from <http://purl.oclc.org/estimates>
- DAWE. (2022). *Referral guideline for 3 WA threatened black cockatoo species: Carnaby's Cockatoo, Baudin's Cockatoo and the Forest Red-tailed Black- cockatoo*. Canberra: Department of Agriculture, Water and the Environment (DAWE).
- DBCA. (2017). Ramsar Sites (DBCA-010). Retrieved from <https://catalogue.data.wa.gov.au/dataset/ramsar-sites>
- DCCEEW. (2022, September 23). Directory of Important Wetlands in Australia (DIWA) Spatial Database. Retrieved from <http://www.environment.gov.au/fed/catalog/search/resource/downloadData.page?uuid=%7BED248FC1-7237-4A74-91AC-2DA3FC277E0A%7D>
- DEE. (2012). Interim Biogeographic Regionalisation for Australia v. 7 (IBRA) [ESRI shapefile]. Department of the Environment (DEE). Retrieved 2018, from <http://intspat01.ris.environment.gov.au/fed/catalog/search/resource/details.page?uuid=%7B3C182B5A-C081-4B56-82CA-DF5AF82F>
- DWER. (2022a). Hydrographic Catchments - Basins. Perth, Western Australia: Department of Water and Environmental Regulation (DWER).
- DWER. (2022b). Hydrographic Catchments - Catchments. Perth, Western Australia: Department of Water and Environmental Regulation.
- DWER. (2024, March). Perth Groundwater Atlas. Perth: Department of Environment and Water Regulation (DWER). Retrieved from <https://maps.water.wa.gov.au/Groundwater/>
- ENV. (2011). *Flora and Vegetation of the Mangles Bay Area*. Perth: Unpublished report prepared for Strategen Consulting by ENV Australia Pty Ltd (ENV).
- EPA. (2004). *Guidance Statement No. 51 Terrestrial Flora and Vegetation Surveys for Environmental Impact Assessment in Western Australia*. Perth: Environmental Protection Authority (EPA).
- EPA. (2008). *Environmental Guidance for Planning and Development Guidance Stemenet No. 33*. Perth: Environmental Protection Authority (EPA).
- EPA. (2016b). *Environmental Factor Guideline Flora and Vegetation*. Perth: Environmental Protection Agency (EPA).
- Geoscience Australia. (2023, June 7). *Groundwater Dependent Ecosystems*. Retrieved January 1, 2024, from Geoscience Australia: <https://www.ga.gov.au/scientific-topics/water/groundwater/understanding-groundwater-resources/groundwater-dependant-ecosystems>
- Gibson, N., Burbidge, A., Keighery, B., Keighery, G., & Lyons, M. (1994). *A Floristic survey of the southern Swan Coastal Plain*. Perth: Unpublished report for the Australian Heritage Commission prepared by

- Department of Conservation and Land Management and the Conservation Council of Western Australia (Inc.).
- Government of Western Australia. (2000). *Bush Forever*. Perth: Western Australian Planning Commission (WAPC).
- Gozzard, J.R. and Geological Survey of Western Australia. (2007). *Geology and Landforms of the Perth Region*. East Perth, WA: Department of Industry and Resources.
- Hatton, T., & Evans, R. (1998). Dependence of Ecosystems on Groundwater and its Significance to Australia. *Occasional Paper*, 98(12).
- Hernandez, J. (2022). Ecophysiological Effects of Groundwater Drawdown on Phreatophytes: Research Trends during the Last Three Decades. *Land*, 11(11).
- Keating, C., & Trudgen, M. (1986). *Vegetation Survey of the Point Peron - Lake Richmond Area*. Unpublished report prepared for the State Planning Commission, Western Australia.
- Keighery, B. (1994). *Bushland plant survey. A guide to plant community survey for the community*. Nedlands: Wildflower Society of Western Australia (Inc.).
- McArthur, W. (2004). *Reference soils of south-western Australia*. Perth: Department of Agriculture, Western Australia on behalf of the Australian Society of Soil Science Incorporated (WA Branch).
- McLean, E. (2014). Patterns of water use by the riparian tree *Melaleuca argentea* in semi-arid northwest Australia. University of Western Australia.
- Mitchell, D., Williams, K., & Desmond, A. (2002). Swan Coastal Plain 2 (SWA2 - Swan Coastal Plain subregion). In N. McKenzie, J. May, & S. McKenna (Eds.), *Bioregional Summary of the 2002 Biodiversity Audit for Western Australia* (pp. 606-623). Kensington, Western Australia: Department of Conservation and Land Management (CALM).
- Nevill, J., Hancock, P., Murray, B., Ponder, W., Humphreys, W., Phillips, M., & Groom, P. (2010). Groundwater-dependent ecosystems and the dangers of groundwater overdraft: a review and an Australian perspective. *Pacific Conservation Biology*, 16, 187-208.
- Thackway, R., & Creswell, I. (1995). *An interim biogeographic regionalisation for Australia: a framework for setting priorities in the National Reserves System Cooperative Program Version 4.0*. Canberra: Australian Nature Conservation Agency.
- TSSC. (2019). *Approved Conservation Advice (incorporating listing advice) for the Tuart (*Eucalyptus gomphocephala*) woodlands and forests of the Swan Coastal Plain ecological community*. Canberra: Threatened Species Scientific Committee (TSSC).
- WAHerb. (1998-). FloraBase—the Western Australian Flora. Western Australian Herbarium (WAHerb), Department of Biodiversity, Conservation and Attractions. Retrieved from <https://florabase.dpaw.wa.gov.au/>

Appendix A Conservation Code Definitions

Biodiversity Conservation Act 2016 (Western Australia)

Threatened, Extinct and Specially Protected Fauna and Flora

Under the Western Australian Biodiversity Conservation Act 2016, 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.

Table A1 Western Australian Threatened, Extinct and Specially Protected fauna and flora categories

| Code | Conservation Category |
|--|---|
| Threatened Species (T) | |
| Listed by order of the Minister as Threatened in the category of critically endangered, endangered or vulnerable under section 19(1), or is a rediscovered species to be regarded as threatened species under section 26(2) of the <i>Biodiversity Conservation Act 2016</i> (BC Act). | |
| Threatened fauna is that subset of 'Specially Protected Fauna' listed under schedules 1 to 3 of the <i>Wildlife Conservation (Specially Protected Fauna) Notice 2018</i> for Threatened Fauna. | |
| Threatened flora is that subset of 'Rare Flora' listed under schedules 1 to 3 of the <i>Wildlife Conservation (Rare Flora) Notice 2018</i> for Threatened Flora. | |
| The assessment of the conservation status of these species is based on their national extent and ranked according to their level of threat using IUCN Red List categories and criteria as detailed below. | |
| CR | Critically Endangered Species Threatened species considered to be "facing an extremely high risk of extinction in the wild in the immediate future, as determined in accordance with criteria set out in the ministerial guidelines". Listed as critically endangered under section 19(1)(a) of the BC Act in accordance with the criteria set out in section 20 and the ministerial guidelines. Published under schedule 1 of the <i>Wildlife Conservation (Specially Protected Fauna) Notice 2018</i> for critically endangered fauna or the <i>Wildlife Conservation (Rare Flora) Notice 2018</i> for critically endangered flora. |
| EN | Endangered Species Threatened species considered to be "facing a very high risk of extinction in the wild in the near future, as determined in accordance with criteria set out in the ministerial guidelines". Listed as endangered under section 19(1)(b) of the BC Act in accordance with the criteria set out in section 21 and the ministerial guidelines. Published under schedule 2 of the <i>Wildlife Conservation (Specially Protected Fauna) Notice 2018</i> for endangered fauna or the <i>Wildlife Conservation (Rare Flora) Notice 2018</i> for endangered flora. |
| VU | Vulnerable Species Threatened species considered to be "facing a high risk of extinction in the wild in the medium-term future, as determined in accordance with criteria set out in the ministerial guidelines". Listed as vulnerable under section 19(1)(c) of the BC Act in accordance with the criteria set out in section 22 and the ministerial guidelines. Published under schedule 3 of the <i>Wildlife Conservation (Specially Protected Fauna) Notice 2018</i> for vulnerable fauna or the <i>Wildlife Conservation (Rare Flora) Notice 2018</i> for vulnerable flora. |
| Extinct species (EX) | |
| Listed by order of the Minister as extinct under section 23(1) of the BC Act as extinct or extinct in the wild. | |
| EX | Extinct Species Species where "there is no reasonable doubt that the last member of the species has died", and listing is otherwise in accordance with the ministerial guidelines (section 24 of the BC Act). Published as presumed extinct under schedule 4 of the <i>Wildlife Conservation (Specially Protected Fauna) Notice 2018</i> for extinct fauna or the <i>Wildlife Conservation (Rare Flora) Notice 2018</i> for extinct flora. |
| EW | Extinct in the Wild Species Species that "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", and listing is otherwise in accordance with the ministerial guidelines (section 25 of the BC Act). Currently there are no threatened fauna or threatened flora species listed as extinct in the wild. If listing of a species as extinct in the wild occurs, then a schedule will be added to the applicable notice. |

| Code | Conservation Category |
|---|---|
| Specially Protected Species Listed by order of the Minister as specially protected under section 13(1) of the BC Act. Meeting one or more of the following categories: species of special conservation interest; migratory species; cetaceans; species subject to international agreement; or species otherwise in need of special protection. Species that are listed as threatened species (critically endangered, endangered or vulnerable) or extinct species under the BC Act cannot also be listed as Specially Protected species. | |
| MI | Migratory Species 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; and listing is otherwise in accordance with the ministerial guidelines (section 15 of the BC Act). 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. Published as migratory birds protected under an international agreement under schedule 5 of the <i>Wildlife Conservation (Specially Protected Fauna) Notice 2018</i> . |
| CD | Species of special conservation interest (conservation dependent fauna) Fauna of special conservation need being species dependent on ongoing conservation intervention to prevent it becoming eligible for listing as threatened, and listing is otherwise in accordance with the ministerial guidelines (section 14 of the BC Act). Published as conservation dependent fauna under schedule 6 of the <i>Wildlife Conservation (Specially Protected Fauna) Notice 2018</i> . |
| OS | Other specially protected species Fauna otherwise in need of special protection to ensure their conservation, and listing is otherwise in accordance with the ministerial guidelines (section 18 of the BC Act). Published as other specially protected fauna under schedule 7 of the <i>Wildlife Conservation (Specially Protected Fauna) Notice 2018</i> . |
| Priority species (P) Possibly threatened species that do not meet survey criteria, or are otherwise data deficient, are added to the Priority Fauna or Priority Flora Lists under Priorities 1, 2 or 3. These three categories are ranked in order of priority for survey and evaluation of conservation status so that consideration can be given to their declaration as threatened fauna or flora. Species that are adequately known, are rare but not threatened, or meet criteria for near threatened, or that have been recently removed from the threatened species or other specially protected fauna lists for other than taxonomic reasons, are placed in Priority 4. These species require regular monitoring. Assessment of Priority codes is based on the Western Australian distribution of the species, unless the distribution in WA is part of a contiguous population extending into adjacent States, as defined by the known spread of locations | |
| P1 | 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. Species may be included if they are comparatively well known from one or more locations but do not meet adequacy of survey requirements and appear to be under immediate threat from known threatening processes. Such species are in urgent need of further survey. |
| P2 | 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. Species may be included if they are comparatively well known from one or more locations but do not meet adequacy of survey requirements and appear to be under threat from known threatening processes. Such species are in urgent need of further survey. |
| P3 | 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. Species may be included if they are comparatively well known from |

| Code | Conservation Category |
|-----------|--|
| | several locations but do not meet adequacy of survey requirements and known threatening processes exist that could affect them. Such species are in need of further survey. |
| P4 | <p>Priority 4: Rare, Near Threatened and other species in need of monitoring</p> <p>Rare. Species that are considered to have been adequately surveyed, or for which sufficient knowledge is available, and that are considered not currently threatened or in need of special protection but could be if present circumstances change. These species are usually represented on conservation lands.</p> <p>Near Threatened. Species that are considered to have been adequately surveyed and that are close to qualifying for vulnerable but are not listed as Conservation Dependent.</p> <p>Species that have been removed from the list of threatened species during the past five years for reasons other than taxonomy.</p> |

Threatened and Priority Ecological Communities

Division 2 of the *Biodiversity Conservation Act 2016* (BC Act) provides for the statutory listing of threatened ecological communities (TECs) by the Minister.

Table A2 Western Australian listed Threatened Ecological Community categories

| Code | Conservation Category |
|-----------|--|
| PD | <p>Presumed Totally Destroyed (PD)</p> <p>An ecological community that has been adequately searched for but for which no representative occurrences have been located. The community has been found to be totally destroyed or so extensively modified throughout its range that no occurrence of it is likely to recover its species composition and/or structure in the foreseeable future.</p> <p>An ecological community will be listed as presumed totally destroyed if there are no recent records of the community being extant and either of the following applies (a or b)</p> <p>Records within the last 50 years have not been confirmed despite thorough searches of known or likely habitats or</p> <p>All occurrences recorded within the last 50 years have since been destroyed.</p> |
| CR | <p>Critically Endangered Communities</p> <p>An ecological community that has been adequately surveyed and found to have been subject to a major contraction in area and/or that was originally of limited distribution and is facing severe modification or destruction throughout its range in the immediate future, or is already severely degraded throughout its range but capable of being substantially restored or rehabilitated.</p> <p>An ecological community will be listed as Critically Endangered when it has been adequately surveyed and is found to be facing an extremely high risk of total destruction in the immediate future. This will be determined on the basis of the best available information, by it meeting any one or more of the following criteria (a, b or c):</p> <ol style="list-style-type: none"> The estimated geographic range, and/or total area occupied, and/or number of discrete occurrences since European settlement have been reduced by at least 90% and either or both of the following apply (i or ii): i) geographic range, and/or total area occupied and/or number of discrete occurrences are continuing to decline such that total destruction of the community is imminent (within approximately 10 years); ii) modification throughout its range is continuing such that in the immediate future (within approximately 10 years) the community is unlikely to be capable of being substantially rehabilitated. Current distribution is limited, and one or more of the following apply (i, ii or iii): <ol style="list-style-type: none"> geographic range and/or number of discrete occurrences, and/or area occupied is highly restricted and the community is currently subject to known threatening processes which are likely to result in total destruction throughout its range in the immediate future (within approximately 10 years); there are very few occurrences, each of which is small and/or isolated and extremely vulnerable to known threatening processes; there may be many occurrences but total area is very small and each occurrence is small and/or isolated and extremely vulnerable to known threatening processes. The ecological community exists only as highly modified occurrences that may be capable of being rehabilitated if such work begins in the immediate future (within approximately 10 years). |
| EN | <p>Endangered Communities</p> <p>An ecological community that has been adequately surveyed and found to have been subject to a major contraction in area and/or was originally of limited distribution and is in danger of significant modification throughout its range or severe modification or destruction over most of its range in the near future.</p> <p>An ecological community will be listed as Endangered when it has been adequately surveyed and is not Critically Endangered but is facing a very high risk of total destruction in the near future. This will be determined on the basis of the best available information by it meeting any one or more of the following criteria (a, b, or c):</p> |

| Code | Conservation Category |
|-----------|--|
| | <ul style="list-style-type: none"> a. The geographic range, and/or total area occupied, and/or number of discrete occurrences have been reduced by at least 70% since European settlement and either or both of the following apply (i or ii): <ul style="list-style-type: none"> i. the estimated geographic range, and/or total area occupied and/or number of discrete occurrences are continuing to decline such that total destruction of the community is likely in the short term future (within approximately 20 years); ii. modification throughout its range is continuing such that in the short-term future (within approximately 20 years) the community is unlikely to be capable of being substantially restored or rehabilitated. b. Current distribution is limited, and one or more of the following apply (i, ii or iii): <ul style="list-style-type: none"> i. geographic range and/or number of discrete occurrences, and/or area occupied is highly restricted and the community is currently subject to known threatening processes which are likely to result in total destruction throughout its range in the short term future (within approximately 20 years); ii. there are few occurrences, each of which is small and/or isolated and all or most occurrences are very vulnerable to known threatening processes; iii. there may be many occurrences but total area is small and all or most occurrences are small and/or isolated and very vulnerable to known threatening processes. c. The ecological community exists only as very modified occurrences that may be capable of being substantially restored or rehabilitated if such work begins in the short-term future (within approximately 20 years). |
| VU | <p>Vulnerable Communities</p> <p>An ecological community that has been adequately surveyed and is found to be declining and/or has declined in distribution and/or condition and whose ultimate security has not yet been assured and/or a community that is still widespread but is believed likely to move into a category of higher threat in the near future if threatening processes continue or begin operating throughout its range.</p> <p>An ecological community will be listed as Vulnerable when it has been adequately surveyed and is not Critically Endangered or Endangered but is facing a high risk of total destruction or significant modification in the medium (within approximately 50 years) to long-term future. This will be determined on the basis of the best available information by it meeting any one or more of the following criteria (a, b or c):</p> <ul style="list-style-type: none"> a. The ecological community exists largely as modified occurrences that are likely to be capable of being substantially restored or rehabilitated. b. The ecological community may already be modified and would be vulnerable to threatening processes, is restricted in area and/or range and/or is only found at a few locations. c. The ecological community may be still widespread but is believed likely to move into a category of higher threat in the medium to long-term future because of existing or impending threatening processes. |

Priority Ecological Communities

Priority is not a listing category under the BC Act. The Priority Ecological Communities list is maintained by Department of Biodiversity, Conservation and Attractions and is published on the department's website.

All fauna and flora that may be present in an ecological community are protected in WA following the provisions in Part 10 of the BC Act. The protection applies even when these species occur in an ecological community that is not listed as threatened, and regardless of land tenure (State managed land (Crown land), private land, or Commonwealth land).

Possible threatened ecological communities that do not meet survey criteria or that are not adequately defined are added to the Priority Ecological Community List under priorities 1, 2 and 3. These three categories are ranked in order of priority for survey and/or definition of the community. Ecological communities that are adequately known, and are rare but not threatened or meet criteria for Near Threatened, or that have been recently removed from the threatened list, are placed in Priority 4. These ecological communities require regular monitoring. Conservation Dependent ecological communities are placed in Priority 5.

Table A3 Western Australian listed Priority Ecological Community categories

| Code | Conservation Category |
|-----------|---|
| P1 | <p>Priority One: Poorly-known ecological communities</p> <p>Ecological communities that are known from very few occurrences with a very restricted distribution (generally ≤ 5 occurrences or a total area of ≤ 100 ha). Occurrences are believed to be under threat either due to limited extent, or being on lands under immediate threat (e.g. within agricultural or pastoral lands, urban areas, active mineral leases) or for which current threats exist. May include communities with occurrences on protected lands. Communities may be</p> |

| Code | Conservation Category |
|-----------|---|
| | included if they are comparatively well-known from one or more localities but do not meet adequacy of survey requirements, and/or are not well defined, and appear to be under immediate threat from known threatening processes across their range. |
| P2 | Priority Two: Poorly-known ecological communities Communities that are known from few occurrences with a restricted distribution (generally ≤ 10 occurrences or a total area of ≤ 200 ha). At least some occurrences are not believed to be under immediate threat (within approximately 10 years) of destruction or degradation. Communities may be included if they are comparatively well known from one or more localities but do not meet adequacy of survey requirements, and/or are not well defined, and appear to be under threat from known threatening processes. |
| P3 | Priority Three: Poorly known ecological communities Communities may be included if they are comparatively well known from several localities but do not meet adequacy of survey requirements and/or are not well defined, and known threatening processes exist that could affect them. This category includes three sub-categories: <ol style="list-style-type: none"> Communities that are known from several to many occurrences, a significant number or area of which are not under threat of habitat destruction or degradation. Communities known from a few widespread occurrences, which are either large or with significant remaining areas of habitat in which other occurrences may occur, much of it not under imminent threat (within approximately 10 years). Communities made up of large, and/or widespread occurrences, that may or may not be represented in the reserve system, but are under threat of modification across much of their range from processes such as grazing by domestic and/or feral stock, inappropriate fire regimes, clearing, hydrological change etc. |
| P4 | Priority Four: Ecological communities that are adequately known, rare but not threatened or meet criteria for Near Threatened, or that have been recently removed from the threatened list. These communities require regular monitoring. <ol style="list-style-type: none"> Rare. Ecological communities known from few occurrences 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 communities are usually represented on conservation lands. Near Threatened. Ecological communities that are considered to have been adequately surveyed and that do not qualify for Conservation Dependent, but that are close to qualifying for a higher threat category. Ecological communities that have been removed from the list of threatened communities during the past five years. |
| P5 | Priority Five: Conservation Dependent ecological communities Ecological communities that are not threatened but are subject to a specific conservation program, the cessation of which would result in the community becoming threatened within five years. |

Environment Protection and Biodiversity Conservation Act 1999 (Commonwealth)

Threatened Species

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

Table A1 Commonwealth listed Threatened Species categories

| Code | Conservation Category |
|-----------|--|
| EX | Extinct Species A native species is eligible to be included in the extinct category at a particular time if, at that time, there is no reasonable doubt that the last member of the species has died. |
| EW | Extinct in the Wild Species A native species is eligible to be included in the extinct in the wild category at a particular time if, at that time: <ol style="list-style-type: none"> it is known only to survive in cultivation, in captivity or as a naturalised population well outside its past range; or it has not been recorded in its known and/or expected habitat, at appropriate seasons, anywhere in its past range, d |
| CR | Critically Endangered Species |

| Code | Conservation Category |
|-----------|--|
| | A native species is eligible to be included in the critically endangered category at a particular time if, at that time, it is facing an extremely high risk of extinction in the wild in the immediate future, as determined in accordance with the prescribed criteria. |
| EN | Endangered Species A native species is eligible to be included in the endangered category at a particular time if, at that time: <ol style="list-style-type: none"> it is not critically endangered; and it is facing a very high risk of extinction in the wild in the near future, as determined in accordance with the prescribed criteria. |
| VU | Vulnerable Species A native species is eligible to be included in the vulnerable category at a particular time if, at that time: <ol style="list-style-type: none"> it is not critically endangered or endangered; and it is facing a high risk of extinction in the wild in the medium-term future, as determined in accordance with the prescribed criteria. |
| CD | Conservation Dependent Species A native species is eligible to be included in the conservation dependent category at a particular time if, at that time: <ol style="list-style-type: none"> the species is the focus of a specific conservation program the cessation of which would result in the species becoming vulnerable, endangered or critically endangered; or the following subparagraphs are satisfied: <ol style="list-style-type: none"> the species is a species of fish; the species is the focus of a plan of management that provides for management actions necessary to stop the decline of, and support the recovery of, the species so that its chances of long term survival in nature are maximised; the plan of management is in force under a law of the Commonwealth or of a State or Territory; cessation of the plan of management would adversely affect the conservation status of the species. |

Threatened Ecological Communities

Threatened Ecological Communities may be listed under Section 181 of the EPBC Act in any one of the following categories.

Table A2 Commonwealth listed Threatened Ecological Community categories

| Code | Conservation Category |
|-----------|--|
| CR | Critically Endangered Communities An ecological community is eligible to be included in the critically endangered category at a particular time if, at that time, it is facing an extremely high risk of extinction in the wild in the immediate future, as determined in accordance with the prescribed criteria. |
| EN | Endangered Communities An ecological community is eligible to be included in the endangered category at a particular time if, at that time: <ol style="list-style-type: none"> it is not critically endangered; and it is facing a very high risk of extinction in the wild in the near future, as determined in accordance with the prescribed criteria. |
| VU | Vulnerable Communities An ecological community is eligible to be included in the vulnerable category at a particular time if, at that time: <ol style="list-style-type: none"> it is not critically endangered nor endangered; and it is facing a high risk of extinction in the wild in the medium-term future, as determined in accordance with the prescribed criteria. |

Appendix B PMST Search



Australian Government

Department of Climate Change, Energy,
the Environment and Water

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: 31-May-2023

[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 | 3 |
| Great Barrier Reef Marine Park: | None |
| Commonwealth Marine Area: | 1 |
| Listed Threatened Ecological Communities: | 8 |
| Listed Threatened Species: | 63 |
| Listed Migratory Species: | 68 |

Other Matters Protected by the EPBC Act

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

The EPBC Act protects the environment on Commonwealth land, the environment from the actions taken on Commonwealth land, and the environment from actions taken by Commonwealth agencies. As heritage values of a place are part of the 'environment', these aspects of the EPBC Act protect the Commonwealth Heritage values of a Commonwealth Heritage place. Information on the new heritage laws can be found at <https://www.dcceew.gov.au/parks-heritage/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: | 237 |
| Commonwealth Heritage Places: | 3 |
| Listed Marine Species: | 102 |
| 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: | 25 |
| Regional Forest Agreements: | None |
| Nationally Important Wetlands: | 4 |
| EPBC Act Referrals: | 134 |
| Key Ecological Features (Marine): | 2 |
| Biologically Important Areas: | 17 |
| Bioregional Assessments: | None |
| Geological and Bioregional Assessments: | None |

Details

Matters of National Environmental Significance

| Wetlands of International Importance (Ramsar Wetlands) | | [Resource Information] |
|--|----------------------------|--------------------------|
| Ramsar Site Name | Proximity | Buffer Status |
| Becher point wetlands | Within Ramsar site | In feature area |
| Forrestdale and thomsons lakes | Within Ramsar site | In buffer area only |
| Peel-yalgorup system | Within 10km of Ramsar site | In buffer area only |

| Commonwealth Marine Area | | [Resource Information] |
|--|---------------------|--------------------------|
| Approval is required for a proposed activity that is located within the Commonwealth Marine Area which has, will have, or is likely to have a significant impact on the environment. Approval may be required for a proposed action taken outside a Commonwealth Marine Area but which has, may have or is likely to have a significant impact on the environment in the Commonwealth Marine Area. | | |
| Feature Name | Buffer Status | |
| EEZ and Territorial Sea | In buffer area only | |

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 |
|---|-----------------------|---------------------------------------|---------------------|
| Assemblages of plants and invertebrate animals of tumulus (organic mound) springs of the Swan Coastal Plain | Endangered | Community known to occur within area | In buffer area only |
| Banksia Woodlands of the Swan Coastal Plain ecological community | Endangered | Community likely to occur within area | In feature area |
| Clay Pans of the Swan Coastal Plain | Critically Endangered | Community likely to occur within area | In buffer area only |
| Corymbia calophylla - Kingia australis woodlands on heavy soils of the Swan Coastal Plain | Endangered | Community known to occur within area | In buffer area only |
| Corymbia calophylla - Xanthorrhoea preissii woodlands and shrublands of the Swan Coastal Plain | Endangered | Community known to occur within area | In buffer area only |
| Sedgeland in Holocene dune swales of the southern Swan Coastal Plain | Endangered | Community known to occur within area | In buffer area only |

| Community Name | Threatened Category | Presence Text | Buffer Status |
|---|-----------------------|---------------------------------------|---------------------|
| Thrombolite (microbial) community of coastal freshwater lakes of the Swan Coastal Plain (Lake Richmond) | Endangered | Community known to occur within area | In buffer area only |
| Tuart (Eucalyptus gomphocephala) Woodlands and Forests of the Swan Coastal Plain ecological community | Critically Endangered | 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 | | | |
| Anous tenuirostris melanops Australian Lesser Noddy [26000] | Vulnerable | Species or species habitat may occur within area | In feature area |
| 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 | Species or species habitat known to occur within area | In buffer area only |
| Calyptorhynchus banksii naso Forest Red-tailed Black-Cockatoo, Karrak [67034] | 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 buffer area only |
| Charadrius mongolus Lesser Sand Plover, Mongolian Plover [879] | Endangered | Species or species habitat known to occur within area | In buffer area only |

| Scientific Name | Threatened Category | Presence Text | Buffer Status |
|---|-----------------------|--|---------------------|
| Diomedea amsterdamensis Amsterdam Albatross [64405] | Endangered | Species or species habitat may 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 | Species or species habitat may 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 | 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 |
| Leipoa ocellata Malleefowl [934] | Vulnerable | Species or species habitat likely to occur within area | In feature area |
| 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 | Foraging, feeding or related behaviour likely to occur within area | In feature area |
| Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847] | Critically Endangered | Species or species habitat likely to occur within area | In feature area |

| Scientific Name | Threatened Category | Presence Text | Buffer Status |
|--|---------------------|--|---------------------|
| Pachyptila turtur subantarctica Fairy Prion (southern) [64445] | Vulnerable | Species or species habitat known to occur within area | In feature area |
| Phoebetria fusca Sooty Albatross [1075] | Vulnerable | Species or species habitat may occur within area | In buffer area only |
| Pterodroma mollis Soft-plumaged Petrel [1036] | Vulnerable | Foraging, feeding or related behaviour known to occur within area | In buffer area only |
| Rostratula australis Australian Painted Snipe [77037] | Endangered | Species or species habitat known to occur within area | In feature area |
| 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 feature area |
| 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 | Foraging, feeding or related behaviour likely to occur within area | In feature area |
| Thalassarche steadi White-capped Albatross [64462] | Vulnerable | Species or species habitat may occur within area | In feature area |

| Scientific Name | Threatened Category | Presence Text | Buffer Status |
|--|------------------------|--|---------------------|
| Zanda baudinii listed as Calyptorhynchus baudinii | | | |
| Baudin's Cockatoo, Baudin's Black-Cockatoo, Long-billed Black-cockatoo [87736] | Endangered | Roosting known to occur within area | In buffer area only |
| Zanda latirostris listed as Calyptorhynchus latirostris | | | |
| Carnaby's Black Cockatoo, Short-billed Black-cockatoo [87737] | Endangered | Breeding known to occur within area | In feature area |
| FISH | | | |
| Thunnus maccoyii | | | |
| Southern Bluefin Tuna [69402] | Conservation Dependent | Species or species habitat likely 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 |
| Bettongia penicillata ogilbyi | | | |
| Woylie [66844] | Endangered | Species or species habitat known to occur within area | In buffer area only |
| Dasyurus geoffroii | | | |
| Chuditch, Western Quoll [330] | Vulnerable | Species or species habitat known to occur within area | In feature area |
| Eubalaena australis | | | |
| Southern Right Whale [40] | Endangered | Breeding known to occur within area | In feature area |
| Neophoca cinerea | | | |
| Australian Sea-lion, Australian Sea Lion [22] | 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 likely to occur within area | In feature area |
| Setonix brachyurus | | | |
| Quokka [229] | Vulnerable | Species or species habitat may occur within area | In buffer area only |
| OTHER | | | |
| Westralunio carteri | | | |
| Carter's Freshwater Mussel, Freshwater Mussel [86266] | Vulnerable | Species or species habitat known to occur within area | In buffer area only |
| PLANT | | | |

| Scientific Name | Threatened Category | Presence Text | Buffer Status |
|---|-----------------------|--|---------------------|
| Andersonia gracilis Slender Andersonia [14470] | Endangered | Species or species habitat likely to occur within area | In buffer area only |
| Banksia mimica Summer Honeypot [82765] | Endangered | Species or species habitat may occur within area | In buffer area only |
| Caladenia huegelii King Spider-orchid, Grand Spider-orchid, Rusty Spider-orchid [7309] | Endangered | Species or species habitat known to occur within area | In buffer area only |
| Diuris drummondii Tall Donkey Orchid [4365] | Vulnerable | Species or species habitat known to occur within area | In buffer area only |
| Diuris micrantha Dwarf Bee-orchid [55082] | Vulnerable | Species or species habitat known to occur within area | In feature area |
| Diuris purdiei Purdie's Donkey-orchid [12950] | Endangered | Species or species habitat likely to occur within area | In buffer area only |
| Drakaea elastica Glossy-leaved Hammer Orchid, Glossy-leaved Hammer Orchid, Warty Hammer Orchid [16753] | Endangered | Species or species habitat known to occur within area | In buffer area only |
| Drakaea micrantha Dwarf Hammer-orchid [56755] | Vulnerable | Species or species habitat likely to occur within area | In buffer area only |
| Eleocharis keigheryi Keighery's Eleocharis [64893] | Vulnerable | Species or species habitat may occur within area | In buffer area only |
| Eucalyptus x balanites Cadda Road Mallee, Cadda Mallee [87816] | Endangered | Species or species habitat may occur within area | In buffer area only |
| Synaphea sp. Fairbridge Farm (D. Papenfus 696) Selena's Synaphea [82881] | Critically Endangered | Species or species habitat likely to occur within area | In buffer area only |

| Scientific Name | Threatened Category | Presence Text | Buffer Status |
|--|------------------------|---|---------------------|
| Synaphea sp. Pinjarra Plain (A.S. George 17182) [86878] | Endangered | Species or species habitat may occur within area | In buffer area only |
| Synaphea sp. Serpentine (G.R. Brand 103) [86879] | Critically Endangered | Species or species habitat known to occur within area | In buffer area only |
| REPTILE | | | |
| Caretta caretta Loggerhead Turtle [1763] | Endangered | Foraging, feeding or related behaviour known to occur within area | In feature area |
| Chelonia mydas Green Turtle [1765] | Vulnerable | Foraging, feeding or related behaviour known to occur within area | In feature area |
| Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768] | Endangered | Foraging, feeding or related behaviour known to occur within area | In feature area |
| Natator depressus Flatback Turtle [59257] | Vulnerable | Foraging, feeding or related behaviour known to occur within area | In feature area |
| SHARK | | | |
| Carcharias taurus (west coast population) Grey Nurse Shark (west coast population) [68752] | Vulnerable | Species or species habitat known to occur within area | In feature area |
| Carcharodon carcharias White Shark, Great White Shark [64470] | Vulnerable | Species or species habitat 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 |
| Pristis pristis Freshwater Sawfish, Largetooth Sawfish, River Sawfish, Leichhardt's Sawfish, Northern Sawfish [60756] | Vulnerable | Species or species habitat may occur within area | In feature area |

| Scientific Name | Threatened Category | Presence Text | Buffer Status |
|--|------------------------|---|-----------------|
| Rhincodon typus Whale Shark [66680] | Vulnerable | Species or species habitat may occur within area | In feature area |
| Sphyrna lewini Scalloped Hammerhead [85267] | Conservation Dependent | Species or species habitat known to occur within area | In feature area |

Listed Migratory Species

[Resource Information]

| Scientific Name | Threatened Category | Presence Text | Buffer Status |
|------------------------|---------------------|---------------|---------------|
| Migratory Marine Birds | | | |

| | | | |
|--|------------|--|---------------------|
| Anous stolidus Common Noddy [825] | | Species or species habitat likely to occur within area | In feature area |
| 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] | | Foraging, feeding or related behaviour likely to occur within area | In feature area |
| Ardenna grisea Sooty Shearwater [82651] | | Species or species habitat may occur within area | In feature area |
| Ardenna pacifica Wedge-tailed Shearwater [84292] | | Breeding known to occur within area | In buffer area only |
| Diomedea amsterdamensis Amsterdam Albatross [64405] | Endangered | Species or species habitat may 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 | Species or species habitat may 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 | Species or species habitat may 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 | Foraging, feeding or related behaviour likely to occur within area | In feature area |
| Onychoprion anaethetus Bridled Tern [82845] | | Breeding known to occur within area | In feature area |
| Phoebetria fusca Sooty Albatross [1075] | Vulnerable | Species or species habitat may occur within area | In buffer area only |
| Sterna dougallii Roseate Tern [817] | | Breeding known to occur within area | In feature area |
| Sternula albifrons Little Tern [82849] | | 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 feature area |

| Scientific Name | Threatened Category | Presence Text | Buffer Status |
|--|---------------------|--|-----------------|
| 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 | Foraging, feeding or related behaviour likely to occur within area | In feature area |
| Thalassarche steadi White-capped Albatross [64462] | Vulnerable | Species or species habitat may occur within area | In feature area |
| Migratory Marine Species | | | |
| Balaenoptera edeni Bryde's Whale [35] | | Species or species habitat may occur within area | In feature area |
| Balaenoptera musculus Blue Whale [36] | Endangered | Species or species habitat likely to occur within area | In feature area |
| Caperea marginata Pygmy Right Whale [39] | | Foraging, feeding or related behaviour may occur within area | In feature area |
| Carcharhinus longimanus Oceanic Whitetip Shark [84108] | | Species or species habitat likely to occur within area | In feature area |
| Carcharodon carcharias White Shark, Great White Shark [64470] | Vulnerable | Species or species habitat known to occur within area | In feature area |
| Caretta caretta Loggerhead Turtle [1763] | Endangered | Foraging, feeding or related behaviour known to occur within area | In feature area |
| Chelonia mydas Green Turtle [1765] | Vulnerable | Foraging, feeding or related behaviour known to occur within area | In feature area |

| Scientific Name | Threatened Category | Presence Text | Buffer Status |
|--|---------------------|---|-----------------|
| Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768] | Endangered | Foraging, feeding or related behaviour known 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 |
| Lamna nasus Porbeagle, Mackerel Shark [83288] | | Species or species habitat may occur within area | In feature area |
| Megaptera novaeangliae Humpback Whale [38] | | Species or species habitat known to occur within area | In feature area |
| Mobula alfredi as Manta alfredi Reef Manta Ray, Coastal Manta Ray [90033] | | Species or species habitat likely to occur within area | In feature area |
| Mobula birostris as Manta birostris Giant Manta Ray [90034] | | Species or species habitat likely to occur within area | In feature area |
| Natator depressus Flatback Turtle [59257] | Vulnerable | Foraging, feeding or related behaviour 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 |
| Pristis pristis Freshwater Sawfish, Largetooth Sawfish, River Sawfish, Leichhardt's Sawfish, Northern Sawfish [60756] | Vulnerable | 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 | | | |

| Scientific Name | Threatened Category | Presence Text | Buffer Status |
|--|-----------------------|---|---------------------|
| Actitis hypoleucos Common Sandpiper [59309] | | Species or species habitat known to occur within area | In feature area |
| Arenaria interpres Ruddy Turnstone [872] | | Species or species habitat known to occur within area | In buffer area only |
| Calidris acuminata Sharp-tailed Sandpiper [874] | | Species or species habitat known to occur within area | In feature area |
| Calidris alba Sanderling [875] | | Species or species habitat known to occur within area | In buffer area only |
| 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 melanotos Pectoral Sandpiper [858] | | Species or species habitat known to occur within area | In feature area |
| Calidris ruficollis Red-necked Stint [860] | | Species or species habitat known to occur within area | In buffer area only |
| Calidris subminuta Long-toed Stint [861] | | Species or species habitat known to occur within area | In buffer area only |
| Calidris tenuirostris Great Knot [862] | Critically Endangered | Species or species habitat known to occur within area | In buffer area only |
| Charadrius dubius Little Ringed Plover [896] | | Species or species habitat known to occur within area | In buffer area only |

| Scientific Name | Threatened Category | Presence Text | Buffer Status |
|--|-----------------------|--|---------------------|
| Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877] | Vulnerable | Species or species habitat known to occur within area | In buffer area only |
| Charadrius mongolus Lesser Sand Plover, Mongolian Plover [879] | Endangered | Species or species habitat known to occur within area | In buffer area only |
| Glareola maldivarum Oriental Pratincole [840] | | Species or species habitat known to occur within area | In buffer area only |
| Limicola falcinellus Broad-billed Sandpiper [842] | | Species or species habitat known to occur within area | In buffer area only |
| Limosa lapponica Bar-tailed Godwit [844] | | Species or species habitat known to occur within area | In feature area |
| Limosa limosa Black-tailed Godwit [845] | | Species or species habitat known to occur within area | In buffer area only |
| Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847] | Critically Endangered | Species or species habitat likely to occur within area | In feature area |
| Numenius phaeopus Whimbrel [849] | | Species or species habitat known to occur within area | In buffer area only |
| Pandion haliaetus Osprey [952] | | Breeding known to occur within area | In feature area |
| Philomachus pugnax Ruff (Reeve) [850] | | Species or species habitat known to occur within area | In buffer area only |
| Pluvialis squatarola Grey Plover [865] | | Species or species habitat known to occur within area | In buffer area only |
| Thalasseus bergii Greater Crested Tern [83000] | | Breeding known to occur within area | In buffer area only |

| Scientific Name | Threatened Category | Presence Text | Buffer Status |
|--|---------------------|---|---------------------|
| Tringa brevipes Grey-tailed Tattler [851] | | Species or species habitat known to occur within area | In buffer area only |
| Tringa glareola Wood Sandpiper [829] | | Species or species habitat known to occur within area | In buffer area only |
| 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] | | Species or species habitat known to occur within area | In buffer area only |
| Xenus cinereus Terek Sandpiper [59300] | | Species or species habitat known to occur within area | In buffer area only |

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 - HMAS STIRLING-ROCKINGHAM ;HMAS STIRLING - GARDEN ISLAND [50131] | WA | In buffer area only |
| Defence - HMAS STIRLING-ROCKINGHAM ;HMAS STIRLING - GARDEN ISLAND [50134] | WA | In buffer area only |
| Defence - HMAS STIRLING-ROCKINGHAM ;HMAS STIRLING - GARDEN ISLAND [50133] | WA | In buffer area only |
| Defence - HMAS STIRLING-ROCKINGHAM ;HMAS STIRLING - GARDEN ISLAND [50132] | WA | In buffer area only |
| Defence - HMAS STIRLING-ROCKINGHAM ;HMAS STIRLING - GARDEN ISLAND [50117] | WA | In buffer area only |
| Defence - ROCKINGHAM - NAVY CPSO [50135] | WA | In buffer area only |
| Unknown | | |
| Commonwealth Land - [51897] | WA | In buffer area only |

| Commonwealth Land Name | State | Buffer Status |
|-----------------------------|-------|---------------------|
| Commonwealth Land - [50415] | WA | In buffer area only |
| Commonwealth Land - [50535] | WA | In buffer area only |
| Commonwealth Land - [50534] | WA | In buffer area only |
| Commonwealth Land - [50623] | WA | In buffer area only |
| Commonwealth Land - [50533] | WA | In buffer area only |
| Commonwealth Land - [51113] | WA | In buffer area only |
| Commonwealth Land - [50532] | WA | In buffer area only |
| Commonwealth Land - [50620] | WA | In buffer area only |
| Commonwealth Land - [50416] | WA | In buffer area only |
| Commonwealth Land - [50423] | WA | In buffer area only |
| Commonwealth Land - [50537] | WA | In buffer area only |
| Commonwealth Land - [50536] | WA | In buffer area only |
| Commonwealth Land - [50474] | WA | In buffer area only |
| Commonwealth Land - [50496] | WA | In buffer area only |
| Commonwealth Land - [50475] | WA | In buffer area only |
| Commonwealth Land - [50476] | WA | In buffer area only |
| Commonwealth Land - [50477] | WA | In buffer area only |
| Commonwealth Land - [50573] | WA | In buffer area only |
| Commonwealth Land - [50572] | WA | In buffer area only |
| Commonwealth Land - [51890] | WA | In feature area |
| Commonwealth Land - [50566] | WA | In buffer area only |
| Commonwealth Land - [50501] | WA | In buffer area only |
| Commonwealth Land - [50421] | WA | In buffer area only |
| Commonwealth Land - [50418] | WA | In buffer area only |
| Commonwealth Land - [51496] | WA | In buffer area only |
| Commonwealth Land - [50661] | WA | In buffer area only |
| Commonwealth Land - [50419] | WA | In buffer area only |

| Commonwealth Land Name | State | Buffer Status |
|-----------------------------|-------|---------------------|
| Commonwealth Land - [51497] | WA | In buffer area only |
| Commonwealth Land - [50471] | WA | In buffer area only |
| Commonwealth Land - [50420] | WA | In buffer area only |
| Commonwealth Land - [51499] | WA | In buffer area only |
| Commonwealth Land - [50472] | WA | In buffer area only |
| Commonwealth Land - [50498] | WA | In buffer area only |
| Commonwealth Land - [50655] | WA | In buffer area only |
| Commonwealth Land - [50473] | WA | In buffer area only |
| Commonwealth Land - [50499] | WA | In buffer area only |
| Commonwealth Land - [51979] | WA | In buffer area only |
| Commonwealth Land - [50622] | WA | In buffer area only |
| Commonwealth Land - [51495] | WA | In buffer area only |
| Commonwealth Land - [50570] | WA | In buffer area only |
| Commonwealth Land - [50643] | WA | In buffer area only |
| Commonwealth Land - [51117] | WA | In buffer area only |
| Commonwealth Land - [50512] | WA | In buffer area only |
| Commonwealth Land - [50609] | WA | In buffer area only |
| Commonwealth Land - [50513] | WA | In buffer area only |
| Commonwealth Land - [50515] | WA | In buffer area only |
| Commonwealth Land - [50521] | WA | In buffer area only |
| Commonwealth Land - [50514] | WA | In buffer area only |
| Commonwealth Land - [50672] | WA | In buffer area only |
| Commonwealth Land - [50510] | WA | In buffer area only |
| Commonwealth Land - [50658] | WA | In buffer area only |
| Commonwealth Land - [50543] | WA | In buffer area only |
| Commonwealth Land - [50659] | WA | In buffer area only |
| Commonwealth Land - [50504] | WA | In buffer area only |

| Commonwealth Land Name | State | Buffer Status |
|-----------------------------|-------|---------------------|
| Commonwealth Land - [50601] | WA | In buffer area only |
| Commonwealth Land - [50653] | WA | In buffer area only |
| Commonwealth Land - [50503] | WA | In buffer area only |
| Commonwealth Land - [50428] | WA | In buffer area only |
| Commonwealth Land - [50619] | WA | In buffer area only |
| Commonwealth Land - [50603] | WA | In buffer area only |
| Commonwealth Land - [50427] | WA | In buffer area only |
| Commonwealth Land - [50618] | WA | In buffer area only |
| Commonwealth Land - [50602] | WA | In buffer area only |
| Commonwealth Land - [50652] | WA | In buffer area only |
| Commonwealth Land - [50656] | WA | In buffer area only |
| Commonwealth Land - [50657] | WA | In buffer area only |
| Commonwealth Land - [50567] | WA | In buffer area only |
| Commonwealth Land - [50564] | WA | In buffer area only |
| Commonwealth Land - [50568] | WA | In buffer area only |
| Commonwealth Land - [50569] | WA | In buffer area only |
| Commonwealth Land - [50565] | WA | In buffer area only |
| Commonwealth Land - [50642] | WA | In buffer area only |
| Commonwealth Land - [50518] | WA | In buffer area only |
| Commonwealth Land - [50524] | WA | In buffer area only |
| Commonwealth Land - [50605] | WA | In buffer area only |
| Commonwealth Land - [50604] | WA | In buffer area only |
| Commonwealth Land - [50599] | WA | In buffer area only |
| Commonwealth Land - [50538] | WA | In buffer area only |
| Commonwealth Land - [50591] | WA | In buffer area only |
| Commonwealth Land - [50531] | WA | In buffer area only |
| Commonwealth Land - [50590] | WA | In buffer area only |

| Commonwealth Land Name | State | Buffer Status |
|-----------------------------|-------|---------------------|
| Commonwealth Land - [50530] | WA | In buffer area only |
| Commonwealth Land - [50597] | WA | In buffer area only |
| Commonwealth Land - [50615] | WA | In buffer area only |
| Commonwealth Land - [50596] | WA | In buffer area only |
| Commonwealth Land - [50614] | WA | In buffer area only |
| Commonwealth Land - [50595] | WA | In buffer area only |
| Commonwealth Land - [51412] | WA | In buffer area only |
| Commonwealth Land - [50629] | WA | In buffer area only |
| Commonwealth Land - [50616] | WA | In buffer area only |
| Commonwealth Land - [50539] | WA | In buffer area only |
| Commonwealth Land - [50725] | WA | In buffer area only |
| Commonwealth Land - [50500] | WA | In buffer area only |
| Commonwealth Land - [50470] | WA | In buffer area only |
| Commonwealth Land - [50505] | WA | In buffer area only |
| Commonwealth Land - [50506] | WA | In buffer area only |
| Commonwealth Land - [50507] | WA | In buffer area only |
| Commonwealth Land - [50610] | WA | In buffer area only |
| Commonwealth Land - [50611] | WA | In buffer area only |
| Commonwealth Land - [50612] | WA | In buffer area only |
| Commonwealth Land - [50613] | WA | In buffer area only |
| Commonwealth Land - [50443] | WA | In buffer area only |
| Commonwealth Land - [50442] | WA | In buffer area only |
| Commonwealth Land - [50449] | WA | In buffer area only |
| Commonwealth Land - [50519] | WA | In buffer area only |
| Commonwealth Land - [50654] | WA | In buffer area only |
| Commonwealth Land - [50422] | WA | In buffer area only |
| Commonwealth Land - [50608] | WA | In buffer area only |

| Commonwealth Land Name | State | Buffer Status |
|-----------------------------|-------|---------------------|
| Commonwealth Land - [50731] | WA | In buffer area only |
| Commonwealth Land - [50577] | WA | In buffer area only |
| Commonwealth Land - [50478] | WA | In buffer area only |
| Commonwealth Land - [50589] | WA | In buffer area only |
| Commonwealth Land - [50617] | WA | In buffer area only |
| Commonwealth Land - [50581] | WA | In buffer area only |
| Commonwealth Land - [50580] | WA | In buffer area only |
| Commonwealth Land - [50571] | WA | In buffer area only |
| Commonwealth Land - [50479] | WA | In buffer area only |
| Commonwealth Land - [50433] | WA | In buffer area only |
| Commonwealth Land - [50432] | WA | In buffer area only |
| Commonwealth Land - [50437] | WA | In buffer area only |
| Commonwealth Land - [50627] | WA | In buffer area only |
| Commonwealth Land - [50624] | WA | In buffer area only |
| Commonwealth Land - [50434] | WA | In buffer area only |
| Commonwealth Land - [50645] | WA | In buffer area only |
| Commonwealth Land - [51896] | WA | In buffer area only |
| Commonwealth Land - [50438] | WA | In buffer area only |
| Commonwealth Land - [50628] | WA | In buffer area only |
| Commonwealth Land - [50450] | WA | In buffer area only |
| Commonwealth Land - [50456] | WA | In buffer area only |
| Commonwealth Land - [50451] | WA | In buffer area only |
| Commonwealth Land - [50454] | WA | In buffer area only |
| Commonwealth Land - [50686] | WA | In buffer area only |
| Commonwealth Land - [50684] | WA | In buffer area only |
| Commonwealth Land - [50458] | WA | In buffer area only |
| Commonwealth Land - [50662] | WA | In buffer area only |

| Commonwealth Land Name | State | Buffer Status |
|-----------------------------|-------|---------------------|
| Commonwealth Land - [50621] | WA | In buffer area only |
| Commonwealth Land - [50431] | WA | In buffer area only |
| Commonwealth Land - [50552] | WA | In buffer area only |
| Commonwealth Land - [50644] | WA | In buffer area only |
| Commonwealth Land - [50550] | WA | In buffer area only |
| Commonwealth Land - [50551] | WA | In buffer area only |
| Commonwealth Land - [50640] | WA | In buffer area only |
| Commonwealth Land - [50511] | WA | In buffer area only |
| Commonwealth Land - [50444] | WA | In buffer area only |
| Commonwealth Land - [50445] | WA | In buffer area only |
| Commonwealth Land - [52119] | WA | In buffer area only |
| Commonwealth Land - [52200] | WA | In buffer area only |
| Commonwealth Land - [50412] | WA | In buffer area only |
| Commonwealth Land - [50447] | WA | In buffer area only |
| Commonwealth Land - [50446] | WA | In buffer area only |
| Commonwealth Land - [50441] | WA | In buffer area only |
| Commonwealth Land - [50463] | WA | In buffer area only |
| Commonwealth Land - [50462] | WA | In buffer area only |
| Commonwealth Land - [50555] | WA | In buffer area only |
| Commonwealth Land - [50459] | WA | In buffer area only |
| Commonwealth Land - [50486] | WA | In buffer area only |
| Commonwealth Land - [50488] | WA | In buffer area only |
| Commonwealth Land - [50487] | WA | In buffer area only |
| Commonwealth Land - [50554] | WA | In buffer area only |
| Commonwealth Land - [50637] | WA | In buffer area only |
| Commonwealth Land - [50556] | WA | In buffer area only |
| Commonwealth Land - [50557] | WA | In buffer area only |

| Commonwealth Land Name | State | Buffer Status |
|-----------------------------|-------|---------------------|
| Commonwealth Land - [50558] | WA | In buffer area only |
| Commonwealth Land - [50527] | WA | In buffer area only |
| Commonwealth Land - [50526] | WA | In buffer area only |
| Commonwealth Land - [50460] | WA | In buffer area only |
| Commonwealth Land - [50461] | WA | In buffer area only |
| Commonwealth Land - [50523] | WA | In buffer area only |
| Commonwealth Land - [50522] | WA | In buffer area only |
| Commonwealth Land - [50525] | WA | In buffer area only |
| Commonwealth Land - [51123] | WA | In buffer area only |
| Commonwealth Land - [52199] | WA | In buffer area only |
| Commonwealth Land - [51436] | WA | In buffer area only |
| Commonwealth Land - [50646] | WA | In buffer area only |
| Commonwealth Land - [51889] | WA | In feature area |
| Commonwealth Land - [50455] | WA | In buffer area only |
| Commonwealth Land - [50484] | WA | In buffer area only |
| Commonwealth Land - [50464] | WA | In buffer area only |
| Commonwealth Land - [50485] | WA | In buffer area only |
| Commonwealth Land - [50480] | WA | In buffer area only |
| Commonwealth Land - [50417] | WA | In buffer area only |
| Commonwealth Land - [50482] | WA | In buffer area only |
| Commonwealth Land - [50483] | WA | In buffer area only |
| Commonwealth Land - [50520] | WA | In buffer area only |
| Commonwealth Land - [50600] | WA | In buffer area only |
| Commonwealth Land - [50469] | WA | In buffer area only |
| Commonwealth Land - [50639] | WA | In buffer area only |
| Commonwealth Land - [50467] | WA | In buffer area only |
| Commonwealth Land - [50468] | WA | In buffer area only |

| Commonwealth Land Name | State | Buffer Status |
|-----------------------------|-------|---------------------|
| Commonwealth Land - [50465] | WA | In buffer area only |
| Commonwealth Land - [50466] | WA | In buffer area only |
| Commonwealth Land - [50529] | WA | In buffer area only |
| Commonwealth Land - [50481] | WA | In buffer area only |
| Commonwealth Land - [50737] | WA | In buffer area only |
| Commonwealth Land - [50549] | WA | In buffer area only |
| Commonwealth Land - [50509] | WA | In buffer area only |
| Commonwealth Land - [50548] | WA | In buffer area only |
| Commonwealth Land - [50547] | WA | In buffer area only |
| Commonwealth Land - [50546] | WA | In buffer area only |
| Commonwealth Land - [50545] | WA | In buffer area only |
| Commonwealth Land - [50544] | WA | In buffer area only |
| Commonwealth Land - [50542] | WA | In buffer area only |
| Commonwealth Land - [50541] | WA | In buffer area only |
| Commonwealth Land - [50540] | WA | In buffer area only |
| Commonwealth Land - [50453] | WA | In buffer area only |
| Commonwealth Land - [50452] | WA | In buffer area only |
| Commonwealth Land - [50578] | WA | In buffer area only |
| Commonwealth Land - [51980] | WA | In buffer area only |
| Commonwealth Land - [50579] | WA | In buffer area only |
| Commonwealth Land - [50666] | WA | In buffer area only |
| Commonwealth Land - [50638] | WA | In buffer area only |
| Commonwealth Land - [51126] | WA | In buffer area only |
| Commonwealth Land - [50636] | WA | In buffer area only |
| Commonwealth Land - [50497] | WA | In buffer area only |
| Commonwealth Land - [50495] | WA | In buffer area only |
| Commonwealth Land - [50493] | WA | In buffer area only |

| Commonwealth Land Name | State | Buffer Status |
|-----------------------------|-------|---------------------|
| Commonwealth Land - [50492] | WA | In buffer area only |
| Commonwealth Land - [50491] | WA | In buffer area only |
| Commonwealth Land - [50490] | WA | In buffer area only |
| Commonwealth Land - [50424] | WA | In buffer area only |
| Commonwealth Land - [50425] | WA | In buffer area only |
| Commonwealth Land - [50457] | WA | In buffer area only |
| Commonwealth Land - [50317] | WA | In buffer area only |
| Commonwealth Land - [50528] | WA | In buffer area only |
| Commonwealth Land - [50633] | WA | In buffer area only |
| Commonwealth Land - [50631] | WA | In buffer area only |
| Commonwealth Land - [50634] | WA | In buffer area only |
| Commonwealth Land - [51128] | WA | In buffer area only |
| Commonwealth Land - [50632] | WA | In buffer area only |
| Commonwealth Land - [50635] | WA | In buffer area only |

| Commonwealth Heritage Places | | | [Resource Information] |
|---|-------|--------------|--------------------------|
| Name | State | Status | Buffer Status |
| Historic | | | |
| Cliff Point Historic Site | WA | Listed place | In buffer area only |
| J Gun Battery | WA | Listed place | In buffer area only |
| Natural | | | |
| Garden Island | WA | Listed place | 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 |
| Anous stolidus | | | |
| Common Noddy [825] | | Species or species habitat likely to occur within area | In feature area |

| Scientific Name | Threatened Category | Presence Text | Buffer Status |
|--|---------------------|--|---------------------|
| Anous tenuirostris melanops Australian Lesser Noddy [26000] | Vulnerable | Species or species habitat may 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] | | Foraging, feeding or related behaviour likely 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 |
| Ardenna pacifica as Puffinus pacificus Wedge-tailed Shearwater [84292] | | Breeding known to occur within area | In buffer area only |
| Arenaria interpres Ruddy Turnstone [872] | | Species or species habitat known to occur within area | In buffer area only |
| Bubulcus ibis as Ardea ibis Cattle Egret [66521] | | Species or species habitat may occur within area overfly marine area | In feature area |
| Calidris acuminata Sharp-tailed Sandpiper [874] | | Species or species habitat known to occur within area | In feature area |
| Calidris alba Sanderling [875] | | Species or species habitat known to occur within area | In buffer area only |
| Calidris canutus Red Knot, Knot [855] | Endangered | Species or species habitat known to occur within area overfly marine area | In feature area |

| Scientific Name | Threatened Category | Presence Text | Buffer Status |
|---|-----------------------|---|---------------------|
| Calidris ferruginea Curlew Sandpiper [856] | Critically Endangered | 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] | | Species or species habitat known to occur within area overfly marine area | In buffer area only |
| Calidris subminuta Long-toed Stint [861] | | Species or species habitat known to occur within area overfly marine area | In buffer area only |
| Calidris tenuirostris Great Knot [862] | Critically Endangered | Species or species habitat known to occur within area overfly marine area | In buffer area only |
| Charadrius dubius Little Ringed Plover [896] | | Species or species habitat known to occur within area overfly marine area | In buffer area only |
| Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877] | Vulnerable | Species or species habitat known to occur within area | In buffer area only |
| Charadrius mongolus Lesser Sand Plover, Mongolian Plover [879] | Endangered | Species or species habitat known to occur within area | In buffer area only |
| Charadrius ruficapillus Red-capped Plover [881] | | Species or species habitat known to occur within area overfly marine area | In buffer area only |
| Chroicocephalus novaehollandiae as Larus novaehollandiae Silver Gull [82326] | | Breeding known to occur within area | In feature area |

| Scientific Name | Threatened Category | Presence Text | Buffer Status |
|---|---------------------|---|---------------------|
| Diomedea amsterdamensis Amsterdam Albatross [64405] | Endangered | Species or species habitat may 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 | Species or species habitat may 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 | Species or species habitat may occur within area | In feature area |
| Eudyptula minor Little Penguin [1085] | | Breeding known to occur within area | In feature area |
| Glareola maldivarum Oriental Pratincole [840] | | Species or species habitat known to occur within area overfly marine area | In buffer area only |
| Haliaeetus leucogaster White-bellied Sea-Eagle [943] | | Species or species habitat known to occur within area | In feature area |
| Halobaena caerulea Blue Petrel [1059] | Vulnerable | Species or species habitat may occur within area | In buffer area only |
| Himantopus himantopus Pied Stilt, Black-winged Stilt [870] | | Species or species habitat known to occur within area overfly marine area | In buffer area only |
| Hydroprogne caspia as Sterna caspia Caspian Tern [808] | | Breeding known to occur within area | In feature area |

| Scientific Name | Threatened Category | Presence Text | Buffer Status |
|--|-----------------------|---|---------------------|
| Larus pacificus Pacific Gull [811] | | Breeding known to occur within area | In feature area |
| Limicola falcinellus Broad-billed Sandpiper [842] | | Species or species habitat known to occur within area overfly marine area | In buffer area only |
| Limosa lapponica Bar-tailed Godwit [844] | | Species or species habitat known to occur within area | In feature area |
| Limosa limosa Black-tailed Godwit [845] | | Species or species habitat known to occur within area overfly marine area | In buffer area only |
| 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 | Foraging, feeding or related behaviour likely to 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 |
| Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847] | Critically Endangered | Species or species habitat likely to occur within area | In feature area |
| Numenius phaeopus Whimbrel [849] | | Species or species habitat known to occur within area | In buffer area only |
| Onychoprion anaethetus as Sterna anaethetus Bridled Tern [82845] | | Breeding known to occur within area | In feature area |

| Scientific Name | Threatened Category | Presence Text | Buffer Status |
|--|---------------------|---|---------------------|
| Onychoprion fuscatus as Sterna fuscata Sooty Tern [90682] | | Breeding known to occur within area | In buffer area only |
| Pachyptila turtur Fairy Prion [1066] | | Species or species habitat known to occur within area | In feature area |
| Pandion haliaetus Osprey [952] | | Breeding known to occur within area | In feature area |
| Pelagodroma marina White-faced Storm-Petrel [1016] | | Breeding known to occur within area | In feature area |
| Philomachus pugnax Ruff (Reeve) [850] | | Species or species habitat known to occur within area overfly marine area | In buffer area only |
| Phoebetria fusca Sooty Albatross [1075] | Vulnerable | Species or species habitat may occur within area | In buffer area only |
| Pluvialis squatarola Grey Plover [865] | | Species or species habitat known to occur within area overfly marine area | In buffer area only |
| Pterodroma macroptera Great-winged Petrel [1035] | | Foraging, feeding or related behaviour known to occur within area | In buffer area only |
| Pterodroma mollis Soft-plumaged Petrel [1036] | | Foraging, feeding or related behaviour known to occur within area | In buffer area only |
| Puffinus assimilis Little Shearwater [59363] | | Breeding known to occur within area | In feature area |
| Recurvirostra novaehollandiae Red-necked Avocet [871] | | Species or species habitat known to occur within area overfly marine area | In buffer area only |

| Scientific Name | Threatened Category | Presence Text | Buffer Status |
|--|---------------------|---|---------------------|
| Rostratula australis as Rostratula benghalensis (sensu lato) Australian Painted Snipe [77037] | Endangered | Species or species habitat 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 |
| Sterna dougallii Roseate Tern [817] | | Breeding known to occur within area | In feature area |
| Sternula albifrons as Sterna albifrons Little Tern [82849] | | Species or species habitat may occur within area | In feature area |
| Sternula nereis as Sterna nereis Fairy Tern [82949] | | Breeding known to occur within area | In buffer area only |
| 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 feature area |
| 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 | Foraging, feeding or related behaviour likely to occur within area | In feature area |
| Thalassarche steadi White-capped Albatross [64462] | Vulnerable | Species or species habitat may 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 |

| Scientific Name | Threatened Category | Presence Text | Buffer Status |
|---|---------------------|---|---------------------|
| Thinornis cucullatus as Thinornis rubricollis Hooded Plover, Hooded Dotterel [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] | | Species or species habitat known to occur within area | In buffer area only |
| Tringa glareola Wood Sandpiper [829] | | Species or species habitat known to occur within area overfly marine area | In buffer area only |
| 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] | | Species or species habitat known to occur within area overfly marine area | In buffer area only |
| Xenus cinereus Terek Sandpiper [59300] | | Species or species habitat known to occur within area overfly marine area | In buffer area only |
| Fish | | | |
| 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 angustus Western Spiny Seahorse, Narrow-bellied Seahorse [66234] | | Species or species habitat may occur within area | In feature area |

| Scientific Name | Threatened Category | Presence Text | Buffer Status |
|---|---------------------|--|-----------------|
| Hippocampus breviceps Short-head Seahorse, Short-snouted Seahorse [66235] | | Species or species habitat may occur within area | In feature area |
| Hippocampus subelongatus West Australian Seahorse [66722] | | 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 |
| Lissocampus caudalis Australian Smooth Pipefish, Smooth Pipefish [66249] | | Species or species habitat may occur within area | In feature area |
| Lissocampus fatiloquus Prophet's Pipefish [66250] | | 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 |
| Mitotichthys meraculus Western Crested Pipefish [66259] | | 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 |
| 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 |

| Scientific Name | Threatened Category | Presence Text | Buffer Status |
|---|---------------------|---|-----------------|
| 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 may occur within area | In feature area |
| Neophoca cinerea Australian Sea-lion, Australian Sea Lion [22] | Endangered | Species or species habitat known to occur within area | In feature area |
| Reptile | | | |
| Caretta caretta Loggerhead Turtle [1763] | Endangered | Foraging, feeding or related behaviour known to occur within area | In feature area |

| Scientific Name | Threatened Category | Presence Text | Buffer Status |
|--|---------------------|---|-----------------|
| Chelonia mydas Green Turtle [1765] | Vulnerable | Foraging, feeding or related behaviour known to occur within area | In feature area |
| Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768] | Endangered | Foraging, feeding or related behaviour known to occur within area | In feature area |
| Disteira kingii Spectacled Seasnake [1123] | | Species or species habitat may occur within area | In feature area |
| Natator depressus Flatback Turtle [59257] | Vulnerable | Foraging, feeding or related behaviour known 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 feature area |
| Balaenoptera musculus Blue Whale [36] | Endangered | Species or species habitat likely to occur within area | In feature area |
| Caperea marginata Pygmy Right Whale [39] | | Foraging, feeding or related behaviour may occur within area | In feature area |
| 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 |

| Current Scientific Name | Status | Type of Presence | Buffer Status |
|---|--------|--|-----------------|
| Grampus griseus Risso's Dolphin, Grampus [64] | | Species or species habitat may occur within area | In feature area |
| Megaptera novaeangliae Humpback Whale [38] | | 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 |
| Stenella attenuata Spotted Dolphin, Pantropical Spotted Dolphin [51] | | 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 |
| Banksia | Nature Reserve | WA | In buffer area only |
| Carnac Island | Nature Reserve | WA | In buffer area only |
| Harry Waring Marsupial Reserve | Nature Reserve | WA | In buffer area only |
| Leda | Nature Reserve | WA | In buffer area only |
| Modong | Nature Reserve | WA | In buffer area only |
| Penguin Island | Conservation Park | WA | In buffer area only |
| Port Kennedy Scientific Park | Nature Reserve | WA | In buffer area only |
| Shoalwater Bay Islands | Nature Reserve | WA | In feature area |
| Shoalwater Islands | Marine Park | WA | In feature area |
| Thomsons Lake | Nature Reserve | WA | In buffer area only |

| Protected Area Name | Reserve Type | State | Buffer Status |
|---------------------|-------------------|-------|---------------------|
| Unnamed WA39584 | Conservation Park | WA | In buffer area only |
| Unnamed WA39752 | Conservation Park | WA | In buffer area only |
| Unnamed WA42469 | Nature Reserve | WA | In buffer area only |
| Unnamed WA43903 | Nature Reserve | WA | In buffer area only |
| Unnamed WA44004 | Nature Reserve | WA | In buffer area only |
| Unnamed WA44986 | Nature Reserve | WA | In buffer area only |
| Unnamed WA48291 | Conservation Park | WA | In buffer area only |
| Unnamed WA48968 | 5(1)(h) Reserve | WA | In feature area |
| Unnamed WA49220 | Conservation Park | WA | In buffer area only |
| Unnamed WA49561 | Conservation Park | WA | In buffer area only |
| Unnamed WA51658 | 5(1)(h) Reserve | WA | In buffer area only |
| Unnamed WA51784 | Nature Reserve | WA | In buffer area only |
| Unnamed WA53313 | Conservation Park | WA | In buffer area only |
| Unnamed WA53632 | Conservation Park | WA | In buffer area only |
| Wandi | Nature Reserve | WA | In buffer area only |

| Nationally Important Wetlands | | [Resource Information] | |
|---|-------|--------------------------|--|
| Wetland Name | State | Buffer Status | |
| Becher Point Wetlands | WA | In buffer area only | |
| Gibbs Road Swamp System | WA | In buffer area only | |
| Spectacles Swamp | WA | In buffer area only | |
| Thomsons Lake | WA | In buffer area only | |

| EPBC Act Referrals | | [Resource Information] | | |
|---|------------|--------------------------|-------------------|---------------------|
| Title of referral | Reference | Referral Outcome | Assessment Status | Buffer Status |
| Abercrombie Road Quarry | 2023/09465 | | Referral Decision | In buffer area only |
| Beale Park Redevelopment | 2022/09297 | | Referral Decision | In buffer area only |
| Commercial Development of Lots 12 and 13 Lodge Drive, East Rockingham, WA | 2021/9069 | | Post-Approval | In buffer area only |

| Title of referral | Reference | Referral Outcome | Assessment Status | Buffer Status |
|--|------------|-------------------|-----------------------------|---------------------|
| Freight handling expansion, Kwinana Rail Depot | 2023/09474 | | Assessment | In buffer area only |
| Kwinana Alumina Refinery ? Future Residue Storage Area | 2023/09454 | | Referral Decision | In buffer area only |
| Lot 1401 Fifty Road, Baldivis | 2020/8620 | | Approval | In buffer area only |
| Lot 16 Barfield Road: Residential Development | 2023/09450 | | Assessment | In buffer area only |
| Residential Development, Wattleup Road, Hammond Park, WA | 2021/8933 | | Post-Approval | In buffer area only |
| Controlled action | | | | |
| 'Lakelands East' residential development, Mandurah, WA | 2013/7048 | Controlled Action | Post-Approval | In buffer area only |
| Alcoa Bauxite Residue Storage Area Extension | 2011/5878 | Controlled Action | Further Information Request | In buffer area only |
| Baldivis Residential development on lots 98, 323,529 and 530 | 2010/5733 | Controlled Action | Post-Approval | In buffer area only |
| Clearing of 12.8ha of native vegetation on Lots 19 and 20, Sixty Eight Road, Baldivis, WA | 2016/7661 | Controlled Action | Post-Approval | In buffer area only |
| Clearing of 18.80 ha of vegetation ahead of quarrying operations | 2010/5650 | Controlled Action | Completed | In buffer area only |
| Clearing of 22 ha vegetation to allow for the continuation of quarrying | 2010/5649 | Controlled Action | Post-Approval | In buffer area only |
| Clearing of Lots 2 and 10 Rowley Road, Mandogalup WA | 2018/8182 | Controlled Action | Assessment Approach | In buffer area only |
| Construction of a Deepwater, General Container Port | 2009/5178 | Controlled Action | Proposed Decision | In buffer area only |
| Construction of New Perth Bunbury Highway project | 2005/2193 | Controlled Action | Post-Approval | In buffer area only |
| Development of Kwinana Quay port facility | 2008/4387 | Controlled Action | Completed | In buffer area only |
| Develop three sites into residential housing and mixed use developments, Western Australia | 2013/6916 | Controlled Action | Post-Approval | In buffer area only |
| Extend a section of Mundijong Road | 2011/5971 | Controlled Action | Post-Approval | In buffer area only |

| Title of referral | Reference | Referral Outcome | Assessment Status | Buffer Status |
|---|-----------|-------------------|-----------------------------|---------------------|
| Controlled action | | | | |
| Extension of Beeliar Drive between the junction of Mayor and Fawcett Roads an... | 2003/1029 | Controlled Action | Completed | In buffer area only |
| Extraction of sand from Lot 6 Banksia Road & lots 300 & 301 Boomerang Road, WA | 2010/5622 | Controlled Action | Post-Approval | In buffer area only |
| Hammond Park Secondary School development, WA | 2016/7741 | Controlled Action | Post-Approval | In buffer area only |
| Honeywood Estate Development | 2010/5476 | Controlled Action | Post-Approval | In buffer area only |
| Industry Zone | 2010/5337 | Controlled Action | Post-Approval | In buffer area only |
| Latitude 32-industrial development of various lots, Ashley and Sayer Roads, Hope Valley, WA | 2016/7695 | Controlled Action | Post-Approval | In buffer area only |
| Lot 2 Corner Durrant Avenue and Sicklemore Road - Residential Development | 2011/5882 | Controlled Action | Completed | In buffer area only |
| Lots 13, 14 & 18 Barfield Rd & Lots 48-51 Rowley Rd, Hammond Park | 2012/6524 | Controlled Action | Post-Approval | In buffer area only |
| Mandogalup Urban Development, Mandogalup, WA | 2014/7308 | Controlled Action | Post-Approval | In buffer area only |
| Mangles Bay Marina Based Tourist Precinct | 2010/5659 | Controlled Action | Post-Approval | In feature area |
| Natural Gas Pipeline Expansion | 2006/2813 | Controlled Action | Post-Approval | In buffer area only |
| Residential development, Bertram, WA | 2017/7887 | Controlled Action | Further Information Request | In buffer area only |
| Residential Development, Lot 123 Mortimer Road, Casuarina, WA | 2018/8379 | Controlled Action | Assessment Approach | In buffer area only |
| Residential development, Village of Wellard, City of Kwinana, WA | 2013/6986 | Controlled Action | Post-Approval | In buffer area only |
| Residential Development Lot 518 Stock Road, Stakehill, WA | 2019/8483 | Controlled Action | Assessment Approach | In buffer area only |
| Residential development of Lot 105 Stock Road, Lakelands, WA | 2017/8041 | Controlled Action | Post-Approval | In buffer area only |
| Residential development of Lots 635, 739 and 740 on Deposited Plan 202751, Baldivis Road, | 2018/8361 | Controlled Action | Post-Approval | In buffer area only |

| Title of referral | Reference | Referral Outcome | Assessment Status | Buffer Status |
|---|-----------|-----------------------|---------------------|---------------------|
| Controlled action | | | | |
| <u>Baldivis,</u> | | | | |
| <u>Residential development of various lots</u> | 2019/8500 | Controlled Action | Proposed Decision | In buffer area only |
| <u>Residential developmnt, Lots 11 and 74 Beenyup Road, Banjup, WA</u> | 2017/7923 | Controlled Action | Post-Approval | In buffer area only |
| <u>Residential Estate Development, Lot 682 Rowley Road, Mandogalup, Western Australia</u> | 2014/7126 | Controlled Action | Post-Approval | In buffer area only |
| <u>Roe Highway extension, Kwinana Freeway to Stock Road, WA</u> | 2009/5031 | Controlled Action | Post-Approval | In buffer area only |
| <u>Sand extraction, Lot 810, Yangedi Rd, Hopeland, WA</u> | 2015/7429 | Controlled Action | Post-Approval | In buffer area only |
| <u>Sand Mining</u> | 2010/5522 | Controlled Action | Completed | In buffer area only |
| <u>Sand Mining 70/915 Banksia Road, Wellard, WA</u> | 2015/7438 | Controlled Action | Post-Approval | In buffer area only |
| <u>Spatial Property Group Ltd - Residential Development</u> | 2021/9006 | Controlled Action | Assessment Approach | In buffer area only |
| <u>Wellard Village Primary School development, part Lot 9074 Lambeth Circle, Wellard</u> | 2020/8732 | Controlled Action | Post-Approval | In buffer area only |
| Not controlled action | | | | |
| <u>'Looping 10' gas transmission pipeline from Kwinana to Hopelands</u> | 2005/2212 | Not Controlled Action | Completed | In buffer area only |
| <u>Baldivis District Sporting Complex, Baldivis, WA</u> | 2018/8323 | Not Controlled Action | Completed | In buffer area only |
| <u>Bushfire hazard reduction, Lot 37 Barfield Road, Hammond Park, WA</u> | 2018/8204 | Not Controlled Action | Completed | In buffer area only |
| <u>Clearing and development of 220 and 234 Wattleup Rd, Wattleup, WA</u> | 2016/7738 | Not Controlled Action | Completed | In buffer area only |
| <u>Clearing of Native Vegetation, Hammond Park, WA</u> | 2011/6041 | Not Controlled Action | Completed | In buffer area only |
| <u>Clear native vegetation to undertake a residential development, Baldivis, Wa</u> | 2013/6779 | Not Controlled Action | Completed | In buffer area only |
| <u>Construction of Hammond Road Primary School, Hammond Park, WA</u> | 2012/6619 | Not Controlled Action | Completed | In buffer area only |

| Title of referral | Reference | Referral Outcome | Assessment Status | Buffer Status |
|--|-----------|-----------------------|-------------------|---------------------|
| Not controlled action | | | | |
| Construction of Secret Harbour High School | 2004/1489 | Not Controlled Action | Completed | In buffer area only |
| Continuation of quarrying sand and limestone, Lot 800 Kerosene Lane, Baldivis, WA | 2013/6832 | Not Controlled Action | Completed | In buffer area only |
| Development of Lots 100-101 Sayer Road, Hope Valley, WA | 2019/8399 | 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 |
| Expansion of berthing facilities at Kwinana Bulk Terminal | 2006/2509 | Not Controlled Action | Completed | In buffer area only |
| Expansion of existing Ammonium Nitrate Production Facility | 2005/1941 | Not Controlled Action | Completed | In buffer area only |
| Expansion of Lifestyle Village development, Lots 1, 3, 700 and 703 Mandurah Rd, Baldivis, WA | 2016/7850 | Not Controlled Action | Completed | In buffer area only |
| Frankland Parks Oval project, Hammond Park, WA | 2018/8369 | Not Controlled Action | Completed | In buffer area only |
| Fremantle Ports Inner Harbour Capital Dredging Proposal | 2005/2477 | Not Controlled Action | Completed | In buffer area only |
| Gas-fired Power Station | 2005/2213 | Not Controlled Action | Completed | In buffer area only |
| Hammond West Urban Development, Hammond Park, WA | 2017/7917 | Not Controlled Action | Completed | In buffer area only |
| Hazard reduction and site access, Lot 682 Rowley Road, Mandogalup, WA | 2018/8186 | Not Controlled Action | Completed | In buffer area only |
| Highschool and Primary development, Wellard, WA | 2016/7639 | Not Controlled Action | Completed | In buffer area only |
| Hope Valley-Wattleup Redevelopment Project | 2020/8644 | 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 |
| Industrial development 105 Sayer Road, Hope Valley, WA | 2014/7261 | Not Controlled Action | Completed | In buffer area only |
| Industrial Development Lot 64 Ashley Road, Hope Valley, WA | 2014/7238 | Not Controlled Action | Completed | In buffer area only |

| Title of referral | Reference | Referral Outcome | Assessment Status | Buffer Status |
|---|-----------|-----------------------|-------------------|---------------------|
| Not controlled action | | | | |
| Karnup Sand Mining Project, Stakehill Road, Baldivis, WA | 2015/7533 | Not Controlled Action | Completed | In buffer area only |
| Kennedy Bay urban development, Port Kennedy, WA | 2014/7122 | Not Controlled Action | Completed | In buffer area only |
| Kennedy Park Estate Residential Development | 2003/1044 | Not Controlled Action | Completed | In buffer area only |
| Kwinana Depot Upgrade | 2011/6035 | Not Controlled Action | Completed | In buffer area only |
| Kwinana Gas-Fired Power Station | 2005/2101 | Not Controlled Action | Completed | In buffer area only |
| Latitude 32 industrial development 6A, Cockburn, WA | 2018/8193 | Not Controlled Action | Completed | In buffer area only |
| Lot 101 Mandurah Road, Madora Bay, WA | 2012/6466 | Not Controlled Action | Completed | In buffer area only |
| Lot 170 Hope Valley Road, Hope Valley | 2020/8830 | Not Controlled Action | Completed | In buffer area only |
| Lot 28 157 Barfield Road, Hammond Park - Proposed Residential Development | 2021/9063 | Not Controlled Action | Completed | In buffer area only |
| Lot 29 Barfield Road, Hammond Park | 2017/7948 | Not Controlled Action | Completed | In buffer area only |
| Lot 384 Karnup Road, Hopeland Residential Development | 2020/8682 | Not Controlled Action | Completed | In buffer area only |
| Lots 12, 13 and 18 Hammond Road, Lot 80 Beeliar Drive and Lot 500 Hird Road | 2012/6576 | Not Controlled Action | Completed | In buffer area only |
| Lots 569 & 1263, Baldivis Road and Lot 21, Sixty Eight Road, Baldivis, WA | 2012/6526 | Not Controlled Action | Completed | In buffer area only |
| Montessori School Lot 11 and 700 Karnup Rd, Karnup, WA | 2017/8034 | Not Controlled Action | Completed | In buffer area only |
| Palm Beach Caravan Park Redevelopment, Rockingham, WA | 2013/6853 | Not Controlled Action | Completed | In buffer area only |
| Perth Desalination Plant 2 | 2019/8454 | Not Controlled Action | Completed | In buffer area only |
| Perth Seawater Desalination Project: Thomsons Lake to Kogolup Pipeline | 2005/1971 | Not Controlled Action | Completed | In buffer area only |
| Residential Development, Lot 12 Lyon Road, Aubin Grove, WA | 2013/6852 | Not Controlled Action | Completed | In buffer area only |

| Title of referral | Reference | Referral Outcome | Assessment Status | Buffer Status |
|---|-----------|-----------------------|-------------------|---------------------|
| Not controlled action | | | | |
| Residential development, Lot 13 Lyon Road, Aubin Grove, WA | 2014/7151 | Not Controlled Action | Completed | In buffer area only |
| Residential development, Lot 33 Barfield Road, Hammond Park, WA | 2015/7548 | Not Controlled Action | Completed | In buffer area only |
| Residential development, Lot 74 Wattleup Road, Hammond Park, WA | 2018/8273 | Not Controlled Action | Completed | In buffer area only |
| Residential development, Lots 124 and 125, Wattleup Road, Hammond Park, WA | 2015/7519 | Not Controlled Action | Completed | In buffer area only |
| Residential development, Lots 1 and 7-11 Lyon Rd and Lot 88 De Haer Rd, Wandi, WA | 2017/7908 | Not Controlled Action | Completed | In buffer area only |
| Residential development, part of Lot 601, Mandurah Road, West Baldivis, WA | 2013/6871 | Not Controlled Action | Completed | In buffer area only |
| Residential Development, Serpentine and Baldivis Roads | 2020/8700 | Not Controlled Action | Completed | In buffer area only |
| Residential development of Lot 7 Anketell Rd, Anketell, WA | 2018/8281 | Not Controlled Action | Completed | In buffer area only |
| Residential development of Lot 9501 Muzzlewood Street, Baldivis, WA | 2016/7775 | Not Controlled Action | Completed | In buffer area only |
| Residential Development of Lots 76 and 107 Wattleup Road, Hamond Park | 2020/8865 | Not Controlled Action | Completed | In buffer area only |
| Residential development on part of Lot 2 Fanstone Avenue, Beeliar, WA | 2016/7726 | Not Controlled Action | Completed | In buffer area only |
| Residential estate, multiple lots, Mandogalup, WA | 2018/8264 | Not Controlled Action | Completed | In buffer area only |
| Residential Subdivision on Baldivis Road, Sabrina Road & Zig Zag Road | 2012/6613 | Not Controlled Action | Completed | In buffer area only |
| Residential Subdivision on Lots 921 & 922 Baldivis Road and Lot 3 Key Close, Baldivis, WA | 2012/6601 | Not Controlled Action | Completed | In buffer area only |
| Roe Highway - Karel Avenue to Hope Road Bridge Project | 2005/2061 | Not Controlled Action | Completed | In buffer area only |
| Sand extraction operation, Lot 1 Thomas Road, Oakford, WA | 2017/8136 | Not Controlled Action | Completed | In buffer area only |

| Title of referral | Reference | Referral Outcome | Assessment Status | Buffer Status |
|---|-----------|---|-------------------|---------------------|
| Not controlled action | | | | |
| Sand quarry, Lot 102 King Road, Oldbury, WA | 2015/7439 | Not Controlled Action | Completed | In buffer area only |
| Sepia Depression Ocean Outlet Landline Duplication | 2012/6248 | Not Controlled Action | Completed | In feature area |
| Stages 2-5 of primary school and assoc facilities development, Hammond Park, WA | 2015/7407 | Not Controlled Action | Completed | In buffer area only |
| Subdivision, Lot 4 Anketell Road, Anketell, WA | 2018/8145 | Not Controlled Action | Completed | In buffer area only |
| Subdivision development on Fifty Rd & Eighty Rd Baldivis | 2011/6195 | Not Controlled Action | Completed | In buffer area only |
| Urban development, Lot 109 Wattleup Road, Hammond Park, WA | 2015/7425 | Not Controlled Action | Completed | In buffer area only |
| Urban development, Lot 805 Mandurah Road, Karnup, WA | 2015/7481 | Not Controlled Action | Completed | In buffer area only |
| Urban development Lots 3, 1199 and 650 Thomas Road, Casuarina, WA | 2016/7659 | Not Controlled Action | Completed | In buffer area only |
| Urban development of Lot 107 Wattleup Road, Hammond Park, WA | 2017/7890 | Not Controlled Action | Completed | In buffer area only |
| Wandi South residential development Kenby Close & Lyon Rd, Wandi, WA | 2014/7198 | Not Controlled Action | Completed | In buffer area only |
| Wellard Farms Urban Development, Baldivis WA | 2020/8634 | Not Controlled Action | Completed | In buffer area only |
| Wentworth West residential development, Bartram Road, Success, WA | 2014/7245 | Not Controlled Action | Completed | In buffer area only |
| Not controlled action (particular manner) | | | | |
| CETO 6 Garden Island Project, offshore WA | 2016/7635 | Not Controlled Action (Particular Manner) | Post-Approval | In buffer area only |
| CETO 6 Geophysical and Geotechnical Surveys | 2014/7408 | Not Controlled Action (Particular Manner) | Post-Approval | In buffer area only |
| City of Cockburn Sporting Facilities | 2005/2139 | Not Controlled Action (Particular Manner) | Post-Approval | In buffer area only |

| Title of referral | Reference | Referral Outcome | Assessment Status | Buffer Status |
|---|-----------|---|-------------------|---------------------|
| Not controlled action (particular manner) | | | | |
| Extension of Spearwood Ave, from Barrington Rd to Miguel Rd | 2009/5140 | Not Controlled Action (Particular Manner) | Post-Approval | In buffer area only |
| INDIGO Marine Cable Route Survey (INDIGO) | 2017/7996 | Not Controlled Action (Particular Manner) | Post-Approval | In feature area |
| Lake Richmond Boardwalk installation, Rockingham, WA | 2013/6977 | Not Controlled Action (Particular Manner) | Post-Approval | In buffer area only |
| Marine Environmental Survey | 2012/6275 | Not Controlled Action (Particular Manner) | Post-Approval | In buffer area only |
| Multipurpose development stage 1 within 340ha | 2004/1913 | Not Controlled Action (Particular Manner) | Post-Approval | In feature area |
| South West Metropolitan Railway Project | 2003/1175 | Not Controlled Action (Particular Manner) | Post-Approval | In feature area |
| Wastewater Treatment Plant | 2009/4970 | Not Controlled Action (Particular Manner) | Post-Approval | In buffer area only |
| Referral decision | | | | |
| 3D Seismic Survey | 2012/6245 | Referral Decision | Completed | In buffer area only |
| CO2 3D Seismic Survey Vlaming Sub-Basin | 2012/6343 | Referral Decision | Completed | In buffer area only |
| Kennedy Bay Urban Development, Port Kennedy, Rockingham | 2013/7022 | Referral Decision | Completed | In buffer area only |
| Lot 877 Stakehill Road, Karnup | 2021/8887 | Referral Decision | Completed | In buffer area only |
| Lots 569 & 1263, Baldivis Road and Lot 21, Sixty Eight Road, Baldivis, WA | 2012/6491 | Referral Decision | Completed | In buffer area only |
| Mundijong Road Ext Realignment Project Baldivis WA | 2011/5864 | Referral Decision | Completed | In buffer area only |
| Rezoning of Crown Reserve 39181 to facilitate future residential development | 2005/2096 | Referral Decision | Completed | In buffer area only |

| Title of referral | Reference | Referral Outcome | Assessment Status | Buffer Status |
|-------------------|-----------|------------------|-------------------|---------------|
| Referral decision | | | | |

Key Ecological Features

[[Resource Information](#)]

Key Ecological Features are the parts of the marine ecosystem that are considered to be important for the biodiversity or ecosystem functioning and integrity of the Commonwealth Marine Area.

| Name | Region | Buffer Status |
|---|------------|---------------------|
| Commonwealth marine environment within and adjacent to the west coast inshore lagoons | South-west | In buffer area only |
| Western rock lobster | South-west | In buffer area only |

| Biologically Important Areas | | | |
|---|-------------------------------|----------------|---------------------|
| Scientific Name | Behaviour | Presence | Buffer Status |
| Seabirds | | | |
| Ardena carneipes Flesh-footed Shearwater [82404] | Aggregation | Known to occur | In buffer area only |
| Ardena pacifica Wedge-tailed Shearwater [84292] | Foraging (in high numbers) | Known to occur | In feature area |
| 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) | Former Range | In feature area |
| Onychoprion anaethetus Bridled Tern [82845] | Foraging (in high numbers) | Known to occur | In feature area |
| Pelagodroma marina White-faced Storm petrel [1016] | Foraging (in high numbers) | Known to occur | In buffer area only |
| Pterodroma mollis Soft-plumaged Petrel [1036] | Foraging (in high numbers) | Known to occur | In buffer area only |

| Scientific Name | Behaviour | Presence | Buffer Status |
|--|-----------------------------|-----------------|---------------------|
| Puffinus assimilis tunneyi Little Shearwater [59363] | Foraging (in high numbers) | Known to occur | In feature area |
| Sterna dougallii Roseate Tern [817] | Foraging | Known to occur | In feature area |
| Sternula nereis Fairy Tern [82949] | Foraging (in high numbers) | Known to occur | In feature area |
| Seals | | | |
| Neophoca cinerea Australian Sea Lion [22] | Foraging (male) | Likely to occur | In buffer area only |
| Whales | | | |
| Balaenoptera musculus brevicauda Pygmy Blue Whale [81317] | Distribution | Known to occur | In feature area |
| 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 feature area |
| Megaptera novaeangliae Humpback Whale [38] | Migration (north) | Known to occur | In buffer area only |
| Megaptera novaeangliae Humpback Whale [38] | Migration (north and south) | Known to occur | In feature area |

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](#)
- [-Department of Land and Resource Management, Northern Territory](#)
- [-Department of Environmental and Heritage Protection, Queensland](#)
- [-Department of Parks and Wildlife, Western Australia](#)
- [-Environment and Planning Directorate, ACT](#)
- [-Birdlife Australia](#)
- [-Australian Bird and Bat Banding Scheme](#)
- [-Australian National Wildlife Collection](#)
- [-Natural history museums of Australia](#)
- [-Museum Victoria](#)
- [-Australian Museum](#)
- [-South Australian Museum](#)
- [-Queensland Museum](#)
- [-Online Zoological Collections of Australian Museums](#)
- [-Queensland Herbarium](#)
- [-National Herbarium of NSW](#)
- [-Royal Botanic Gardens and National Herbarium of Victoria](#)
- [-Tasmanian Herbarium](#)
- [-State Herbarium of South Australia](#)
- [-Northern Territory Herbarium](#)
- [-Western Australian Herbarium](#)
- [-Australian National Herbarium, Canberra](#)
- [-University of New England](#)
- [-Ocean Biogeographic Information System](#)
- [-Australian Government, Department of Defence](#)
- [Forestry Corporation, NSW](#)
- [-Geoscience Australia](#)
- [-CSIRO](#)
- [-Australian Tropical Herbarium, Cairns](#)
- [-eBird Australia](#)
- [-Australian Government – Australian Antarctic Data Centre](#)
- [-Museum and Art Gallery of the Northern Territory](#)
- [-Australian Government National Environmental Science Program](#)
- [-Australian Institute of Marine Science](#)
- [-Reef Life Survey Australia](#)
- [-American Museum of Natural History](#)
- [-Queen Victoria Museum and Art Gallery, Inveresk, Tasmania](#)
- [-Tasmanian Museum and Art Gallery, Hobart, Tasmania](#)
- [-Other groups and individuals](#)

The Department is extremely grateful to the many organisations and individuals who provided expert advice and information on numerous draft distributions.

Please feel free to provide feedback via the [Contact us](#) page.

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Appendix C Likelihood Assessments

Table C1 Significant flora likelihood assessment

| Taxa FAMILY | State | Cth | Description | Likelihood of Presence |
|---|-------|-----|---|---|
| <i>Acacia benthamii</i> FABACEAE | 2 | | Shrub, ca 1 m high. Fl. yellow, Aug to Sep. Sand. Typically on limestone breakaways. | Unlikely based on habitat preferences |
| <i>Acacia lasiocarpa</i> var. <i>bracteolata</i> long peduncle variant (G.J. Keighery 5026) FABACEAE | 1 | | Compact or rather diffuse, spinescent shrub, 0.2-0.6(-2.5) m high. Fl. yellow, Jun to Oct. Variety of soils. | Possible based on habitat preferences |
| <i>Acacia</i> sp. Binningup (G. Cockerton et al. WB 37784) FABACEAE | 1 | | No description available. | Possible based on regional distribution |
| <i>Andersonia gracilis</i> ERICACEAE | VU | EN | A slender shrub up to 50 cm tall with few, spreading branches. Pink to pale mauve flowers are clustered in ovoid or oblong groups of 4 to 14 on terminal heads. Occurs on seasonally damp, black sandy clay flats near or on the margins of swamps, often on duplex soils supporting low open heath vegetation. | Unlikely based on habitat preferences |
| <i>Aponogeton hexatepalus</i> APONOGETONACEAE | 4 | | Rhizomatous or cormous, aquatic perennial, herb, leaves floating. Fl. green-white, Jul to Oct. Mud. Freshwater: ponds, rivers, claypans. | Absent based on habitat preferences |
| <i>Austrostipa mundula</i> POACEAE | 3 | | Perennial grass to 0.6 m high. | Possible based on regional distribution |
| <i>Banksia mimica</i> PROTEACEAE | VU | EN | Prostrate, lignotuberous shrub, 0.15-0.4 m high. Fl. yellow-brown, Dec or Jan to Feb. White or grey sand over laterite, sandy loam. | Unlikely based on habitat preferences |
| <i>Beyeria cinerea</i> subsp. <i>cinerea</i> EUPHORBIACEAE | 3 | | A perennial compact shrub growing to 0.7m high with yellow flowers. It is generally found growing on white to brown/grey sand over limestone on upper slopes and ridges. | Possible based on habitat preferences |
| <i>Boronia juncea</i> subsp. <i>juncea</i> RUTACEAE | 1 | | Slender or straggly shrub, pedicels and sepals glabrous. Fl. pink, Apr. Sand. Low scrub. | Possible based on habitat preferences |
| <i>Caladenia huegelii</i> ORCHIDACEAE | CR | EN | Tuberous, perennial, herb, 0.25-0.6 m high. Fl. green & cream & red, Sep to Oct. Grey or brown sand, clay loam. | Unlikely based on habitat preferences |

| Taxa FAMILY | State | Cth | Description | Likelihood of Presence |
|--|-------|-----|---|--|
| <i>Cardamine paucijuga</i> BRASSICACEAE | 2 | | Slender erect annual, herb, to 0.4 m high. Fl. white, Sep to Oct. In moist to dry habitats. | Possible based on habitat preferences |
| <i>Carex tereticaulis</i> CYPERACEAE | 3 | | Monoecious, rhizomatous, tufted perennial, grass-like or herb (sedge), 0.7 m high. Fl. brown, Sep to Oct. Black peaty sand. | Unlikely based on habitat preferences |
| <i>Conostylis pauciflora</i> subsp. <i>pauciflora</i> HAEMODORACEAE | 4 | | Rhizomatous, stoloniferous perennial, grass-like or herb, 0.1-0.35 m high. Fl. yellow, Aug to Oct. Grey sand, limestone. Hillslopes, consolidated dunes. | Possible based on habitat preferences |
| <i>Cyathochaeta teretifolia</i> CYPERACEAE | 3 | | Rhizomatous, clumped, robust perennial, grass-like or herb (sedge), to 2 m high, to 1.0 m wide. Fl. brown, Dec-Jan. Grey sand, sandy clay. Swamps, creek edges. | Unlikely based on habitat preferences |
| <i>Dampiera triloba</i> GOODENIACEAE | 3 | | Erect perennial, herb or shrub, to 0.5 m high. Fl. blue, Aug to Dec. | Possible based on regional distribution |
| <i>Dillwynia dillwynioides</i> FABACEAE | 3 | | Decumbent or erect, slender shrub, 0.3-1.2 m high. Fl. red & yellow/orange, Aug to Dec. Sandy soils. Winter-wet depressions. | Unlikely based on habitat preferences |
| <i>Diuris drummondii</i> ORCHIDACEAE | VU | VU | Tuberous, perennial, herb, 0.5-1.05 m high. Fl. yellow, Nov to Dec or Jan. Low-lying depressions, swamps. | Unlikely based on habitat preferences |
| <i>Diuris micrantha</i> ORCHIDACEAE | VU | VU | Tuberous, perennial, herb, 0.3-0.6 m high. Fl. yellow & brown, Sep to Oct. Brown loamy clay. Winter-wet swamps, in shallow water. | Unlikely based on habitat preferences |
| <i>Diuris purdiei</i> ORCHIDACEAE | EN | EN | Tuberous, perennial, herb, 0.15-0.35 m high. Fl. yellow, Sep to Oct. Grey-black sand, moist. Winter-wet swamps. | Unlikely based on habitat preferences |
| <i>Dodonaea hackettiana</i> SAPINDACEAE | 4 | | Erect shrub or tree, 1-5 m high. Fl. yellow-green/red, mainly Jul to Oct. Sand. Outcropping limestone. | Likely based on nearby records and presence of preferred habitat |
| <i>Drakaea elastica</i> ORCHIDACEAE | CR | EN | Tuberous, perennial, herb, 0.12-0.3 m high. Fl. red & green & yellow, Oct to Nov. White or grey sand. Low-lying situations adjoining winter-wet swamps. | Unlikely based on habitat preferences |
| <i>Drakaea micrantha</i> ORCHIDACEAE | VU | VU | Tuberous, perennial, herb, 0.15-0.3 m high. Fl. red & yellow, Sep to Oct. White-grey sand. | Possible based on habitat preferences |

| Taxa FAMILY | State | Cth | Description | Likelihood of Presence |
|--|-------|------|---|--|
| <i>Eleocharis keigheryi</i> CYPERACEAE | VU | VU | A rhizomatous, clumped, perennial sedge growing to 0.4 m high. Green flowering stalks appear from August to November. This species is a water plant which appears in creeks and claypans. | Absent based on habitat preferences |
| <i>Eucalyptus foecunda</i> subsp. <i>foecunda</i> MYRTACEAE | 4 | | Mallee to 8 m high. Fl. cream/white, summer to autumn. Coastal sands over limestone. Hills and Dunes. | Likely based on nearby records and presence of preferred habitat |
| <i>Eucalyptus x balanites</i> MYRTACEAE | CR | EN | Robust tree mallee, 5-8 metres tall and up to 15 metres wide. It is a sprawling tree with rough flaky grey bark up to the branchlets. Occurs on light coloured sandy soils with much surface laterite. It grows in gently sloping heathlands in open low mallee woodland. | Possible based on habitat preferences |
| <i>Grevillea olivacea</i> PROTEACEAE | 4 | | Erect, non-lignotuberous shrub, 1-4.5 m high. Fl. red/red-pink, Jun to Sep. White or grey sand. Coastal dunes, limestone rocks. | Possible based on habitat preferences |
| <i>Jacksonia gracillima</i> FABACEAE | 3 | | Prostrate, spreading or scrambling, shrub, Fl. pink, Oct to Nov. Sand, often adjacent to winter wet areas. | Unlikely based on habitat preferences |
| <i>Jacksonia sericea</i> FABACEAE | 4 | | Low spreading shrub, to 0.6 m high. Fl. orange, usually Dec or Jan to Feb. Calcareous & sandy soils. | Likely based on nearby records and presence of preferred habitat |
| <i>Johnsonia pubescens</i> subsp. <i>cygnorum</i> HEMEROCALLIDACEAE | 2 | | Tufted perennial, herb, 0.15-0.25 m high. Fl. white-green, Sep. Grey-white-yellow sand. Flats, seasonally-wet sites. | Unlikely based on habitat preferences |
| <i>Lachnagrostis nesomytica</i> subsp. <i>paralia</i> POACEAE | 1 | | Loosely tufted, weakly ascending, short-lived perennial or annual, herb (grass), to 0.5 m high. Fl. purple-green. Calcareous sands. Coastal dunes and swales. | Possible based on habitat preferences |
| <i>Lasiopetalum membranaceum</i> MALVACEAE | 3 | | Multi-stemmed shrub, 0.2-1 m high. Fl. pink-blue-purple, Sep to Dec. Sand over limestone. | Possible based on habitat preferences |
| <i>Lepidium puberulum</i> BRASSICACEAE | 4 | | Erect annual, herb, 0.1-0.35 m high. Fl. white-green, Jul to Aug or Oct to Nov. Sandy soils. | Possible based on habitat preferences |
| <i>Netrostylis</i> sp. Chandala (G.J. Keighery 17055) CYPERACEAE | 2 | #N/A | Previously included in <i>Tetraria capillaris</i> | Possible based on regional distribution |

| Taxa FAMILY | State | Cth | Description | Likelihood of Presence |
|--|-------|-----|---|---------------------------------------|
| <i>Parsonsia diaphanophleba</i> APOCYNACEAE | 4 | | Woody climber, to 10 m high. Fl. white/cream & pink, Jan to Feb or Apr to Jun or Sep. Alluvial soils. Along rivers. | Unlikely based on habitat preferences |
| <i>Pimelea calcicola</i> THYMELAEACEAE | 3 | | Erect to spreading shrub, 0.2-1 m high. Fl. pink, Sep to Nov. Sand. Coastal limestone ridges. | Possible based on habitat preferences |
| <i>Schoenus capillifolius</i> CYPERACEAE | 3 | | Aquatic or semi-aquatic tufted perennial. Fl. Sep-Nov. Clayey soils. Swamps. | Unlikely based on habitat preferences |
| <i>Sphaerolobium calcicola</i> FABACEAE | 3 | | Slender, multi-stemmed, scandent or erect shrub, to 1.5 m high. Fl. orange-red, Jun or Sep to Nov. White-grey-brown sand, sandy clay over limestone, black peaty sandy clay. Tall dunes, winter-wet flats, interdunal swamps, low-lying areas. | Possible based on habitat preferences |
| <i>Stylidium ireneae</i> STYLIDIACEAE | 4 | | Lax perennial, herb, (0.06-)0.1-0.28 m high, Leaves oblanceolate, 0.4-2 cm long, 1-3 (-5) mm wide, apex subacute to acuminate, margin entire, glandular. Scape glandular. Inflorescence racemose. Fl. pink, Oct to Dec. Sandy loam. Valleys near creek lines, woodland, often with Agonis. | Unlikely based on habitat preferences |
| <i>Stylidium longitubum</i> STYLIDIACEAE | 4 | | Erect annual (ephemeral), herb, 0.05-0.12 m high. Fl. pink, Oct to Dec. Sandy clay, clay. Seasonal wetlands. | Unlikely based on habitat preferences |
| <i>Stylidium paludicola</i> STYLIDIACEAE | 3 | | Reed-like perennial, herb, 0.35-1 m high, Leaves tufted, linear or subulate or narrowly oblanceolate, 0.5-4 cm long, 0.5-1.5 mm wide, apex acute, margin entire, glabrous. Scape mostly glabrous, inflorescence axis glandular. Inflorescence racemose. Fl. pink, Oct to Dec. Peaty sand over clay. Winter wet habitats. Marri and Melaleuca woodland, Melaleuca shrubland. | Unlikely based on habitat preferences |
| <i>Synaphea</i> sp. Fairbridge Farm (D. Papenfus 696) PROTEACEAE | CR | CR | Dense, clumped shrub, to 0.3 m high, to 0.4 m wide. Fl. yellow, Oct. Sandy with lateritic pebbles. Near winter-wet flats, in low woodland with weedy grasses. | Unlikely based on habitat preferences |

| Taxa FAMILY | State | Cth | Description | Likelihood of Presence |
|--|-------|-----|---|---|
| <i>Synaphea</i> sp. Pinjarra Plain (A.S. George 17182) PROTEACEAE | CR | EN | Erect, clumped shrub (sub-shrub), to 0.8 m high. Fl. yellow, Sep to Nov. Grey sandy loam or clay, grey-brown clayey sand, brown clayey loam, laterite. Flats, seasonally wet areas, railroad reserves often with wet depressions or drains. | Unlikely based on habitat preferences |
| <i>Synaphea</i> sp. Serpentine (G.R. Brand 103) PROTEACEAE | CR | CR | No description available | Unlikely based on regional distribution |
| <i>Thelymitra variegata</i> ORCHIDACEAE | CR | 0 | Tuberous, perennial, herb, 0.1-0.35 m high. Fl. orange & red & purple & pink, Jun to Sep. Sandy clay, sand, laterite. | Unlikely based on habitat preferences |

Table C2 Significant fauna likelihood assessment

| Scientific Name Common Name | State | Cth | Habitat | Likelihood of occurrence |
|---|--------|------------|---|--|
| BIRD | | | | |
| <i>Actitis hypoleucos</i> Common Sandpiper | MI | MI, MA | Occurs in a wide variety of habitats on the shores of waterbodies (Pizzey & Knight, 1997). Shallow, pebbly, muddy or sandy edges of rivers and streams, coastal to far inland; dams, lakes, sewage ponds, margins of tidal rivers, waterways in mangroves or saltmarsh; mudflats; rocky or sandy beaches, causeways, riverside lawns, drains, street gutters. | Unlikely based on habitat preferences |
| <i>Arenaria interpres</i> Ruddy turnstone | MI | MI | Occurs in a wide variety of habitats on the shores of waterbodies, commercial saltfields, open or ploughed ground (Pizzey & Knight, 1997). Coastal/marine (Pizzey & Knight 2012). | Likely based on nearby records and presence of preferred habitat |
| <i>Botaurus poiciloptilus</i> Australasian bittern | EN | EN | Occurs in or over water in tall reedbeds, sedges, rushes or Typha; drains in tussocky paddocks, occasionally saltmarsh or brackish wetlands (Pizzey & Knight, 2012). | Unlikely based on habitat preferences |
| <i>Calidris acuminata</i> Sharp-tailed Sandpiper | MI | MI, MA | Tidal mudflats, saltmarshes, mangroves; shallow fresh, brackish or saline inland wetlands; floodwaters, irrigated pastures and crops; sewage ponds, saltfields (Pizzey & Knight, 2012). | Unlikely based on habitat preferences |
| <i>Calidris alba</i> Sanderling | MI | MI, MA | Broad ocean beaches of firm sand 'where waves ebb and flow', depositing strands and heaps of seaweed; often near river mouths; also inlets, tidal mudflats, coastal lagoons (Pizzey & Knight, 2012). | Likely based on nearby records and presence of preferred habitat |
| <i>Calidris canutus</i> Red Knot, Knot | EN | EN | Tidal mudflats, sandflats, beaches, saltmarshes, flooded pastures and ploughed lands (Pizzey & Knight, 1997). | Likely based on nearby records and presence of preferred habitat |
| <i>Calidris ferruginea</i> Curlew Sandpiper | CR, MI | CR, MI, MA | Tidal mudflats, saltmarsh, saltfields; fresh, brackish or saline wetlands and sewage ponds (Pizzey & Knight, 1997). | Unlikely based on habitat preferences |
| <i>Calidris ruficollis</i> Red-necked stint | MI | MI | Tidal mudflats, saltmarshes; sandy or shelly beaches; saline and freshwater wetlands, coastal and inland; saltfields, sewage ponds (Pizzey & Knight, 2012). | Likely based on nearby records and presence of preferred habitat |

| Scientific Name Common Name | State | Cth | Habitat | Likelihood of occurrence |
|---|-------|--------------|---|--|
| <i>Calidris tenuirostris</i> Great Knot | CR | CR,MI, MA | Tidal mudflats, sandy ocean and bay shores, estuaries, shallow saline and freshwater wetlands (Pizzey & Knight, 1997). | Likely based on nearby records and presence of preferred habitat |
| <i>Calyptorhynchus banksii naso</i> Forest red-tailed black cockatoo | VU | VU | Marri, jarrah, wandoo, tuart and karri woodlands and forests, where they feed primarily on marri and jarrah (Johnstone, et al., 2010). | Likely based on nearby records and presence of preferred habitat |
| <i>Calyptorhynchus baudinii</i> Baudin's Cockatoo, Long-billed Black-Cockatoo | EN | EN | Eucalypt forests, especially marri-jarrah and karri forests, less commonly in woodlands of wandoo, blackbutt, flooded gum, yate, and cleared areas (Johnstone, et al., 2010). | Likely based on nearby records and presence of preferred habitat |
| <i>Calyptorhynchus latirostris</i> Carnaby's Black Cockatoo, Short-billed Black-cockatoo | EN | EN | Forests, woodlands and shrublands of Eucalyptus and Proteaceae species, where they feed primarily on Banksia, Hakea and marri, pine plantations and urban areas (Johnstone, et al., 2010; Pizzey & Knight, 1997). | Likely based on nearby records and presence of preferred habitat |
| <i>Calyptorhynchus</i> sp. 'white-tailed black cockatoo' White-tailed black cockatoo | EN | EN | #N/A | Likely based on nearby records and presence of preferred habitat |
| <i>Charadrius leschenaultii</i> Greater sand plover, large sand plover | VU | VU,MI, MA | Wide, sandy or shelly beaches; sandspits, tidal mudflats, reefs, sand cays, mangroves, saltmarsh, dunes, bare paddocks; seldom far inland (Pizzey & Knight, 2012). | Possible based on habitat preferences |
| <i>Charadrius mongolus</i> Lesser Sand Plover, Mongolian Plover | EN | EN,MI, MA | Tidal mudflats and sandflats; gently sloping sandy or shelly beaches, saltmarsh, estuaries, atolls, reefs, mangroves and airfields (Pizzey & Knight, 2012). . Occasionally found inland on freshwater lakes, swamps, bore drains etc. | Possible based on habitat preferences |
| <i>Diomedea antipodensis</i> Antipodean Albatross | MI | VU,MI, MA | A sea bird, spending most of its time at sea. Does not breed in Australia (Menkorst et al. 2019). | Unlikely based on habitat preferences |
| <i>Diomedea dabbenena</i> Tristan Albatross | CR | EN,MI, MA | A seabird with a poorly understood distribution. Breeds on islands of the Tristan da Cunha archipelago (Pizzey & Knight, 2012). | Unlikely based on habitat preferences |
| <i>Diomedea epomophora</i> Southern Royal Albatross | VU | VU,MI, MA | A seabird found in offshore waters. Does not breed in Western Australia (Pizzey & Knight, 2012). | Unlikely based on habitat preferences |

| Scientific Name Common Name | State | Cth | Habitat | Likelihood of occurrence |
|---|-------|--------------|---|--|
| <i>Diomedea exulans</i> Wandering Albatross | VU | VU,MI, MA | A seabird found in offshore waters south of Fremantle. Breeds at high latitudes in the S. Indian and S. Atlantic oceans (Pizzey & Knight, 2012). | Unlikely based on habitat preferences |
| <i>Diomedea sanfordi</i> Northern Royal Albatross | EN | EN,MI, MA | A seabird which does not breed in Western Australia. Rarely seen from land (Menkhorst, et al., 2019). | Unlikely based on habitat preferences |
| <i>Falco peregrinus</i> Peregrine falcon | OS | | Diverse habitats ranging from rainforest to the coast, alpine areas and arid shrublands (Pizzey & Knight, 1997). Cliffs, gorges, timbered watercourses, environs of rivers, wetlands, plains, open woodlands pylons, spires, buildings (Pizzey & Knight, 2012). | Likely based on nearby records and presence of preferred habitat |
| <i>Halobaena caerulea</i> Blue Petrel | | VU,MA | A seabird occurring offshore south of Fremantle. Breeds on sub-Antarctic islands (Pizzey & Knight, 2012). | Unlikely based on habitat preferences |
| <i>Hydroprogne caspia</i> Caspian Tern | - | MI,MA | Sheltered coastal bays with sandy or muddy margins, and near coastal or inland saline or brackish waterbodies (DCCEEW, 2023). | Likely based on nearby records and presence of preferred habitat |
| <i>Ixobrychus dubius</i> Australian little bittern | | | Reed and Typha choked areas of freshwater swamps, lakes and rivers; tussocks in wetland areas, including well-vegetated urban wetlands. Forages among dense, low swamp vegetation (Pizzey & Knight, 2012). | Unlikely based on habitat preferences |
| <i>Leipoa ocellata</i> Malleefowl | VU | VU | Mallee, Acacia, paperbark, sheoak and other scrubs, eucalypt woodland and coastal heaths, mainly on sandy or gravel soils (Pizzey & Knight, 2012). | Unlikely based on regional distribution |
| <i>Limosa lapponica</i> Bar-tailed Godwit | MI | MI | Tidal mudflats, estuaries, sewage ponds, shallow river margins, brackish or saline inland lakes, flooded pastures and airfields (Pizzey & Knight, 1997). | Unlikely based on habitat preferences |
| <i>Limosa lapponica menzbieri</i> Northern Siberian Bar-tailed Godwit, Russkoye Bartailed Godwit | CR | CR | A wader occurring on tidal flats throughout Western Australia's coast. Does not breed in Western Australia (Menkhorst, et al., 2019). | Likely based on nearby records and presence of preferred habitat |
| <i>Macronectes giganteus</i> Southern Giant-Petrel, Southern Giant Petrel | - | EN,MI, MA | A seabird, breeding on Antarctic and sub-Antarctic islands (Pizzey & Knight, 1997) | Unlikely based on habitat preferences |

| Scientific Name Common Name | State | Cth | Habitat | Likelihood of occurrence |
|---|--------|---------------|--|--|
| <i>Macronectes halli</i> Northern Giant Petrel | - | VU,MI, MA | A seabird, breeding on sub-Antarctic islands. Common on inland and offshore waters from approximately south of Fremantle (Pizzey & Knight, 1997). | Unlikely based on habitat preferences |
| <i>Numenius madagascariensis</i> Eastern Curlew, Far Eastern Curlew | VU, MI | CR, MI, MA | Estuaries, tidal mudflats, sandspits, saltmarshes, mangroves, fresh or brackish lakes, grasslands near water (Pizzey & Knight, 1997). | Possible based on habitat preferences |
| <i>Onychoprion anaethetus</i> Bridled Tern | MI | MI,MA | Tropical and sub-tropical seas and offshore islands; rarely coasts (Pizzey & Knight, 2012). | Unlikely based on habitat preferences |
| <i>Oxyura australis</i> Blue-billed duck | P4 | | Well vegetated freshwater swamps, large dams, lakes (Pizzey & Knight, 2012). | Unlikely based on habitat preferences |
| <i>Pachyptila turtur subantarctica</i> Fairy Prion (southern) | | VU | A seabird found in offshore waters. Breeds on sub-Antarctic islands (Menkhorst, et al., 2019). | Unlikely based on habitat preferences |
| <i>Pandion cristatus</i> (Syn. <i>Pandion haliaetus</i>) Osprey, eastern osprey | MI | MI | Littoral and coastal habitats and terrestrial wetlands. They are mostly found in coastal areas but occasionally travel inland along major rivers (DCCEEW, 2023). | Likely based on nearby records and presence of preferred habitat |
| <i>Phoebastria fusca</i> Sooty albatross | EN | VU,MI, MA | A seabird found in offshore waters. Breeds on sub-Antarctic islands (Pizzey & Knight, 2012). | Unlikely based on habitat preferences |
| <i>Pterodroma mollis</i> Soft-plumaged Petrel | - | VU, MI | A seabird found in offshore waters. Breeds on sub-Antarctic islands (Pizzey & Knight, 2012). | Unlikely based on habitat preferences |
| <i>Rostratula australis</i> Australian Painted Snipe | EN | | Well vegetated shallows and margins of wetlands, dams, sewage ponds; wet pastures, marshy areas, irrigation systems, melaleuca scrub, open woodland (Pizzey & Knight, 2012). | Unlikely based on habitat preferences |
| <i>Sterna dougallii</i> Roseate tern | | | Offshore waters, islands, coral reefs, sand cays, beaches, tidal inlets (Pizzey & Knight, 2012). | Likely based on nearby records and presence of preferred habitat |
| <i>Sternula nereis nereis</i> Australian Fairy Tern | VU | VU | Coastal waters, bays, inlets, saline or brackish lakes, saltfields, sewage ponds near coast (Pizzey & Knight, 2012). | Likely based on nearby records and presence of preferred habitat |

| Scientific Name Common Name | State | Cth | Habitat | Likelihood of occurrence |
|---|-------|--------------|---|--|
| <i>Thalassarche carteri</i> Indian Yellow-nosed Albatross | EN | VU,MI, MA | A seabird found in offshore waters. Breeds on sub-Antarctic islands (Pizzey & Knight, 2012). | Unlikely based on habitat preferences |
| <i>Thalassarche cauta</i> Shy Albatross | EN | MI,MA | A seabird found in offshore waters. Breeds on Albatross Is. Bass Strait (Pizzey & Knight, 2012). | Unlikely based on habitat preferences |
| <i>Thalassarche chlororhynchos</i> Atlantic yellow-nosed albatross | VU | MI,MA | A seabird with a poorly understood distribution. Breeds on Gough Is. and islands of the Tristan da Cunha archipelago (Pizzey & Knight, 2012). | Unlikely based on habitat preferences |
| <i>Thalassarche impavida</i> Campbell Albatross, Campbell Black-browed Albatross | VU | VU,MI, MA | A seabird found in offshore waters. Breeds on Campbell Is. (New Zealand region) (Pizzey & Knight, 2012). | Unlikely based on habitat preferences |
| <i>Thalassarche melanophrys</i> Black-browed Albatross | EN | MI,MA | A seabird found in offshore waters. Breeds on sub-Antarctic islands (Menkhorst, et al., 2019). | Unlikely based on habitat preferences |
| <i>Thalassarche steadi</i> White-capped Albatross | VU | VU,MI, MA | A seabird found in offshore waters. Breeds on Auckland Is. Group and Antipodes Is. (New Zealand region) (Pizzey & Knight, 2012). | Unlikely based on habitat preferences |
| <i>Thalasseus bergii</i> Greater Crested Tern | MI | MI,MA | Coastal, offshore waters; beaches, bays, inlets, tidal rivers, salt swamps, lakes and larger rivers (Pizzey & Knight, 2012). | Likely based on nearby records and presence of preferred habitat |
| <i>Thinornis rubricollis</i> Hooded Plover | P4 | | Broad sandy ocean beaches with plentiful seaweed, and adjacent dunes; weedy rock shelves and reefs, occasionally tidal flats; coastal and inland salt lakes (Pizzey & Knight, 2012). | Possible based on habitat preferences |
| <i>Tringa nebularia</i> Common Greenshank, Greenshank | MI | MI,MA | Mudflats, estuaries, saltmarshes, margins of lakes; wetlands, fresh and saline claypans, saltfields and sewage ponds (Pizzey & Knight, 2012). | Unlikely based on habitat preferences |
| INSECT | | | | |
| <i>Idiosoma sigillatum</i> Swan Coastal Plain shield-backed trapdoor spider | | | Clay soils and rocky areas or other sheltered habitats with increased moisture retention properties like gullies and drainage lines on southern facing slopes. Avoids dense leaf litter (DCCEEW, 2023). | Unlikely based on habitat preferences |
| MAMMAL | | | | |

| Scientific Name Common Name | State | Cth | Habitat | Likelihood of occurrence |
|---|-------|-----|--|--|
| <i>Bettongia penicillata ogilbyi</i> Woylie, brush-tailed bettong | CR | EN | Open, sclerophyllous forests and woodlands with a dense understorey/ground cover of tussock grasses or woody scrub (DBCA, 2017). | Unlikely based on habitat preferences |
| <i>Dasyurus geoffroii</i> Chuditch, Western quoll | VU | VU | Forests, mallee shrublands, heathlands and woodlands (DBCA, 2017), with a preference for riparian locations in the jarrah forest (DEC, 2012). | Unlikely based on habitat preferences |
| <i>Isodon fusciventer</i> quenda, southwestern brown bandicoot | P4 | | Dense, scrubby, often swampy vegetation (DEC, 2012). Forest, woodland, shrub and heath communities, ideally with sandy soils and dense health vegetation in the lower stratum | Likely based on nearby records and presence of preferred habitat |
| <i>Notamacropus eugenii derbianus</i> Tammar wallaby | P4 | | Coastal scrub, heath, dry sclerophyll forest and thickets in mallee and woodland. Requires dense, low vegetation for daytime shelter and open, grassy areas for feeding. | Possible based on habitat preferences |
| <i>Notamacropus irma</i> western brush wallaby | P4 | | Open forest or woodland with a preference for seasonally inundated flats with low grasses and open, scrubby thickets (van Dyck, et al., 2013). | Unlikely based on habitat preferences |
| <i>Phascogale tapoatafa wambenger</i> south-western brush-tailed phascogale, wambenger | CD | | Dry, sclerophyllous forests and open woodlands that contain hollow-bearing trees, with sparse ground cover (Anon., 2012). | Unlikely based on habitat preferences |
| <i>Pseudocheirus occidentalis</i> western ringtail possum, ngwayir | CR | CR | Coastal and near coastal peppermint -tuart, jarrah-marri, sheoak and eucalypt woodland and mallee woodland (preferably closed-canopy) (DPaW, 2017). | Possible based on habitat preferences |
| <i>Setonix brachyurus</i> Quokka | VU | | Mainland: tea-tree bordering swamps/watercourses in the Jarrah forest and Karri forests. Rottneest Island: thickets of Acacia, Melaleuca and sedges as well as modified habitats (van Dyck et al. 2013). | Unlikely based on habitat preferences |
| REPTILE | | | | |
| <i>Lerista lineata</i> Perth slider, lined skink | P3 | EN | Coastal heaths and low shrublands, preferring loose sand or sand below stones, logs, termite mounds etc where they feed on ants, termites and other small insects (Cogger, 2014). | Likely based on nearby records and presence of preferred habitat |

| Scientific Name Common Name | State | Cth | Habitat | Likelihood of occurrence |
|--|-------|-----|--|--|
| <i>Neelaps calonotos</i> black-striped snake, black-striped burrowing snake | | | Coastal heaths and low shrublands in coastal and near coastal locations, where it feeds on lizards (Cogger, 2014). Sandy soils supporting heath and banksia/eucalypt woodland. | Likely based on nearby records and presence of preferred habitat |

Appendix D Species List

| Family | | Taxon |
|---------------|---|--------------------------------------|
| Aizoaceae | * | <i>Mesembryanthemum crystallinum</i> |
| Anacardiaceae | * | <i>Schinus terebinthifolia</i> |
| Apocynaceae | | <i>Alyxia buxifolia</i> |
| Asparagaceae | | <i>Acanthocarpus preissii</i> |
| | * | <i>Agave</i> sp. |
| Asteraceae | * | <i>Erigeron bonariensis</i> |
| | | <i>Olearia axillaris</i> |
| Cyperaceae | | <i>Lepidosperma gladiatum</i> |
| Euphorbiaceae | * | <i>Euphorbia peplus</i> |
| | * | <i>Euphorbia terracina</i> |
| Fabaceae | | <i>Acacia rostellifera</i> |
| Geraniaceae | * | <i>Pelargonium capitatum</i> |
| Myrtaceae | | <i>Agonis flexuosa</i> |
| | | <i>Eucalyptus gomphocephala</i> |
| Papaveraceae | * | <i>Fumaria capreolata</i> |
| Poaceae | * | <i>Avena barbata</i> |
| | * | <i>Bromus diandrus</i> |
| | * | <i>Cenchrus clandestinus</i> |
| | * | <i>Cynodon dactylon</i> |
| | * | <i>Ehrharta calycina</i> |
| | * | <i>Lagurus ovatus</i> |
| | | <i>Spinifex longifolius</i> |
| Ranunculaceae | | <i>Clematis linearifolia</i> |
| Rhamnaceae | * | <i>Rhamnus alaternus</i> |

Appendix E Site-Species Matrix

| Taxon | R01 | R02 | Opportunistic |
|--------------------------------------|-----|-----|---------------|
| <i>Acacia rostellifera</i> | + | + | |
| <i>Acanthocarpus preissii</i> | + | + | |
| <i>Agave</i> sp. | | | + |
| <i>Agonis flexuosa</i> | | | + |
| <i>Alyxia buxifolia</i> | | + | |
| <i>Avena barbata</i> | | | + |
| <i>Bromus diandrus</i> | | | + |
| <i>Cenchrus clandestinus</i> | | | + |
| <i>Clematis linearifolia</i> | + | + | |
| <i>Cynodon dactylon</i> | | | + |
| <i>Ehrharta calycina</i> | + | + | |
| <i>Erigeron bonariensis</i> | | | + |
| <i>Eucalyptus gomphocephala</i> | | | + |
| <i>Euphorbia peplus</i> | | | + |
| <i>Euphorbia terracina</i> | | | + |
| <i>Fumaria capreolata</i> | | | + |
| <i>Lagurus ovatus</i> | | | + |
| <i>Lepidosperma gladiatum</i> | | | + |
| <i>Mesembryanthemum crystallinum</i> | | | + |
| <i>Olearia axillaris</i> | | | + |
| <i>Pelargonium capitatum</i> | | | + |
| <i>Rhamnus alaternus</i> | + | | |
| <i>Schinus terebinthifolia</i> | + | + | |
| <i>Spinifex longifolius</i> | | | + |

Appendix F Site Data

Project: 64791

Date: 10/13/2023

Site: R01 **Coordinates:** -32.276177, 115.706079 **Datum:** WGS84

Site Type: Releve

Site Size: **Site Marker:** No marker (temporary site)

Photo Location: Centre

Landform: dune

Aspect: N **Slope:** 1

Outcropping: no

Rock Type: Nil

Soil Type: Sand

Soil Notes: Sand

Surface: 0% bare ground, % outcropping, 5% litter

Years Since Fire: >20 yrs

Large Trees Present (>500 mm DBH): no

Condition: Degraded

Disturbance Notes: Weeds, rubbish, ?pesticide

Vegetation Description: Closed tall shrubland of *Acacia rostellifera* and **Schinus terebinthifolia* over *Acanthocarpus preissii* and **Ehrharta calycina*



| Taxon | Height (cm) | Cover (%) | Cover (Dead %) | Comment |
|----------------------------------|-------------|-----------|----------------|---------|
| <i>Acacia rostellifera</i> | | | | |
| * <i>Rhamnus alaternus</i> | | | | |
| * <i>Schinus terebinthifolia</i> | | | | |
| <i>Clematis linearifolia</i> | | | | |
| <i>Acanthocarpus preissii</i> | | | | |
| * <i>Ehrharta calycina</i> | | | | |

Project: 64791

Date: 10/13/2023

Site: R02 Coordinates: -32.274294, 115.699652 Datum: WGS84

Site Type: Releve

Site Size: Site Marker: No marker (temporary site)

Photo Location: Centre

Landform: dune

Aspect: N Slope: 2

Outcropping: no

Rock Type: Nil

Soil Type: Sand

Soil Notes: Sand

Surface: 5% bare ground, % outcropping, 2% litter

Years Since Fire: >20 yrs

Large Trees Present (>500 mm DBH): no

Condition: Degraded

Disturbance Notes: Weeds

Vegetation Description: Closed tall shrubland of *Acacia rostellifera*, **Schinus terebinthifolia* and *Alyxia buxifolia* over *Acanthocarpus preissii*, *Rhagodia baccata* and **Ehrharta calycina*



| Taxon | Height (cm) | Cover (%) | Cover (Dead %) | Comment |
|----------------------------------|-------------|-----------|----------------|---------|
| <i>Acacia rostellifera</i> | | | | |
| <i>Alyxia buxifolia</i> | | | | |
| * <i>Schinus terebinthifolia</i> | | | | |
| <i>Clematis linearifolia</i> | | | | |
| <i>Acanthocarpus preissii</i> | | | | |
| * <i>Ehrharta calycina</i> | | | | |

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