# Exmouth Renewable Power Infrastructure

## Flora and Fauna Survey

Horizon Power

14 December 2022

→ The Power of Commitment

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# Executive Summary

Horizon Power is proposing to construct renewable power infrastructure in Exmouth, Western Australia. The proposed development sites comprise of two existing Lots (505 and 550) located south-west of the township of Exmouth. Lot 505 is approximately 97.47 hectares (ha) and Lot 550 is approximately 20.06 ha in size.

360 Environmental undertook a Reconnaissance flora and vegetation survey and Basic terrestrial vertebrate fauna survey in August 2021 which included both Lots 505 and 550 (360 Environmental 2021).

GHD Pty Ltd (GHD) was engaged by Horizon Power to undertake a single-phase Detailed flora and vegetation survey and Basic and Targeted fauna survey of the proposed development sites (herein referred to as the survey area). The purpose of this assessment was to:

– Identify key flora, vegetation and fauna constraints within the survey area
– Build on previous work undertaken by 360 Environmental (2021)
– To support and inform potential environmental approvals, such as a native vegetation clearing permit application and referral under the *Environmental Protection Act 1986* (EP act) and/or *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), as relevant.

This report is subject to, and must be read in conjunction with, the limitations set out in Section 1.6 and the assumptions and qualifications contained throughout the report.

**Key findings**

***Flora and Vegetation***

Five vegetation types were described and mapped across four broad landforms (plains; limestone hills and ranges; drainage lines; and cracking clay depression) within the survey area. The vegetation within the survey area is considered to be representative of the existing broad-scale vegetation in the surrounding area.

No Threatened Ecological Communities listed under EPBC Act or *Biodiversity Conservation Act 2016* (BC Act) or Priority Ecological Communities listed by Department of Biodiversity, Conservation and Attractions (DBCA) were identified within the survey area during the field survey.

The condition of the vegetation within the survey area ranged from Excellent to Poor, with the majority (69%) considered to be in Excellent condition. The survey area covered a total of 117.53 ha of which only 1.60 ha (1.4%) is cleared (vehicle tracks). The vegetation structure is largely intact across the survey area with typical species diversity for the bioregion. Areas adjacent to vehicle tracks, within the sandy/clay floodplain and drainage areas had higher introduced species cover, in particular **Cenchrus ciliaris*.

One hundred and thirty-nine flora taxa (including subspecies and varieties) representing 43 families and 98 genera were recorded from the survey area during the field survey. This total comprised 134 native taxa and five introduced flora taxa. The five introduced flora taxa included: ***Aerva javanica* (Kapok), ***Bidens bipinnata* (Bipinnate beggartick), **Cenchrus ciliaris* (Buffel grass), ***Passiflora foetida* (Stinking passion flower) and ***Vachellia farnesiana* (Mimosa bush). None of the five introduced/naturalised flora taxa identified during the survey are listed as a Declared Pest under the *Biosecurity and Management Act 2007* or a Weed of National Significance (WoNS).

No Threatened flora listed under the EPBC Act or BC Act were recorded from the survey area. Seven DBCA listed Priority taxa were recorded from the survey area:

– *Acanthocarpus rupestris* (Priority 2)
– *Tinospora esiangkara* (Priority 2)
– *Acacia alexandri* (Priority 3)
– *Corchorus congener* (Priority 3)
– *Eremophila forrestii* subsp. *capensis* (Priority 3)
– *Grevillea calcicola* (Priority 3)

– *Brachychiton obtusilobus* (Priority 4).

The likelihood of occurrence assessment post-field survey concluded that no additional significant flora are considered likely to occur within the survey area given that suitable search effort did not record these species and/or due to lack of suitable habitat present.

### *Fauna*

Four broad fauna habitat types (excluding cleared areas) were identified within the survey area based on the predominant landforms, soil and vegetation structure in the area (Sandy/Rocky Plain; Creeklines and Minor drainage systems; Undulating Low hills; Rocky Gully). The fauna habitats of the survey area are part of a contiguous, largely intact area of remnant vegetation within unallocated Crown land that lies west of Exmouth town site, nearby DBCA managed areas (Cape Range National Park), Water Corporation Borefields and pastoral areas. One water body was found in Lot 505 and appears to be a seasonal perched seep on the south eastern edge of the survey area. All creeks and drainage lines traversed only carry seasonal flow.

The value of the habitats within the survey area was considered to range in value from medium to high depending on the amount of previous disturbance identified. Medium importance was identified where previous clearing had occurred and where, in some cases, the area held water or had regenerated. The high significance areas were because of the large area, diversity and quality of habitat types (e.g. good to excellent structural and floristic diversity within each habitat type and its proximity to existing habitat feature like Rocky Gully), good connectivity and for supporting known and potential habitat values for significant fauna. The habitats within the survey area are considered to be well represented within the local area and are probably well represented within the greater study area, given the extent of the corresponding native vegetation associations remaining.

The vertebrate fauna assessment identified 99 fauna species, including 56 species of birds, 25 reptile, two amphibian and 16 mammals during the survey. Of these species, six species are considered introduced and include the Asian House Gecko, House Mouse, Black Rat, Dog, Rabbit and Cat. The species recorded during the survey are typical for the habitat they were found in and are generally (other than significant species recorded) well represented in the region in similar habitats.

Three significant fauna species were recorded during the field surveys:

– Peregrine Falcon (*Falco peregrinus*), Listed Other Specially Protected under the BC Act
– Cape Range Slider (*Lerista allochira*), Listed Priority 3 by DBCA
– Western Pebble-mound Mouse (*Pseudomys chapmani*), Listed Priority 4 by DBCA.

A likelihood of occurrence assessment for significant fauna concluded that an additional three species (Black-footed Rock Wallaby (Endangered under the EPBC Act and BC Act), Cape Range Stone Gecko (Priority 2 by DBCA) and Oriental Plover (Migratory (International Agreement) under the EPBC Act and BC Act) are considered likely to occur within the survey area.

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# Appendices

# 1. Introduction

## 1.1 Background

Horizon Power is proposing to construct renewable power infrastructure in Exmouth, Western Australia (WA). The proposed development sites comprise of two existing Lots (505 and 550) located south-west of the township of Exmouth.

360 Environmental undertook a Reconnaissance flora and vegetation survey and Basic terrestrial vertebrate fauna survey in August 2021 which included both Lots 505 and 550 (360 Environmental 2021). The scope of work for this survey was to build on the 360 Environmental (2021) survey to support and inform potential environmental approvals, such as a native vegetation clearing permit application and/or referral under the *Environmental Protection Act 1986* (EP Act) and/or *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), as relevant.

## 1.2 Purpose of this report

GHD Pty Ltd (GHD) was engaged by Horizon Power to undertake a Detailed flora and vegetation survey and Basic and Targeted fauna survey of the proposed development sites (herein referred to as the survey area).

The purpose of the assessment was to identify key flora, vegetation and fauna constraints within the survey area. This report details the findings of these assessments, which will be used to identify and assess the key constraints and inform the environmental assessment and approvals process.

## 1.3 Project location

The survey area comprises of two development sites, Lots 505 and 550, located immediately south and south-east of Exmouth town. Lot 505 is 97.47 hectares (ha) and Lot 550 is 20.06 ha in size. The total survey area is 117.53 ha. The location of the survey area is presented in Figure 1, Appendix A.

A desktop study area was defined for the desktop-based searches of the assessment, which includes a 20 km buffer around the survey area.

## 1.4 Scope of works

The scope of works completed to fulfil the purpose of the assessment included:

- A desktop assessment of the study area to identify biological features and constraints, which may be in, or near the survey area
- A single season Detailed flora and vegetation field survey to verify/ground truth the desktop assessment findings
- A Targeted survey for significant flora identified in the desktop assessment
- A Basic and Targeted fauna survey including fauna habitat mapping based upon vegetation units
- Prepare a concise technical report on the biological survey (this report)
- Provide spatial/mapping data collected during the survey.

## 1.5 Relevant legislation and requirements

In WA some ecological communities, flora and fauna are protected under both Federal and State Government legislation. In addition, regulatory authorities also provide a range of guidance and information on expected standards and protocols for environmental surveys.

An overview of key legislation and guidelines, conservation codes and background information relevant to this biological survey is provided in Appendix B.

## 1.6 Limitations and assumptions

This report has been prepared by GHD for Horizon Power and may only be used and relied on by Horizon Power for the purpose agreed between GHD and Horizon Power as set out in Section 1.2 of this report.

GHD otherwise disclaims responsibility to any person other than Horizon Power arising in connection with this report. GHD also excludes implied warranties and conditions, to the extent legally permissible.

The services undertaken by GHD in connection with preparing this report were limited to those specifically detailed in the report and are subject to the scope limitations set out in the report.

The opinions, conclusions and any recommendations in this report are based on conditions encountered and information reviewed at the date of preparation of the report. GHD has no responsibility or obligation to update this report to account for events or changes occurring subsequent to the date that the report was prepared.

The opinions, conclusions and any recommendations in this report are based on assumptions made by GHD described in this report. GHD disclaims liability arising from any of the assumptions being incorrect.

GHD has prepared this report on the basis of information provided by for Horizon Power and others who provided information to GHD (including Government authorities), which GHD has not independently verified or checked beyond the agreed scope of work. GHD does not accept liability in connection with such unverified information, including errors and omissions in the report which were caused by errors or omissions in that information.

The opinions, conclusions and any recommendations in this report are based on information obtained from specific sample points. Site conditions at other parts of the site may be different from the site conditions found at the specific sample points.

Site conditions may change after the date of the field survey. GHD does not accept responsibility arising from, or in connection with, any change to the site conditions. GHD is also not responsible for updating this report if the site conditions change.

This report has assessed desktop environmental aspects and flora, vegetation and fauna values in the field for the survey area. Should this area change or be refined, further assessment may be required if it extends beyond the survey area extent.

# 2. Methodology

## 2.1 Desktop review

Prior to the commencement of the field survey, a desktop review was undertaken to identify relevant environmental information pertaining to the survey area and to assist in survey design. This included a review of:

- Previous reports undertaken in the area, specifically the 360 Environmental biological survey report of Lots 284, 505, 550 and reserve 51970 (360 Environmental 2021)
- The Department of Climate Change, Energy, the Environment and Water (DCCEEW) Protected Matters Search Tool (PMST) to identify communities and species listed under EPBC Act potentially occurring within the study area (DCCEEW 2022a) (Appendix C)
- The Department of Biodiversity, Conservation and Attractions (DBCA) Threatened Ecological Community (TEC) and Priority Ecological Community (PEC) to identify significant communities previously recorded in the study area
- The DBCA Threatened and Priority Flora (TPFL) database and the WA Herbarium database (WAHERB) and the DBCA threatened fauna database to identify significant flora and fauna previously recorded within the study area listed under the *Biodiversity Conservation Act 2016* (BC Act) and by the DBCA
- The DBCA *NatureMap* database for flora and fauna species previously recorded in the study area (DBCA 2007–) (Appendix C)
- Existing publicly available datasets, including previous pre-European vegetation mapping of the survey area (Beard 1976), aerial photography, wetland and hydrological data to provide background information on the variability of the environment, likely vegetation units and fauna habitats and to identify areas that potentially contain TECs and PECs
- Environmentally Sensitive Areas (ESAs) and DBCA managed conservation estates and reserves.

Where the desktop information is associated with spatial data, this has been presented on Figure 2a and 2b, Appendix A.

## 2.2 Field survey

### 2.2.1 Flora and vegetation

GHD Senior Ecologist Erin Lynch (flora license no. FB62000081-2)) completed a single season Detailed flora and vegetation survey of the survey area from the 9 to 13 May 2022. The field survey was undertaken to identify and describe the dominant vegetation units, assess vegetation condition and identify and record vascular flora taxa present at the time of survey. Targeted searches for significant flora taxa and significant ecological communities were also undertaken during the field survey.

The survey methodology employed by GHD was undertaken with reference to the Environmental Protection Authority (EPA) *Technical Guidance – Flora and Vegetation Surveys for Environmental Impact Assessment* (EPA 2016).

#### Data collection

The survey methods involved a combination of sampling quadrats, relevés and photographic reference points located in identified vegetation units and walking transects. Ten quadrats and six relevés were recorded across the survey area. Quadrat and relevé locations are shown on Figure 3, Appendix A.

Quadrats (measuring 50 m x 50 m – area of 2500 $m^2$) were located within each identified vegetation unit. A minimum of three quadrats were located within each identified vegetation unit, except where the total area of the vegetation type covered a small geographical area or there was limited vegetation. Relevés (unmarked search area) were completed to supplement quadrat data and to represent vegetation types of an irregular distribution (such as gullies and drainage lines). Relevés were undertaken maintaining a 2,500 $m^2$ search area where

possible. Field data at each quadrat and relevé was recorded on a pro-forma data sheet and included the parameters detailed in Table 1.

*Table 1 Data collected at each quadrat and relevé*

| Aspect | Measurement |
|---|---|
| Collection attributes | Site code, personnel/recorder, date, quadrat dimensions, photograph of the quadrat. |
| Physical features | Aspect, slope, landform, soil attributes, ground surface cover, leaf and wood litter. |
| Location | Coordinates recorded in GDA94 datum using a hand-held GPS tool to accuracy approximately ± 2-5 m. |
| Vegetation condition | Vegetation condition was assessed using the condition rating scale adapted by Environmental Protection Authority (EPA) (2016) for the Eremaean and Northern Botanical Province. |
| Disturbance | Level and nature of disturbances (e.g. weed presence, fire and time since last fire, impacts from grazing, clearing). |
| Flora | List of dominant flora from each structural layer, list of all species within the quadrat including average height and cover (using National Vegetation Information System (NVIS)). |

A flora inventory was compiled from taxa listed in described quadrats and relevés and from opportunistic floristic records throughout the survey area. The data is provided in Appendix D.

## Vegetation units

Vegetation units were identified and boundaries delineated using a combination of aerial photography, topographical features and field data/observations. Vegetation units were described based on structure, dominant taxa and cover characteristics as defined by quadrat and relevé data and field observations. Vegetation unit descriptions follow NVIS and are consistent with NVIS Level V (Association). At Level V up to three taxa per stratum are used to describe the association (NVIS Technical Working Group 2017).

## Vegetation condition

The vegetation condition was assessed and mapped in accordance with the vegetation condition rating scale for the Eremaean and Northern Botanical Provinces of Western Australia (devised by Trudgen (1988) and adapted by EPA (2016)). The scale recognises the intactness of vegetation and consists of six rating levels. The vegetation condition rating scale is located in Appendix B.

## Targeted significant flora searches

The results of the 360 Environmental (2021) flora survey and the desktop assessment were reviewed and a target list of significant flora taxa compiled. Ecological information (e.g. habitat, associated flora taxa and phenology) was sourced from *FloraBase* (WA Herbarium 1998-) and other relevant publications where available.

The Targeted flora survey was completed con-currently with the vegetation and flora assessment, with timing occurring in early May 2021 to coincide with the flowering period for the majority of the target taxa for the bioregion. Suitable and preferred habitat for significant flora taxa in the survey area was traversed on foot. While traverses were meandering (Figure 3, Appendix A), they were spaced approximately 50 m apart, which is considered suitable for the target species and vegetation encountered in the survey area. Locations within the survey area with differing hydrology, fire or disturbance history to the surrounding areas were also searched where identified. Where significant flora taxa were identified the locations and number of plants present were recorded using handheld GPS units (± 2-5 m accuracy). A representative collection was also made for confirmation by the WA Herbarium.

## Flora identification and nomenclature

Species well known to the survey botanist were identified in the field; all other species were collected and assigned a unique collection number to facilitate tracking. All specimens collected during the field assessment were dried and processed in accordance with the requirements of the WA Herbarium. Species were identified by

the use of taxonomic literature, electronic keys and online electronic databases with reference to specimens at the WA Herbarium. Relevant taxonomic experts were also consulted where required.

The conservation status of all recorded flora was compared against the current lists available on *FloraBase* (WA Herbarium 1998–) and the EPBC Act Threatened species database provided by DCCEEW (2022b).

### 2.2.2 Fauna

GHD Senior Zoologist Glen Gaikhorst undertook a Basic (low-intensity) and Targeted fauna survey in conjunction with the flora and vegetation survey. An assessment of the likelihood of conservation significant fauna and their habitats occurring within the survey area was undertaken. The survey area was traversed on foot over the course of the field survey to identify and describe the dominant fauna habitat types present and their condition, assess habitat connectivity, and identify and record fauna species within the survey area. Remote cameras, bat detectors and avian fauna acoustic recorders were deployed throughout the survey area. Thirty-one active searches (both general foraging and targeted Cape Range Slider searches) and nocturnal surveys were conducted throughout the survey area, the location of each assessment point is presented in Figure 3, Appendix A.

The survey methodology employed by GHD was undertaken in accordance with the *Technical Guidance – Terrestrial Fauna Surveys for Environmental Impact Assessment* (EPA 2020).

#### Habitat assessment

The survey area was assessed for habitat characteristics based on soil, topography, and vegetation structural complexity, connectivity, disturbance, type and extent of resource availability and value for fauna. Specifically, the assessment included:

– Habitat structure (e.g. vegetation type, presence/absence of over-storey, mid-storey, understorey, and ground cover), based on vegetation type mapping
– Presence/absence of refuge including fallen timber (coarse woody debris), hollow-bearing trees and stags and rocks/breakaways
– Location of the habitat within the survey area in comparison to the habitat within the surrounding landscape
– Habitat connectivity and identification of wildlife corridors within and immediately adjacent to the survey area
– Identification and evaluation of key habitat features and types identified during the desktop assessment relevant to fauna of conservation significance
– Evaluation of the likelihood of occurrence of significant fauna within the survey area based on presence of suitable habitat.

#### Opportunistic fauna searches

Opportunistic fauna searches were conducted across the survey area. Opportunistic searches involved:

– Searching the survey area for tracks, scats, bones, diggings and feeding areas for both native and feral species
– Searching through microhabitats including turning over logs or rocks, turning over leaf litter and examining tree hollows and hollow logs
– Visual and aural surveys, which accounted for many bird species potentially utilising the survey area
– Observed fauna were recorded and where conservation significant fauna were identified, photographs, GPS points and habitat data were recorded.

#### Targeted fauna searches

Based on the results of the desktop assessment which included 360 Environmental (2021) several significant fauna species were identified as likely to occur within the survey area. These species included Black-footed Rock Wallaby (*Petrogale lateralis lateralis*) (Endangered under the EPBC Act and BC Act), Peregrine Falcon (*Falco peregrinus*) (Other Specially Protected (OS) under the BC Act), Cape Range Stone Gecko (*Diplodactylus capensis*) (Priority (P) 2 listed by DBCA) and Cape Range Slider (*Lerista allochira*) (P3 listed by DBCA). These species were not assessed in 360 Environmental (2021) and therefore targeted via nocturnal searching, remote

cameras, active searches, bird census surveys, bat detector recorders and bird acoustic recorders, as detailed in the following sections.

### Nocturnal searching

Spotlighting was undertaken to locate nocturnal species such as nocturnal reptiles, mammals and birds that may otherwise remain undetected using other survey techniques. This search type was undertaken to target Black-footed Rock Wallaby (T) and Cape Range Stone Gecko (P2). Hand held or head mounted spotlights were used for a minimum of one hour by two personnel over two nights. The nocturnal searches undertaken are presented below in Table 2. Spotlighting was also conducted from the vehicle while driving to the survey area and between spotlighting areas.

*Table 2 Locations and effort for Nocturnal searches*

| Type | Survey Area | Habitat Type | Location (start point) | | Date | Distance | Comment |
|---|---|---|---|---|---|---|---|
| | | | Easting | Northing | | | |
| Nocturnal | Lot 550 | Rocky Gully | 200222.09 | 7569679.27 | 10.5.2022 | 797 m | Into the rocky gullies |
| Nocturnal | Lot 550 | Rocky Gully | 200253.148 | 7570104.73 | 11.5.2022 | 1110 m | Into and across the rocky gully ridge lines |
| Nocturnal | Lot 550 | Rocky Gully | 200096.461 | 7570517.73 | 10.5.2022 | 689 m | Into the rocky gullies |
| Nocturnal | Lot 505 | Sandy/Stony Plain and Undulating Low Hills | 202718.182 | 7569599.39 | 10.5.2022 | 2270 m | Walking and driving the survey area. |
| Nocturnal | Lot 505 | Sandy/Stony Plain and Undulating Low Hills | 202692.441 | 7570164.85 | 11.5.2022 | 1310 m | |

### Remote Cameras

Ten remote sensor cameras (Reconyx-Hyperfire) were deployed across various habitat types within the survey area. Cameras were used for targeting significant fauna species such as Black-footed Rock Wallaby (T) and for species inventory recording small, medium and large mammals, birds and reptiles. Cameras were baited with sardines and peanut butter to attract fauna species within the survey area. For each camera location the time, date deployed, date recovered and the GPS coordinates were recorded (Table 3). Remote cameras were deployed under licence BA27000626 (Lodgement No. 08-014409-1).

*Table 3 Remote camera locations*

| Camera No. | Survey area | Habitat Type | Location | | Date deployed | Date recovered | Days total | Comment |
|---|---|---|---|---|---|---|---|---|
| | | | Easting | Northing | | | | |
| sg6 | Lot 550 | Undulating Low Hills | 200279.45 | 7569801.67 | 13.5.2022 | 23.5.2022 | 10 | Positioned on active Western Pebble-mound Mouse mound |
| sg6 | Lot 550 | Undulating Low Hills | 200091.45 | 7569769.67 | 09.5.2022 | 13.5.2022 | 5 | |
| R58 | Lot 550 | Rocky Gully | 200224.46 | 7570466.73 | 09.5.2022 | 23.5.2022 | 14 | |
| sg5 | Lot 550 | Undulating Low Hills/ ridge line | 200129.45 | 7570146.67 | 09.5.2022 | 23.5.2022 | 14 | |
| R56 | Lot 550 | Rocky Gully | 200279.46 | 7570355.73 | 09.5.2022 | 23.5.2022 | 14 | |
| R47 | Lot 550 | Undulating Low Hills/ ridge line | 200217.45 | 7570040.67 | 09.5.2022 | 23.5.2022 | 14 | |

| Camera No. | Survey area | Habitat Type | Location | | Date deployed | Date recovered | Days total | Comment |
|---|---|---|---|---|---|---|---|---|
| | | | Easting | Northing | | | | |
| r60 | Lot 505 | Undulating Low Hills | 202403.44 | 7570523.44 | 13.5.2022 | 23.5.2022 | 10 | Positioned on active Western Pebble-mound Mouse mound |
| Sg1 | Lot 505 | Drainage line | 202495.44 | 7570366.44 | 09.5.2022 | 23.5.2022 | 14 | |
| r59 | Lot 505 | Drainage line | 202496.44 | 7569966.44 | 09.5.2022 | 23.5.2022 | 14 | |
| r60 | Lot 505 | Sandy/Stony Plain | 202573.94 | 7569633.47 | 09.5.2022 | 13.5.2022 | 5 | |

### Active Searches

Two types of active searches were conducted, searches targeting Cape Range Slider (P3) and general foraging. General foraging only differed by the location of the search i.e. Plain or undulating low hill, while Cape Range Slider (P3) searches targeted rocky gullies around *Ficus* sp. or Mallee/*Corymbia* sp. in layers of leaf litter. The searches are listed in Table 4.

***Table 4 Active searches completed***

| Active search type | Survey area | Habitat Type | Location | | Date | Effort (minutes) | Comment |
|---|---|---|---|---|---|---|---|
| | | | Easting | Northing | | | |
| Foraging | Lot 505 | Sandy/Stony Plain | 202602.11 | 7570409.5 | 10.5.2022 | 120 m | Junk and litter |
| Foraging | Lot 505 | Sandy/Stony Plain | 202371.88 | 7570578.69 | 10.5.2022 | 60 m | |
| Foraging | Lot 505 | Sand Plain | 202821.61 | 7570512.66 | 10.5.2022 | 50 m | |
| Foraging | Lot 505 | Limestone Outcrops | 202442.82 | 7570273.82 | 10.5.2022 | 60 m | |
| Foraging | Lot 505 | Sandy/Stony Plain | 202730.34 | 7570327.22 | 10.5.2022 | 80 m | Junk and litter |
| Foraging | Lot 505 | Sandy/Stony Plain | 202846.79 | 7569729.01 | 10.5.2022 | 60 m | Junk and litter |
| Foraging | Lot 505 | Sandy/Stony Plain | 202270.91 | 7569599.98 | 11.5.2022 | 60 m | |
| Foraging | Lot 505 | Undulating Low Hills | 202170.13 | 7570025.00 | 11.5.2022 | 60 m | |
| Foraging | Lot 505 | Sandy/Stony Plain | 202574.99 | 7570011.15 | 11.5.2022 | 60 m | |
| Foraging | Lot 505 | Sandy/Stony Plain | 202937.30 | 7570001.61 | 11.5.2022 | 60 m | |
| Foraging | Lot 505 | Sandy/Stony Plain | 202820.51 | 7570145.7 | 11.5.2022 | 50 m | |
| Foraging | Lot 505 | Drainage Line | 202144.55 | 7570610.29 | 11.5.2022 | 60 m | |
| Foraging | Lot 505 | Undulating Low Hills | 202209.80 | 7570381.15 | 11.5.2022 | 140 m | Limited litter |
| Slider | Lot 550 | Rocky Gully | 200123.97 | 7569901.01 | 12.5.2022 | 60 m | Good *Ficus* sp. litter |
| Slider | Lot 550 | Rocky Gully | 200185.22 | 7569918.43 | 12.5.2022 | 40 m | Good *Ficus* sp. litter |
| Slider | Lot 550 | Rocky Gully | 200203.25 | 7569881.15 | 12.5.2022 | 30 m | *Corymbia* sp. litter |

| Active search type | Survey area | Habitat Type | Location | | Date | Effort (minutes) | Comment |
|---|---|---|---|---|---|---|---|
| | | | Easting | Northing | | | |
| Slider | Lot 550 | Rocky Gully | 200212.71 | 7569950.19 | 12.5.2022 | 50 m | Good *Ficus* sp. Litter |
| Slider | Lot 550 | Rocky Gully | 200267.33 | 7570002.97 | 12.5.2022 | 40 m | Good *Ficus* sp. Litter |
| Slider | Lot 550 | Rocky Gully | 200235.92 | 7570099.74 | 12.5.2022 | 40 m | Good *Ficus* sp. Litter |
| Slider | Lot 550 | Rocky Gully | 200222.79 | 7569968.01 | 12.5.2022 | 40 m | Good *Ficus* sp. Litter |
| Slider | Lot 550 | Rocky Gully | 200254.55 | 7570088.15 | 12.5.2022 | 60 m | Good *Ficus* sp. litter |
| Slider | Lot 550 | Rocky Gully | 200263.29 | 7570147.12 | 12.5.2022 | 40 m | Good *Ficus* sp. Litter |
| Slider | Lot 550 | Rocky Gully | 200260.69 | 7570184.2 | 12.5.2022 | 40 m | Good *Ficus* sp. Litter |
| Slider | Lot 550 | Rocky Gully | 200143.67 | 7570194.61 | 12.5.2022 | 40 m | *Corymbia* sp. Litter |
| Slider | Lot 550 | Rocky Gully | 200290.54 | 7570135.77 | 12.5.2022 | 40 m | *Corymbia* sp. Litter |
| Slider | Lot 550 | Rocky Gully | 200280.36 | 7569745.96 | 12.5.2022 | 60 m | *Corymbia* sp. Litter |
| Slider | Lot 550 | Rocky Gully | 200189.77 | 7570524.48 | 12.5.2022 | 60 m | *Corymbia* sp. Litter |
| Slider | Lot 550 | Rocky Gully | 200136.59 | 7570466.29 | 13.5.2022 | 60 m | *Corymbia* sp. Litter |
| Slider | Lot 550 | Rocky Gully | 200149.2 | 7570410.68 | 13.5.2022 | 30 m | Good *Ficus* sp. Litter |
| Slider | Lot 550 | Rocky Gully | 200237.83 | 7570443.54 | 13.5.2022 | 40 m | Good *Ficus* sp. Litter |
| Slider | Lot 550 | Rocky Gully | 200130.21 | 7570331.16 | 13.5.2022 | 30 m | *Brachychiton* sp. litter |

### Bird Census surveys

Bird Census surveys were undertaken within the survey area. The assessment targeted any significant birds that may utilise the survey area such as the Peregrine Falcon (OS). Each survey comprised of a 20 minute census of birds within an unbounded 2 ha area. This approach is the standard method used by Birds Australia for the Bird Atlas project. Birds detected visually (using binoculars) and/or aurally over a 20 minute period were recorded. Numbers of each species observed were also recorded. All systematic bird surveys were undertaken within four hours of dawn or two hours of dusk, as these are the times of day when birds are most active. In addition to systematic surveys, general observations of birds were also made opportunistically. The below table (Table 5) provides a central point for each bird census.

***Table 5 Bird Census locations undertaken in the survey area***

| Type | Survey Area | Habitat Type | Location (start point) | | Date | Comment |
|---|---|---|---|---|---|---|
| | | | Easting | Northing | | |
| Bird Census | Lot 505 | Sandy/Stony Plain | 202536.92 | 7570386.36 | 10.5.2022 | |
| Bird Census | Lot 505 | Sandy/Stony Plain | 202846.81 | 7570360.06 | 10.5.2022 | |
| Bird Census | Lot 505 | Sandy/Stony Plain | 202832.59 | 7569580.41 | 10.5.2022 | Small water seep present |
| Bird Census | Lot 550 | Undulating Low Hills | 200216.73 | 7570369.08 | 12.5.2022 | |

| Type | Survey Area | Habitat Type | Location (start point) | | Date | Comment |
|---|---|---|---|---|---|---|
| | | | Easting | Northing | | |
| Bird Census | Lot 550 | Rocky Gully | 200294.61 | 7570275.60 | 12.5.2022 | |
| Bird Census | Lot 550 | Rocky Gully | 200140.64 | 7570299.85 | 12.5.2022 | |
| Bird Census | Lot 550 | Undulating Low Hills | 200126.41 | 7570062.8 | 12.5.2022 | |
| Bird Census | Lot 505 | Sandy/Stony Plain | 202603.76 | 7569863.97 | 11.5.2022 | |
| Bird Census | Lot 505 | Sandy/Stony Plain | 202210.94 | 7569857.47 | 11.5.2022 | |
| Bird Census | Lot 505 | Sandy/Stony Plain | 202697.52 | 7570018.17 | 11.5.2022 | |
| Bird Census | Lot 550 | Undulating Low Hills | 200340.60 | 7569626.12 | 12.5.2022 | |
| Bird Census | Lot 550 | Undulating Low Hills | 200153.86 | 7569728.09 | 12.5.2022 | Some Limestone Outcrops |
| Bird Census | Lot 505 | Undulating Low Hills | 202240.55 | 7570137.38 | 10.5.2022 | |
| Bird Census | Lot 505 | Undulating Low Hills | 202618.13 | 7570214.95 | 10.5.2022 | Some Limestone Outcrops |

### Bat Detector recorders

Bat Detector units (SM4 Songmeter and Anabat Swift) were deployed to target a range of micro bats, but focusing on any significant bat species if present, including the North-western Free-tail Bat (*Mormopterus (Ozimops) cobourgianus*) (P1). Detectors were set for up to two nights at selected locations. Bat detectors were positioned in areas where bat species were likely to be present i.e. water bodies or fly-ways such as rocky gullies or ridgelines. Bat detectors were programmed to record from 25 minutes pre-dusk to 25 minutes post-dawn. For each detector the time and date deployed and recovered, and the GPS coordinates were recorded (Table 6).

Data from the bat detectors was downloaded and analysed for the presence of animals following the field survey. Data from the detectors was analysed by Dr Erin Westerhuis to determine species using Kaleidoscope ® bat analysis software and a series of graphical reference comparison calls.

***Table 6 Bat Detector locations in the Survey Area***

| Type | Unit Type | Survey Area | Habitat Type | Location (start point) | | Date Deployed | Nights | Comment |
|---|---|---|---|---|---|---|---|---|
| | | | | Easting | Northing | | | |
| Bat Detector | SM4 | Lot 550 | Rocky Gully | 200145.52 | 7569884.41 | 9.5.2022 | 1 | Can hear buzzing from power lines |
| Bat Detector | SM4 | Lot 550 | Rocky Gully | 200096.46 | 7570517.73 | 10.5.2022 | 1 | Can hear buzzing from power lines |
| Bat Detector | SM4 | Lot 505 | Undulating Low Hills | 202669.52 | 7569699.12 | 11.5.2022 | 1 | Town noise and Horizon Power generators |
| Bat Detector | SM4 | Lot 550 | Undulating Low Hills | 200145.52 | 7569884.41 | 9.5.2022 | 2 | Can hear buzzing from power lines |
| Bat Detector | Swift | Lot 550 | Undulating Low Hills | 200155.86 | 7569725.09 | 11.5.2022 | 2 | Can hear buzzing from power lines |
| Bat Detector | Swift | Lot 505 | Undulating Low Hills | 202574.99 | 7570011.14 | 11.5.2022 | 2 | Town noise and Horizon Power generators |

### Bird acoustic recorders

Bird acoustic recorders were set primarily for detecting nocturnal birds. Acoustic detectors (SM4 Songmeter Acoustic recorders) were deployed in areas where birds might be recorded i.e. utilising water bodies and large hummock Triodia plain as preferred habitat for some species. The Exmouth area is outside of the medium priority area for Night Parrot surveys (Department of Parks and Wildlife 2007) and therefore did not require the four nights of recording per location that is required within the medium priority area. The detectors were set for two nights and programmed to record for 25 minutes from pre-dusk to 25 minutes post-dawn. For each detector the time and date

deployed and recovered, and the GPS coordinates were recorded (Table 7). Data from the recorders was downloaded and analysed by Nigel Jackett, an Ecologist with considerable experience in analysis and identification of bird acoustic data.

*Table 7 Acoustic Detector locations in the Survey Area*

| Type | Unit Type | Survey Area | Habitat Type | Location (start point) | | Date Deployed | Nights | Comment |
|---|---|---|---|---|---|---|---|---|
| | | | | Easting | Northing | | | |
| Acoustic Detector | SM4 Ac1 | Lot 550 | Rocky Gully | 200145.52 | 7569884.41 | 9.5.2022 | 2 | Can hear buzzing from power lines |
| Acoustic Detector | SM4 Ac1 | Lot 505 | Undulating Low Hills | 202574.99 | 7570011.14 | 11.5.2022 | 2 | Town noise and Horizon Power generators |

### Fauna species identification and nomenclature

Identification of fauna species was made in the field using available field guides and electronic guides (e.g. Morcombe 2004). Where identification was not possible, photographs of specimens were collected to be later identified.

Nomenclature used in this report follows that used by the WA Museum and the DBCA *NatureMap* database (DBCA 2007–) for all species groups.

## 2.3 Limitations

### 2.3.1 Desktop limitations

The DCCEEW PMST is based on bioclimatic modelling for the potential presence of species. As such, this does not represent actual records of the species within the area. The records from the DBCA searches of significant fauna provide more accurate information for the general area and local occurrence. However, some collection, sighting or trapping records cannot be dated and often misrepresent the current range of threatened species.

### 2.3.2 Field survey limitations

The EPA (2016; 2020) states that flora and fauna survey reports for environmental impact assessment in WA should contain a section describing the limitations of the survey methods used. The limitations and constraints associated with this field survey are discussed in Table 8.

*Table 8 Survey Limitations*

| Aspect | Constraint | Comment |
|---|---|---|
| Sources of information and availability of contextual information | Nil | Adequate information is available for the survey area. This information includes broad scale (1:250,000) mapping by Beard (1976) and digitised by Shepherd *et al*. (2002). |
| Proportion of flora collected and identified (based on sampling, timing and intensity)<br>Proportion of fauna identified, recorded and/or collected | Minor | The vegetation survey was a single season survey and was undertaken post wet season (early May). Six to eight weeks post wet season (March-June) is considered the optimal time to undertake vegetation surveys in the Eremaean botanical province. Rainfall was above average for the three months prior to the survey. The rainfall received was sufficient for the majority of the flora to flower/fruit and be detectable in the field. The vegetation survey was a Detailed assessment, undertaken to identify and describe the dominant vegetation units and map significant flora.<br>The fauna assessment sampled those species that can be easily seen, heard or have distinctive signs, such as tracks, scats, diggings, etc. Remote equipment was deployed to sample species that maybe cryptic or rare that would not have been identified during a reconnaissance survey and seasonal variation within species often requires targeted surveys at a particular time of the year. Of the fauna species recorded during the survey, all were identified to species level. |

| Aspect | Constraint | Comment |
|---|---|---|
| Flora determination | Minor | Flora determination was undertaken by GHD Botanist/Ecologist in the field and GHD botanist/taxonomist at the WA Herbarium.<br>Four taxa were identified to genus level only, and three taxa could be tentatively identified to species level, due to lack of flowering and/or fruiting material required for identification. Two of these species are identified as likely to be Priority flora.<br>The taxonomy and conservation status of the WA flora is dynamic. This report was prepared with reliance on taxonomy and conservation status current at the time of report development, but it should be noted this may change in response to ongoing research and review of the International Union for Conservation Nature criteria. |
| Mapping reliability | Minor | The vegetation types were mapped using high-resolution ESRI aerial imagery obtained from Landgate, topographical features, previous broad scale mapping (Beard 1976) and field data.<br>Data were recorded in the field using hand-held GPS tools (e.g. Android ® tablets and Garmin GPS). Certain atmospheric factors and other sources of error can affect the accuracy of GPS receivers. The Garmin ® GPS units and Android ® tablets used for this survey are accurate to within ±2 – 5 m on average. Therefore the data points consisting of coordinates recorded from the GPS may contain inaccuracies. However, the aerial imagery displayed on the interactive tablet surface allowed for greater accuracy as field staff could use key visual indicators (such as tree canopies, cleared areas, etc.) to more accurately locate points. |
| Timing/weather/season/cycle | Nil | The field survey was undertaken in early Autumn 2022. In the three months prior to the flora survey (February-April), Learmonth Airport (Bureau of Meteorology (BoM) 2022) recorded 188.8 mm of rainfall. This is above average compared with the long-term average for the same period at Learmonth (99.5 mm). The daily weather conditions during the field survey included:<br>– Maximum temperatures ranging from 25-32 C<br>– Minimum temperature ranging from 16-19 C<br>– Rainfall 31.6 mm on Friday 13th.<br>The weather conditions recorded during the survey are considered unlikely to have impacted the survey results. |
| Disturbances (e.g. fire, flood, accidental human intervention) | Minor | Parts of the survey area have been subject to historical disturbances such as clearing and weeds. These disturbances did not impact the survey.<br>Bat detectors and bird acoustic recorders were used in the survey area. Both Lots 505 and 550) had background noise interference. Lot 550 had powerlines running along the northern boundary and had a distinct audible hum at around 15-18 khz and one pole had a broken top (tin flap near the t-bar of the insulators) vibrating in the breeze creating a second interference. The hum could be heard all over the site. At Lot 505 the main interference came from the large generators next to the survey area. Their interference ranged from 15 to approx. 25 khz. Due to the close proximity to town, other loud noises (such as cars) were also heard during night survey. At both sites the bat and acoustic data collection was contaminated which impacted on the identification of some calls within the khz range. |
| Resources | Nil | Adequate resources were employed during the field survey. Ten person days were spent undertaking the survey using an experienced Ecologist and Zoologist |
| Access restrictions | Nil | There were no access problems or constraints that limited survey effort or coverage. |
| Experience levels | Nil | The Ecologist and Zoologist who executed the survey are practitioners suitably qualified and experienced. The GHD Senior Ecologist has over 15 years' experience leading and conducting vegetation and flora surveys (reconnaissance, detailed and targeted) in the northern bioregion, including undertaking numerous flora and vegetation surveys in the Cape Range sub-region. |

| Aspect | Constraint | Comment |
|---|---|---|
| | | The Senior Zoologist has over 25 years' experience in undertaking fauna surveys across arid regions of Western Australia, including numerous basic and targeted surveys in the Cape Range sub-region. |

# 3. Desktop assessment

## 3.1 Climate

The Northwest Cape has an arid climate and is characterised by a hot summer period (December to March) and a mild winter season (August to November). Rainfall is generally received during late summer, as a result of unpredictable downpours and cyclonic low-pressure systems and southerly troughs arriving from the southwest (May to July). The closest meteorological recording station is located at Learmonth Airport (No. 005007), located approximately 35 km south of the survey area. Climate data from this station indicates the mean maximum temperature ranges from 38ºC in January to 24.4ºC in July. The mean minimum temperature ranges from 34.8ºC in January to 21.8ºC in July. The mean annual rainfall is 251 mm (Plate 1; BoM 2022).

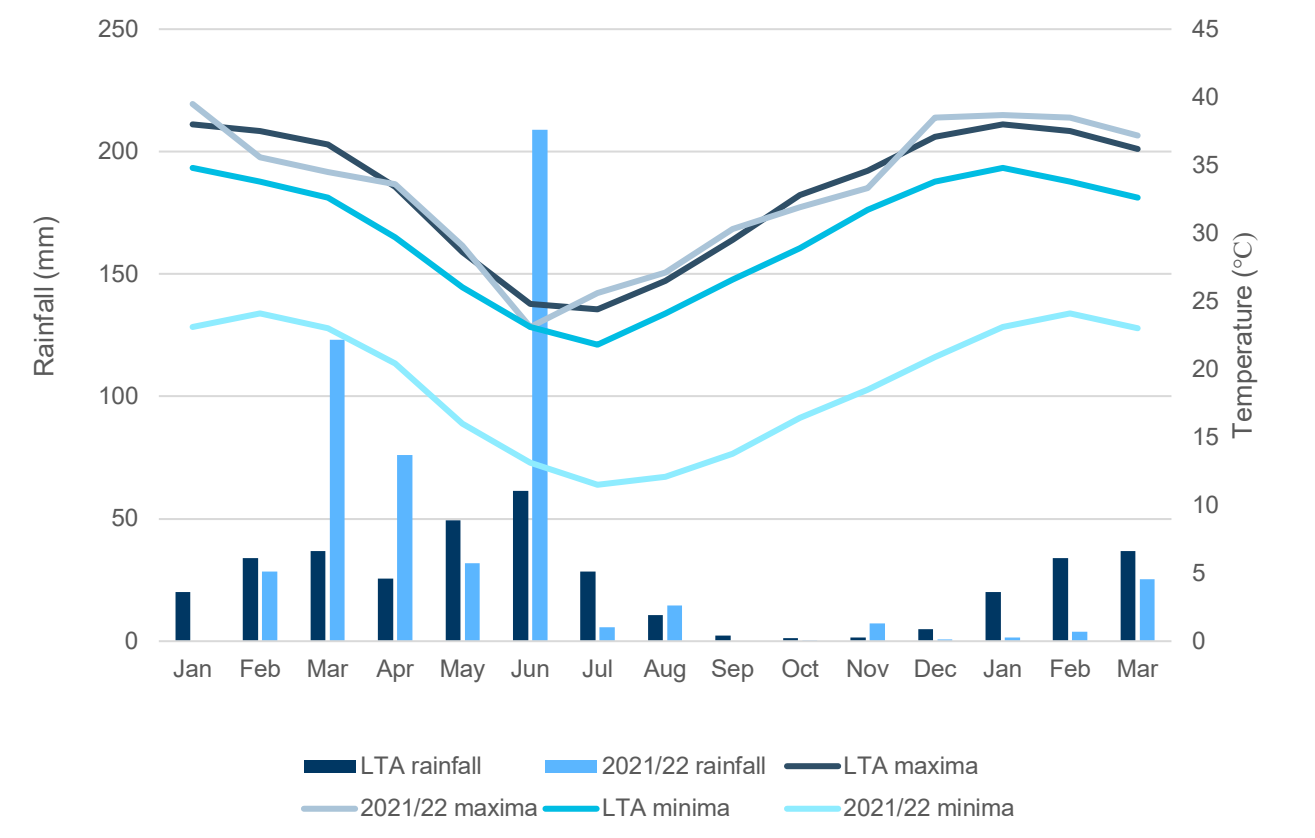


***Plate 1*** ***Climate data for Learmonth – long term average (BoM 2022).***

## 3.2 Regional biogeography

The Interim Biogeographic Regionalisation for Australia (IBRA) recognises 85 bioregions (biogeographic regions) across Australia primarily delineated on the basis of climate, geomorphology, landform lithology, flora and fauna. The survey area is situated within the Cape Range (CAR1) sub-region of the Carnarvon bioregion. The Carnarvon bioregion is composed of quaternary alluvial, aeolian and marine sediments overlying Cretaceous strata (Kendrick and Mau 2002).

Cape Range and Giralia dunefields form the northern part of Carnarvon Basin. Rugged tertiary limestone ranges and extensive areas of red aeolian dunefield, Quaternary coastal beach dunes and mud flats. *Acacia* shrublands over *Triodia* on limestone (*Acacia stuartii* or *A. bivenosa*) and red dunefields, *Triodia* hummock grasslands with sparse *Eucalyptus* trees and shrubs on the Cape Range. Extensive hummock grasslands (*Triodia*) on the Cape Range and eastern dune-fields. Tidal mudflats of sheltered embayments of Exmouth Gulf support extensive mangroves. Beach dunes with Spinifex communities. An extensive mosaic of saline alluvial plains with samphire and saltbush low shrublands along the eastern hinterland of Exmouth Gulf (Kendrick and Mau 2002).

## 3.3 Geology, landforms and soils

The Cape Range is composed of a sequence of predominantly calcareous sedimentary rocks of Palaeocene-Pliocene age, overlain by Pliocene-Holocene alluvial, littoral and shallow water marine sediments on the coastal plain, which border the range.

The survey area is located within the Cape Giralia Coastal Soil-Landscape Zone of the Exmouth Province (Tille 2006). The Cape Giralia Coastal Zone is based on the Giralia Anticline geomorphic province and a combination of the Cape Range, Coastal Dunes, Giralia Range and (western) Winning Plains geomorphic districts. The Zone is described as sandy plains, alluvial plains and hills and ranges (with some stony plains) on Cainozoic deposits and marine limestone over sedimentary rocks of the Carnarvon Basin. Soils include red deep sands and red loamy earths with some shallow calcareous loams, red/brown non-cracking clays and stony soils (Tille 2006).

Based on soil mapping by Northcote et al. (1960-1968), one soil type, Fy2, is mapped within the survey area. Fy2 is described as rugged limestone ranges, deeply dissected and with cliff faces forming their margins. The area is dominated by bare limestone and there are pockets of shallow calcareous loams.

## 3.4 Wetlands and watercourses

The Exmouth region is subject to cyclones, which cause strong winds and storms leading to inundation of the coastal zone. Flooding of the coastal plains occurs as a result of the combination of rain, high tides and low-lying landforms. There are numerous minor, ephemeral drainage lines that intersect the survey area which generally flow down from the ranges to the Gulf of Exmouth. The survey area does not intersect any permanent or semi-permanent watercourses or wetlands.

The buffer area of one Nationally Important Wetland, the Cape Range Subterranean Waterways, intersects the survey area. This wetland is characterised by subterranean waterways and crevicular system in karstic limestone and coastal limestones, and is accessible through anchialine pools, wells, bores and caves (DEE 2017). The wetland meets five of the six criteria for Nationally Important Wetlands in Australia, including playing an important ecological role and supporting endemic stygofauna such as the Blind Gudgeon (*Milyeringa veritas*), the Blind Cave Eel (*Ophisternon candidum*) and the only southern hemisphere representatives of entire classes, orders, families and genera of crustaceans (DEE 2017).

## 3.5 Land Use

### 3.5.1 Conservation Reserves

No DBCA managed lands intersect the survey area. One conservation reserve, Cape Range National Park (R 27288, Class A) is located approximately 4 km west of the survey area (Figure 2a, Appendix A).

### 3.5.2 Environmentally Sensitive Areas

Lot 550 is mapped within an ESA. This ESA almost covers the entire Cape Range Peninsula except a small area around Exmouth town (including Lot 505). This ESA relates to a Register of the National Estate (RNE) area. RNE is no longer current, instead the survey area now falls within a National Heritage Place (The Ningaloo Coast) protected under the EPBC Act.

# 3.6 Vegetation and flora

## 3.6.1 Broad vegetation mapping and extent

The survey area is situated in the Carnarvon Botanical District of the Eremaean Botanical Province, which is the largest botanical province in Western Australia. The Cape Range area is rich in flora with a range of habitats found over the Peninsula.

Broad scale (1:250,000) pre-European vegetation mapping of the area was completed by Beard (1976) at an association level. The mapping indicates two vegetation associations are present within the survey area:

– Hummock grasslands with scattered shrubs or mallee, *Triodia* spp. *Acacia* spp., *Grevillea* spp., *Eucalyptus* spp. (vegetation association 663)
– Hummock grasslands, sparse tree-steppe; Hummock grassland with sparse *Eucalyptus* e.g. Bloodwoods and Snappy gum, *Triodia* spp., *Corymbia dichromophloia*, *Corymbia opaca*, *Eucalyptus leucophloia* (vegetation association 664).

The pre-European mapping has been adapted and digitised by Shepherd *et al.* (2002). The extent of vegetation associations have been determined by the state-wide vegetation remaining extent calculations maintained by DBCA (latest update March 2019 – GoWA 2019). As shown in Table 9, the current extent remaining of vegetation association 663 and 664 at the State, IBRA bioregion, IBRA subregion and Local Government Area (LGA) levels are greater than 85 % of their calculated pre-European extents.

***Table 9 Extent of pre-European vegetation associations mapped in the survey area (Beard 1976, GoWA 2019)***

| Vegetation association | Scale | Pre-European extent (ha) | Current extent (ha) | Remaining (%) | % Current extent in all DBCA managed land (proportion of current extent) |
|---|---|---|---|---|---|
| 663 | State: Western Australia | 30,474.41 | 25,976.66 | 85.24 | 28.93 |
| | IBRA bioregion: Carnarvon | 29,068.26 | 25,866.32 | 88.98 | 28.66 |
| | IBRA subregion: Cape Range | 29,068.26 | 25,866.32 | 88.98 | 28.66 |
| | LGA: Shire of Exmouth | 30,474.41 | 25,976.66 | 85.24 | 28.93 |
| 664 | State: Western Australia | 83,774.94 | 82,154.14 | 98.07 | 67.52 |
| | IBRA bioregion: Carnarvon | 83,739.62 | 82,154.14 | 98.11 | 67.52 |
| | IBRA subregion: Cape Range | 83,739.62 | 82,154.14 | 98.11 | 67.52 |
| | LGA: Shire of Exmouth | 83,774.94 | 82,154.14 | 98.07 | 67.52 |

## 3.6.2 Significant Ecological Communities

Searches of the DCCEEW PMST did not identify any Federally listed TECs within a 20 km radius of the survey area. The DBCA TEC/PEC databases identified one TEC, the Camerons Cave Troglobitic Community, which is listed as Critically Endangered under the BC Act. This TEC is located approximately 600-700 m south of the survey area (Figure 2a, Appendix A).

Camerons Cave troglobitic community (obligatory cave inhabitants) is known only from Camerons Cave on the Cape Range peninsula. The community contains a unique assemblage of species, at least eight of which are known only from this location (DEC 2012). The assemblage is related to those in some other caves, however, all species with congeneric members in caves in Cape Range have, to date, proved to be distinct species (DEC

2012). The assemblage relies on particulate and dissolved sources of organic carbon for food (DEC 2012). This food source is allochthonous, that is, comes in from outside the cave at the surface (DEC 2012). The community is also reliant on the humid conditions in Camerons Cave, which are created through contact with the water table and specific surface conditions (DEC 2012).

Camerons Cave is located south of Exmouth townsite, north of Heron Way. The cave is a doline (sinkhole) about 10 m x 15 m in diameter, with a hole in the middle that drops into a horizontal cave that goes down to and beyond the watertable (DEC 2012). Camerons Cave has a maximum depth of 17 m and is approximately 65 m long by up to 34 m wide (DEC 2012). The roof of the cave is 5 m thick and the cave entrance occurs at an altitude of about 13 m (DEC 2012). It is unprotected and the area around the cave is subject to various proposed developments (DEC 2012).

### 3.6.3 Flora Diversity

A search of the *NatureMap* database identified 452 flora taxa, representing 94 families and 242 genera previously recorded within 20 km of the survey area. This total comprised 422 native flora taxa and 30 naturalised (introduced) flora taxa. Dominant families recorded included Fabaceae (54 taxa), Malvaceae (36 taxa), Asteraceae (33 taxa) and Poaceae (33 taxa).

The *NatureMap* database search is provided in Appendix C.

### 3.6.4 Significant Flora

The DCCEEW PMST, *NatureMap* database and DBCA TPFL and WAHERB databases identified the presence/potential presence of 31 conservation significant flora species within the study area. The desktop searches recorded:

– One taxa under the EPBC Act and/or Threatened under the BC Act
– Two Priority 1 taxa
– 12 Priority 2 taxa
– 12 Priority 3 taxa
– Four Priority 4 taxa.

The locations of significant flora registered on the DBCA databases within a 20 km radius of the survey area are mapped on Figure 2, Appendix A. Significant flora identified in the desktop assessment are provided in the likelihood of occurrence table (Appendix C).

## 3.7 Fauna

### 3.7.1 Fauna Diversity

The *NatureMap* database search identified 276 vertebrate fauna species previously recorded within the study area (DBCA 2007–). This total comprised of 176 bird, 77 reptile, 19 mammal and four amphibian species. Of the 276 fauna species previously recorded, 268 are native and 8 are naturalised (introduced) species (DBCA 2007–) (Appendix C).

### 3.7.2 Significant Fauna

Searches of the DCCEEW PMST, *NatureMap* (significant species only), and DBCA databases identified the presence/potential presence of 92 significant vertebrate fauna taxa within the study area. This total does include those species that are exclusively marine, however for the terrestrial likelihood of occurrence assessment in Appendix E, exclusively marine species have been excluded as no marine habitat is present within the survey area.

The species list included:

– 21 species listed as Threatened under the EPBC Act and/or BC Act

– 38 bird species listed as Migratory (International Agreement) only under the EPBC Act and/or BC Act

– One species listed as Specially Protected or Conservation Dependent under the BC Act

– Seven species listed as Priority by DBCA

– 25 species listed as Marine movement (not marine exclusive).

The significant fauna identified in the desktop assessment are provided in the likelihood of occurrence table (Appendix E).

## 3.1 Previous studies

A summary of previous studies reviewed to inform this assessment are listed and key results summarised in Table 10. Priority flora records from the 360 Environmental (2021) survey are presented in Figure 2, Appendix A.

*Table 10 Previous biological surveys undertaken in close proximity of the survey area*

| Report | Survey area | Survey effort and timing | Key results |
|---|---|---|---|
| Minilya-Exmouth Road Biological Survey, Main Roads WA (GHD 2016) | Minilya-Exmouth Road, south of Reserve 51970.<br>Total 1922.7 ha | Detailed flora and vegetation survey.<br>October 2015 | – No TECs or PECs recorded in the survey area.<br>– No Threatened flora was recorded during the survey. Three Priority flora were recorded:<br>• *Acacia alexandri* (P3)<br>• *Corchorus congener* (P3)<br>• *Owenia acidula* (P3)<br>– Two Migratory bird species were recorded, Osprey and Rainbow Bee-eater. |
| Learmonth (Exmouth) Line Rebuild Flora and Fauna Survey (GHD 2019) | Extends from near Welch St, Exmouth, south to RAAF Learmonth.<br>Total of 157.9 ha | Reconnaissance flora and vegetation survey.<br>May 2019 | – No TECs or PECs were identified within the survey area.<br>– No Threatened flora recorded. Four priority species listed by the DBCA were recorded:<br>• *Corchorus congener* (P3)<br>• *Eremophila forrestii* subsp. *capensis* (P3)<br>• *Tephrosia* sp. North West Cape (G. Marsh 81) (P2)<br>• *Tinospora esiangkara* (P2)<br>– No Threatened or Priority fauna species or evidence of their presence was recorded during the assessment.<br>– The Peregrine Falcon, listed as “Other Specially Protected” under the BC Act and Osprey, listed Migratory, were both recorded during the survey. |
| Lots 284, 505, 550 and Reserve 51970, Exmouth Biological Survey (360 Environmental 2021) | Lots 284, 505, 550 and Reserve 51970.<br>Total of 536 ha<br>Overlaps current survey area. | Reconnaissance flora and vegetation survey and basic fauna survey.<br>August 2021 | – No TECs or PECs were identified within the survey area.<br>– No Threatened flora were recorded. Eight priority flora were recorded during the survey:<br>• *Acanthocarpus rupestris* (P2)<br>• *Harnieria kempeana* subsp. *rhadinophylla* (P2)<br>• *Tinospora esiangkara* (P2)<br>• *Acacia alexandri* (P3)<br>• *Corchorus congener* (P3)<br>• *Eremophila forrestii* subsp. *capensis* (P3)<br>• *Grevillea calcicola* (P3)<br>• *Brachychiton obtusilobus* (P1)<br>– No significant fauna species were recorded during the fauna survey. |

# 4. Survey results

## 4.1 Vegetation

### 4.1.1 Vegetation Types

The landscape of the survey area ranged from the sandy/clay/loam plains with some rocky outcrops to low undulating hills with broad drainage lines and a small depression of cracking clay, up to the rocky limestone ranges consisting of deeply dissected gullies, rocky hillslopes and major drainage lines and creek beds.

Five vegetation types aligning with broad landforms were identified and described from within the survey area (not including cleared areas for tracks). A brief description of these vegetation types are as follows:

– Plains
  - VT01 – *Corymbia hamersleyana* isolated trees over sparse shrubland over **Cenchrus ciliaris* tussock grassland and *Triodia epactia* and *T. basedowii* isolated hummock grasses on sandy/clay/loam plains
– Limestone Hills and Ranges
  - VT02 – *Melaleuca cardiophylla* open mid shrubland over sparse low shrubland over *Triodia wiseana* and *T. epactia* hummock grassland on low undulating rocky limestone hills and ranges
– Drainage Lines
  - VT03 – *Corymbia hamersleyana* open woodland to low isolated trees over *Acacia* spp. tall shrubland over *Senna artemisioides* subsp. *oligophylla, Eremophila longifolia* and *Gossypium robinsonii* open mid shrubland over *Triodia epactia* isolated hummock grasses with **Cenchrus ciliaris*, *Cymbopogon ambiguous* and *Themeda triandra* isolated tussock grasses on rocky sandy/loam broad drainage lines
  - VT05 – *Corymbia hamersleyana* (+/- *Eucalyptus xerothermica*) isolated trees to low open woodland with occasional *Ficus brachypoda* and *Brachychiton obtusifolius* over *Acacia* spp. tall shrubland over *Senna artemisioides* subsp. *oligophylla*, *Melaleuca cardiophylla* and *Eremophila* spp. open mid shrubland over *Triodia epactia* and *Triodia wiseana* open hummock grassland with *Themeda triandra* and *Cymbopogon ambiguous* sparse tussock grasses in gullies, steep rocky hillslopes and major drainage lines with limestone outcropping
– Cracking clay depression
  - VT04 – *Acacia* sparse shrubland over *Triodia epactia* sparse hummock grassland *with *Cenchrus ciliaris* isolated tussock grasses over mixed open forbland on cracking clay depression.

The vegetation types are described in further detail in Table 11 and mapped in Figure 4, Appendix A.

*Table 11 Vegetation types identified within the survey area*

| Vegetation type | Vegetation Type Description | Extent (ha) and proportion of survey area (%) | Sampling sites | Photograph |
|---|---|---|---|---|
| VT01 | *Corymbia hamersleyana* low isolated trees over *Acacia tetragonophylla*, *Acacia bivenosa* and *Scaevola spinescens* sparse shrubland over **Cenchrus ciliaris* tussock grassland and *Triodia epactia* and *T. basedowii* isolated hummock grasses on sand/clay/loam plains with occasional limestone outcropping. | 21.18<br>18.02% | EXQ01, EXQ05, EXQ07 |  |
| VT02 | *Melaleuca cardiophylla, Acacia arida* and *Acacia bivenosa* open mid shrubland over *Indigofera monophyla, Leptosema macrocarpum* and *Solanum* spp. sparse low shrubland over *Triodia wiseana* and *T. epactia* hummock grassland on low undulating rocky limestone hills and ranges. | 84.16<br>71.61% | EXQ02, EXQ03, EXQ06, EXQ08 |  |

| Vegetation type | Vegetation Type Description | Extent (ha) and proportion of survey area (%) | Sampling sites | Photograph |
|---|---|---|---|---|
| VT03 | *Corymbia hamersleyana* open woodland to low isolated trees over *Acacia arida*, *Acacia bivenosa* and *Acacia coriacea* subsp. *coriacea* tall shrubland tall shrubland over *Senna artemisioides* subsp. *oligophylla, Eremophila longifolia* and *Gossypium robinsoni*i open mid shrubland over *Indigofera monophyla, Corchorus crozophorifolius* and *Melhania oblongifolia* low open shrubland over *Triodia epactia* isolated hummock grasses with **Cenchrus ciliaris*, *Cymbopogon ambiguous* and *Themeda triandra* isolated tussock grasses along rocky sandy/loam broad drainage lines. | 4.15<br>3.53% | EXR01, EXR02 |  |
| VT04 | *Acacia tetragonophylla*, *A. bivenosa* and *A. synchronicia* sparse mid shrubland over *Triodia epactia* sparse hummock grassland *with *Cenchrus ciliaris* isolated tussock grasses over *Sida fibulifera*, *Streptoglossa decurrens* and *Vigna* sp. Hamersley Clay (A.A. Mitchell PRP 113) open forbland on cracking clay depression. | 0.44<br>0.37% | EXQ04 |  |

| Vegetation type | Vegetation Type Description | Extent (ha) and proportion of survey area (%) | Sampling sites | Photograph |
|---|---|---|---|---|
| VT05 | *Corymbia hamersleyana* (+/- *Eucalyptus xerothermica*) isolated trees to low open woodland with occasional *Ficus brachypoda* and *Brachychiton obtusifolius* over *Acacia arida*, *A. coriacea* subsp. *coriacea*, *Acacia alexandri* and *Dodonaea viscosa* subsp. *mucronata* tall shrubland over *Senna artemisioides* subsp. *oligophylla*, *Melaleuca cardiophylla* and *Eremophila* spp. open mid shrubland over *Triodia epactia* and *Triodia wiseana* open hummock grassland with *Themeda triandra* and *Cymbopogon ambiguous* sparse tussock grasses over *Melhania oblongifolia*, *Corchorus crozophorifolius and* **Bidens bipinnata* low open shrubland/forbland in gullies, steep rocky hillslopes and major drainage lines with limestone outcropping. | 6.00<br>5.11% | EXR03, EXR04, EXR05, EXR06 |  |
| Cleared | Areas devoid of native vegetation, such as cleared tracks | 1.60<br>1.36% | - | - |

### 4.1.2 Vegetation Condition

The condition of the vegetation within the survey area ranged from Excellent to Poor, with the majority (69%) considered to be in Excellent condition. The survey area covered a total of 117.53 ha of which only 1.60 ha (1.4%) is cleared (vehicle tracks). The extents of the vegetation condition within the survey area are detailed in Table 12 and mapped in Figure 5, Appendix A. The vegetation structure is largely intact across the survey area with typical species diversity for the bioregion. Areas adjacent to vehicle tracks, within the sandy/clay floodplain and drainage areas had higher introduced species cover, in particular **Cenchrus ciliaris*. The time since the last fire is approximately greater than five years ago for the majority of the survey area, with no signs of an inappropriate fire regime on native species diversity. It was evident that there had been fire less than 5 years ago on the eastern side of the main track in Lot 505.

*Table 12 Vegetation condition*

| Vegetation Condition | Extent in survey area (ha) | % within the survey area |
|---|---|---|
| Excellent | 81.65 | 69.47 |
| Very Good | 11.77 | 10.01 |
| Good | 2.23 | 1.90 |
| Poor | 20.28 | 17.26 |
| Cleared | 1.60 | 1.26 |
| **Total** | **117.53** | **100.00** |

### 4.1.3 Significant Ecological Communities

No TECs listed under the EPBC Act or BC Act or PECs listed by the DBCA were identified within the survey area during the field survey.

## 4.2 Flora

### 4.2.1 Flora inventory

One hundred and thirty-nine flora taxa (including subspecies and varieties) representing 43 families and 97 genera were recorded from the survey area during the field survey. This total comprised 134 native taxa and five introduced flora taxa.

Dominant families recorded from the survey area included:

– Fabaceae (22 taxa)
– Malvaceae (19 taxa)
– Poaceae (14 taxa).

The full list of flora identified within the survey area complied by site and species list by family is provided in Appendix D.

### 4.2.2 Introduced flora

Five introduced flora taxa were recorded from the survey area:

– **Aerva javanica* (Kapok)
– **Bidens bipinnata* (Bipinnate beggartick)
– **Cenchrus ciliaris* (Buffel grass)
– **Passiflora foetida* (Stinking passion flower)
– **Vachellia farnesiana* (Mimosa bush)

None of the five introduced/naturalised flora taxa identified during the survey are listed as a Declared Pest under the *Biosecurity and Management Act 2007* or a Weed of National Significance (WoNS).

**Cenchrus ciliaris* was the most common introduced species recorded within the survey area, commonly occurring on the sand/clay plains, along drainage lines and disturbed areas. All of the introduced flora recorded have been previously recorded from the Carnarvon bioregion.

### 4.2.3 Significant Flora

No Threatened flora listed under the EPBC Act or BC Act were recorded from the survey area.

Seven DBCA listed Priority taxa were recorded from the survey area:

- *Acanthocarpus rupestris* (P2)
- *Tinospora esiangkara* (P2)
- *Acacia alexandri* (P3)
- *Corchorus congener* (P3)
- *Eremophila forrestii* subsp. *capensis* (P3)
- *Grevillea calcicola* (P3)
- *Brachychiton obtusilobus* (P4).

The locations of the significant flora identified during the survey are mapped on Figure 6, Appendix A and listed in Appendix D. Completed Threatened and Priority Report Forms (TPRF) for significant flora taxa recorded during the survey are presented in Appendix D.

Significant flora records previously recorded within the survey area by 360 Environmental (2021) were verified in the field. These records were not duplicated during the current survey and additional records were only recorded if the population size was greater than that recorded by 360 Environmental (2021).

***Acanthocarpus rupestris* (P2)**

*Acanthocarpus ruprestris* (P2) is a rhizomatous, tufted perennial herb to 0.5 m high which flowers in May to June (WA Herbarium 1998-). It is known to occur on red sand and limestone (WA Herbarium 1998-). Records of this species are only known from the Shark Bay and Exmouth regions (WA Herbarium 1998-). This species was recorded by 360 Environmental during the 2021 survey however these records occur outside of the current survey boundary.

Thirty-two individuals of *Acanthocarpus rupestris* (P2) (Plate 2) were recorded from ten locations within the survey area. All records were identified within Lot 550 growing in association with the rocky limestone gullies and drainage lines.

***Plate 2 Acanthocarpus rupestris in situ***

***Tinospora esiangkara* (P2)**

*Tinospora esiangkara* (P2) is a climber growing up to 2 m tall with large stems and brown, flaky bark (WA Herbarium 1998-). It has green flowers, flowering in July (WA Herbarium 1998-). It is known to occur on pebbly

orange-brown calcareous loam, limestone outcrops or ridges and near creek banks (WA Herbarium 1998-). 23his species is currently only known from the Cape Range peninsula (WA Herbarium 1998-). A total of 27 individuals of *Tinospora esiangkara* (P2) were opportunistically recorded by 360 Environmental (2021), of which three are located within the current Lot 550 survey boundary.

Twenty-five individuals of *Tinospora esiangkara* (P2) (Plate 3) were recorded from 23 locations during the survey. Therefore in total, 28 individuals have been recorded within the survey area. This species was recorded on the rocky limestone hills, gullies and drainage areas.

***Plate 3*** ***Tinospora esiangkara in situ***

### *Acacia alexandri* (P3)

*Acacia alexandri* (P3) is an open or moderately dense, sometimes wispy shrub which grows from 1.5 to 3 m tall (WA Herbarium 1998-). It flowers in June or August to September and occurs on limestone, stony creeks and steep rocky slopes (WA Herbarium 1998-). The distribution of this species is currently restricted to the Cape Range peninsula (WA Herbarium 1998-). 360 Environmental (2021) recorded more than 500 individuals of *Acacia alexandri* (P3), of which approximately 152 individuals were recorded within the current Lot 550 survey boundary.

A total of 560 individuals of *Acacia alexandri* (P3) (Plate 4) were recorded from 192 locations during the survey. Therefore in total, 712 individuals have been recorded within the survey area. This species was recorded from the rocky limestone slopes, gullies and drainage lines located within Lot 550.

***Plate 4*** ***Acacia alexandri leaves and pods***

### *Corchorus congener* (P3)

*Corchorus congener* (P3) is a spreading shrub, to 0.6 m tall with yellow flowers (WA Herbarium 1998-). It flowers between April to June or August to November and occurs on red sandy loam with limestone, sand dunes and plains (WA Herbarium 1998-). This species is distributed across the Carnarvon and Pilbara bioregions (WA Herbarium 1998-). This species was recorded by 360 Environmental (2021) however none were recorded in the current survey boundary.

A total of 105 individuals of *Corchorus congener* (P3) (Plate 5 and Plate 6) were recorded from 13 locations within the survey area. This species was recorded growing in association with sandy/clay plains and drainage areas.

*Plate 5* *Corchorus congener in situ*

*Plate 6* *Corchorus congener flower*

### *Eremophila forrestii* subsp. *capensis* (P3)

*Eremophila forrestii* subsp. *capensis* (P3) is a sparsely to much-branched shrub, to 1.4 m tall (WA Herbarium 1998-). This species is known to occur on brown, rocky soils, limestone and along ridges (WA Herbarium 1998-). This distribution of this species is currently restricted to the Cape Range peninsula (WA Herbarium 1998-). 360 Environmental (2021) recorded more than 400 individuals of *Eremophila forrestii* subsp. *capensis,* of which approximately 68 individuals were recorded within the current survey boundary (Lot 550).

A total of 494 individuals of *Eremophila forrestii* subsp. *capensis* (P3) (Plate 7 and Plate 8) were recorded from 114 locations during the survey. Therefore in total, 562 individuals have been recorded within the survey area. This species was recorded across the rocky limestone hills, slopes, gullies and drainage lines.

*Plate 7* *Eremophila forrestii subsp. capensis flower*

*Plate 8* *Eremophila forrestii subsp. capensis habitat*

### *Grevillea calcicola* (P3)

*Grevillea calcicola* (P3) is a small straggly tree or shrub (several-stemmed), growing to 4 m high with cream-white flowers (WA Herbarium 1998-). This species flowers in May or July to August and grows on limestone hilltops (WA Herbarium.1998-) The distribution of this species is restricted to the Cape Range peninsula. 360 Environmental (2021) recorded four individuals of *Grevillea calcicola,* none of which are located within the current survey area boundary.

Twenty-seven individuals of *Grevillea calcicola* (P3) (Plate 9) were recorded from 22 locations within the survey area. This species was recorded along the rocky limestone slopes, gullies and drainage lines.

*Plate 9* *Grevillea calcicola in situ*

***Brachychiton obtusilobus* (P4)**

*Brachychiton obtusilobus* (P4) is a tree growing to 3.5 to 6 m high with cream flowers (WA Herbarium 1998-). It flowers between August to September (WA Herbarium 1998-). This species occurs on skeletal soils of rocky limestone ranges, gorges and occasionally sandplains (WA Herbarium 1998-). The distribution of *Brachychiton obtusilobus* (P3) is along the Cape Range peninsula (WA Herbarium 1998-). 360 Environmental (2021) recorded a total of 26 individuals, however only one of these records is located within the current survey boundary (Lot 550).

A total of 18 individuals of *Brachychiton obtusilobus* (Plate 10) were recorded from 16 locations during the survey. Therefore a total of 19 have been recorded within the survey area. This species was recorded growing in association with rocky limestone hillslopes and gullies.

***Plate 10*** ***Brachychiton obtusilobus in situ***

**Likelihood of occurrence assessment**

A likelihood of occurrence assessment was conducted post-field survey for significant flora species identified in the desktop assessment (Appendix D). This assessment took into account previous records, habitat requirements, efficacy and intensity of the survey, flowering times and the cryptic nature of the species.

The likelihood of occurrence assessment post-field survey concluded that no additional significant flora are considered likely to occur within the survey area given that suitable search effort did not record these species and/or due to lack of suitable habitat present.

# 4.3 Fauna

## 4.3.1 Fauna Habitat Types

Four broad fauna habitat types (excluding cleared areas/tracks) were identified within the survey area based on the predominant landforms, soil and vegetation structure in the area. The habitat types identified closely correspond to the vegetation types outlined in Section 4.1.1. The fauna habitat are:

- Stony/Sandy Plain
- Creeklines and Minor Drainage Lines
- Undulating Low hills
- Rocky Gully

The fauna habitats of the survey area are part of a contiguous, largely intact area of remnant vegetation within unallocated Crown land that lies west of Exmouth town site, nearby DBCA managed areas (Cape Range National Park), Water Corporation Borefields and pastoral lands.

The fauna habitats of the survey area are part of a much larger area of similar habitats within the local area and greater study area - consisting of sandy and stony plains, undulating low hills with drainage lines and creeks, with rocky gullies forming higher into Cape Range.

One water body was found in the survey area in Lot 505 and appears to be a seasonal perched seep on the south eastern edge of the survey area. All creeks and drainage lines traversed only carry seasonal flow.

The habitats within survey area Lot 505 have been impacted to some degree by past disturbances including clearing, rubbish dumping, track establishment, Telstra easement and some geotechnical/pit investigations, most of which dates >10 years ago. Most of the disturbance is limited to the areas adjacent the existing track and east towards town and the existing generator facility. Fire evidence was also recorded on the eastern side of Lot 505 the survey and affected most of the northern side of the road. The remainder of the survey area appeared to be long un-burnt. Recent Rabbit activity in the form of fresh tracks and scat piles were commonly recorded, however the impacts caused by Rabbit appeared to be restricted to a few individuals.

Lot 550 has little evidence of disturbance despite the existing track and no evidence of recent fire was recorded.

**Habitat Value**

The survey area provide a diversity of habitat types for native fauna species including species of conservation significance.

The value of the habitats within the survey area was considered to range in value from medium to high depending on the amount of previous disturbance identified. Medium importance was identified where previous clearing had occurred and where, in some cases, the area held water or had regenerated. Areas of high significance were because of the large area, diversity and quality of habitat types (e.g. good to excellent structural and floristic diversity within each habitat type and its proximity to existing habitat feature like Rocky Gully), good connectivity and for supporting known and potential habitat values for significant fauna.

The habitats within the survey area are considered to be well represented within the local area and are probably well represented within the greater study area, given the extent of the corresponding native vegetation associations remaining. However, it is difficult to determine the habitat quality of the vegetation for significant fauna in the greater study area (e.g. does the surrounding vegetation contain the necessary structure and microhabitats for breeding fauna species).

Both Lot 505 and 550 had active Western Pebble-mound Mouse (P4) present. This species was thought to be locally extinct in the Cape Range region despite a potentially active mound recorded in 1995 (Muir Environmental 1995). The field study confirmed that the mouse is present at least on the eastern side of the range and active mounds present.

The broad habitat types are described in further detail in Table 13 and mapped in Figure 7, Appendix A.

*Table 13 Fauna habitats within the survey area*

| Habitat Type | Extent (ha) and proportion of survey are (%) | Representative photograph |
|---|---|---|
| **Stony/Sandy Plain**<br>This habitat type has patches of sandy loam, small clay pans or rocky plain with areas of limestone out cropping in association with low undulating rises. Looks to be the ecotone between the undulating low hills of the eastern portion of the Cape Range and coastal sand plains. Vegetation consists of scattered *Corymbia hamersleyana* over a sparse to open mixed *Acacia* shrubland over a *Triodia* hummock grassland. The hummock grasslands form a dense ground cover and provides refuge for reptiles (such as snakes, skinks, goannas and dragons) and small mammals and ground dwelling birds. The shrubs and scattered trees provide refuge for native birds. Rocky outcrops contain small crevices and caves which provide refuge for reptile species. The majority of the habitat was well connected, with some minor clearing as a result of access tracks.<br>This habitat type aligns with vegetation type VT01 and VT04.<br>**Significant fauna:**<br>The Western Pebble-mound Mouse (P4) was recorded within this habitat type via mounds both active and inactive. The Peregrine Falcon (*Falco peregrinus*) (OS) may utilise this area for hunting/foraging.<br>**Habitat significance:**<br>High – due to the presence of Western Pebble-mound Mouse (P4) which at this stage are only known in this area. | 21.7 ha<br>(18.4%) |  <br>  <br>Limestone outcropping with small caves |

| Habitat Type | Extent (ha) and proportion of survey are (%) | Representative photograph |
|---|---|---|
| **Creeklines and Minor drainage lines**<br>A number of small creeks and minor drainage lines dissect the survey area. *Corymbia hamersleyana* and dense mixed Acacia shrubs often lined the edges of the drainage lines. Mixed hummock and tussock grasses and small herbs dominate the groundcover along the banks of the creeks with very few scattered plants on the rocky river beds. The creeklines/drainage lines were all generally in good condition with minimal weed invasion (some buffel grass in Lot 505). Creeklines are considered to be important ecological corridors to other broader habitats within the local area and provide a source of water during periods of heavy rainfall. Trees and shrubs provide shelter and food resources to a number of native fauna species, in particular birds.<br>This habitat type aligns with vegetation types VT03.<br>**Significant fauna:**<br>No significant fauna was recorded within this habitat type. This area may provide foraging habitat for Peregrine Falcon (OS) and may opportunistically utilise this habitat type. The Rock Wallaby (T) may also use this area when associated to Rocky gullies for foraging.<br>**Habitat significance:**<br>High: due to potential for Peregrine Falcon (OS) and Rock Wallaby (T) to utilise this habitat, as well as the main habitat to have water movement. | 4.15 ha<br>(3.5%) |  <br>  |

| Habitat Type | Extent (ha) and proportion of survey are (%) | Representative photograph |
|---|---|---|
| **Undulating Low hills**<br>Comprises of the eastern portion of the Cape Range with rocky limestone substrates dominant intermitted by rocky gullies and small clay sedimentary areas. *Corymbia hamersleyana* and scattered mixed shrubs over *Triodia* hummock grasses dominate this habitat area. Limestone outcropping is present forming extensive small caves and hollowing. This habitat although visually sparse provides excellent habitat for saxicoline species.<br>This habitat type aligns with vegetation types VT02.<br>**Significant fauna:**<br>The Western Pebble-mound Mouse (P4) was recorded within this habitat type via mounds both active and inactive. The Peregrine Falcon (OS) may utilise this area for hunting/foraging. This is core habitat for the Cape Range Stone Gecko (P2).<br>**Habitat significance:**<br>High: due to potential for Peregrine Falcon (OS) to utilise this habitat, as well as the main habitat for Western Pebble-mound Mouse (P4) and Cape Range Stone Gecko (P2). | 84.16 ha<br>(71.6%) |  |
| **Rocky Gully**<br>Rocky Gully habitat is a sub-component within the broader Undulating Low Hills habitat which has been differentiated for the purpose of quantifying significant habitat for the Cape Range Slider (P3) and Black-footed Rock Wallaby (T).<br>This habitat comprises smaller portions of the survey area but perhaps the most significant for significant fauna habitat. This habitat is characterised by greater topographic features including ridgelines or breakaways of limestone within or creating rocky gullies associated with creeklines or minor drainage line systems.<br>This habitat supports an abundance of small caves and overhangs that provide growing habitat for *Ficus* sp. and other riparian species. Vegetation also consisted of mixed Acacia, *Corymbia hamersleyana*, mixed shrubs over Triodia hummock grasses. The environment had good litter, logs, loose rocks or debris. In some areas this environment was densely vegetated particularly where associated with minor drainage lines. There was no evidence of fire in this environment.<br>This habitat is utilised by saxicoline species and included Rock Skink (*Ctenotus saxatalis*) and Spinifex Pigeon (*Geophaps plumifera).*<br>Aligns with vegetation type VT05. | 6.00 ha<br>(5.1%) |  <br>Remote camera in centre of image |

| Habitat Type | Extent (ha) and proportion of survey are (%) | Representative photograph |
|---|---|---|
| **Significant fauna:**<br>The Cape Range Slider (P3) was recorded within this habitat type via thick litter matting under Ficus sp. The Peregrine Falcon (OS) was also recorded utilising this area for hunting/foraging. This is potential habitat for the Cape Range Stone Gecko (P2) and Black-footed Rock Wallaby (T). The Black-footed Rock Wallaby (T) use is likely opportunistic due to no water bodies present and no large rocky faces or walls present for animals to persist long term therefore use is likely opportunistic for disbursal or use during productive times.<br>**Habitat significance:**<br>High: due to habitat for significant fauna. | |  |
| **Cleared Land**<br>Areas devoid of native vegetation. These areas primarily consisted vehicle tracks.<br>**Habitat significance**: Negligible | 1.60 ha<br>(1.4%) | No photo |

## 4.3.2 Fauna Diversity

Ninety-nine fauna species, including 56 species of birds, 25 reptile, two amphibian and 16 mammals were recorded during the survey. Of these species, six species are considered introduced and include the Asian House Gecko, House Mouse, Black Rat, Dog, Rabbit and Cat. The species recorded during the survey are typical for the habitat they were found in and are generally (other than significant species identified below) well represented in the region in similar habitats.

A full list of fauna recorded during the survey is provided in Appendix E.

## 4.3.3 Significant Fauna

Three species of significant fauna were recorded during the field surveys. These species included;

– Peregrine Falcon (*Falco peregrinus*), Listed Other Specially Protected under the BC Act
– Western Pebble-mound Mouse (*Pseudomys chapmani*), Listed P4 by DBCA
– Cape Range Slider (*Lerista allochira*), Listed P3 by DBCA.

The locations of significant fauna recorded are given in Figure 7, Appendix A. These species and the results of the findings are presented below.

**Peregrine Falcon (OS)**

The Peregrine Falcon (OS) is uncommon but wide ranging across Australia and the world (Birdlife 2022). The species is listed due to its susceptibility to eggs deformity from prohibited chemical use. Found everywhere from woodlands to open grasslands and coastal cliffs – though less frequently in desert regions – it feeds almost entirely on other birds (IUCN 2022, Morcombe 2004). It also eats rabbits and other moderate sized mammals, bats and reptiles (IUCN 2022, Morcombe 2004). The Peregrine Falcon is very territorial during breeding season, the male courting the female with an impressive display of aerobatics (IUCN 2022, Morcombe 2004).

One adult male bird was seen late afternoon foraging along a rocky gully on the northern edge of Lot 550. This bird was moving fast and appeared to be scoping prey such as Spinifex Pigeon or Crested Pigeon that were also observed in the area. Numerous Honey eater were present and proceeded to alarm call on the bird's approach. The sighting of the bird is presented below in Table 14.

***Table 14 Peregrine Falcon sighting location***

| Species | Type | Survey Area | Habitat Type | Location | | Comment |
|---|---|---|---|---|---|---|
| | | | | Easting | Northing | |
| *Falco peregrinus* | Active | Lot 550 | Rocky Gully | 200218 | 7570503.3 | Adult male bird recorded hunting in Rocky Gully, observed via honeyeater alarm calls |

**Western Pebble-mound Mouse (P4)**

The Western Pebble-mound Mouse (P4) was once found across the Pilbara, Gascoyne and into the northern Murchison (Start et al 2000). This species has disappeared from most of the coastal Pilbara regions, Gascoyne and Murchison (Start et al 2000). The strong hold of populations appears to be restricted to the central and eastern Pilbara region where it is recognised as an endemic species (Start et al 2000). Start et al (2000) state that the status of the Western Pebble-mound Mouse (P4) is unclear on Cape Range. Numerous reports have documented their presence, fossil records (Baynes and Jones 1993) and potentially active and old mounds (Muir Environmental 1995). GHD has previously identified old mounds in the Learmonth area (Lynch pers comm) but no mounds have been confirmed as currently active.

Habitat for the Western Pebble-mound Mouse (P4) can be found on stony hillsides with hummock grasslands and little or no soil. It constructs large mounds of pebbles on stony slopes which cover an area of 0.5-9.0 square metres. 'Active' mounds are characterized by volcano-like cones capped by 'craters' that mark occluded entrances to subterranean burrow systems in which the mice live, often gregariously (Van Dyck and Strahan 2008).

This survey identified active and non-active (old) mounds in both Lot 550 (1 active mound) and 505 (1 confirmed active, 2 possibly active and 10 inactive) (Table 15). Both confirmed active mounds had remote cameras deployed for ten days to capture active small mice. Both mounds recorded active small mice and combined with a mound with burrows and a “worked” mound confirms the species still persist in the region. It is highly likely that the two possible active mounds are active. It was noted that some of the mounds recorded were not the typical very large mounds observed in the central Pilbara region. Rather, some were very small and quite cryptic within the environment.'

*Table 15* *Location and images of Western Pebble-mound Mouse mounds*

| Species | Type | Survey Area | Habitat Type | Location | | Comment | Image |
|---|---|---|---|---|---|---|---|
| | | | | Easting | Northing | | |
| *Pseudomys chapmani* | Mound (inactive) | Lot 505 | Undulating Low Hills | 202625.8 | 7569466.5 | Long unused |  |
| *Pseudomys chapmani* | Mound (inactive) | Lot 505 | Undulating Low Hills | 202370.5 | 7569559.3 | Long unused |  |
| *Pseudomys chapmani* | Mound (inactive) | Lot 505 | Undulating Low Hills | 202347.1 | 7569594.1 | Recently inactive mound has profile |  |
| *Pseudomys chapmani* | Mound (inactive) | Lot 505 | Undulating Low Hills | 202385.8 | 7569770.9 | Long unused |  |

| Species | Type | Survey Area | Habitat Type | Location | | Comment | Image |
|---|---|---|---|---|---|---|---|
| | | | | Easting | Northing | | |
| *Pseudomys chapmani* | Mound (inactive) | Lot 505 | Undulating Low Hills | 202490.5 | 7569833.8 | Long unused |  |
| *Pseudomys chapmani* | Mound (inactive) | Lot 505 | Undulating Low Hills | 202332.4 | 7569959.1 | Large mound, recently inactive mound has profile |  |
| *Pseudomys chapmani* | Mound (inactive) | Lot 505 | Undulating Low Hills | 202262.6 | 7570240.46 | Long unused |  |
| *Pseudomys chapmani* | Mound (active) | Lot 505 | Undulating Low Hills | 202430.9 | 7570141.7 | Possibly active, mound appears active but no burrow observed. |  |
| Pseudomys chapmani | Mound (inactive) | Lot 505 | Sandy/Stony Plain | 202669.1 | 7569649.7 | Long unused |  |

| Species | Type | Survey Area | Habitat Type | Location | | Comment | Image |
|---|---|---|---|---|---|---|---|
| | | | | Easting | Northing | | |
| Pseudomys chapmani | Mound (active) | Lot 505 | Undulating Low Hills | 202403.7 | 7570524.3 | Active mound, burrow present. Remote camera deployed on mound. Active mice recorded |  |
| Pseudomys chapmani | Mound (inactive) | Lot 505 | Undulating Low Hills | 202295.0 | 7570370.7 | Long unused |  |
| Pseudomys chapmani | Mound (active) | Lot 505 | Undulating Low Hills | 202386.4 | 7570335.5 | Possibly active, mound appears active but no burrow observed. |  |
| Pseudomys chapmani | Mound (inactive) | Lot 505 | Undulating Low Hills | 202503.9 | 7570273.5 | Long unused |  |
| *Pseudomys chapmani* | Mound (active) | Lot 550 | Undulating Low Hills | 200279.8 | 7569801.9 | Active mound, burrow present. Remote camera deployed on mound. Active mice recorded |  |

**Cape Range Slider (Priority 3)**

The Cape Range Slider (P3) is a small fossorial skink restricted to dissected limestone gorges and plateau habitats on North West Cape (Kendrick 1989, Wilson and Swan 2017). The species appears to rely on thick litter mats under *Ficus* sp. growing along or in limestone gorges and gullies (Maryan pers comm.).

Eighteen slider active search locations were undertaken during the field survey in Lot 550. Search areas targeted *Ficus* sp. litter mats however dense litter was also raked under *Corymbia* and *Brachychiton* sp. in litter matting. One adult specimen was raked from a *Ficus* litter area but disappeared into a rock crevice (Table 16). The species is likely to persist in dense litter areas associated with rocky gully habitat. No habitat was present in Lot 505.

***Table 16 Cape Range Slider location record***

| Species | Type | Survey Area | Habitat Type | Location | | Comment |
|---|---|---|---|---|---|---|
| | | | | Easting | Northing | |
| *Lerista allochira* | Active | Lot 550 | Rocky Gully | 200254.6 | 7570088.2 | Adult specimen raked from within Ficus litter in a Rocky Gully. Specimen escaped via a small crevice. |

### Likelihood of occurrence assessment

An assessment of the likelihood of significant fauna identified in the desktop assessment occurring in the survey area was undertaken post survey. This assessment is based on species' biology, habitat requirements, the quality and availability of suitable habitat as determined during the field survey, and records of the species in the survey area and locality. Species specific searches of the DBCA *NatureMap* database were also conducted in order to gather information about the broader regional occurrence of species to further inform the likelihood of occurrence assessment. Some species identified in the DCCEEW PMST or DBCA *Naturemap* search are not realistically considered to occur in the survey area or are not terrestrial vertebrate species, and have been excluded from the assessment (i.e. exclusively marine species).

Of the 58 significant fauna identified in the desktop searches, six species (two birds, two mammal and two reptile) are considered likely to occur or present within the survey area. A summary of these species is provided in Table 17. The complete assessment is provided in Appendix E.

***Table 17 Significant fauna identified as present or likely to occur within the survey area***

| Common name | Status | | Likelihood of occurrence |
|---|---|---|---|
| | BC Act/ DBCA | EPBC Act | |
| Black-footed Rock-wallaby (*Petrogale lateralis lateralis*) | Vulnerable | | **Likely** Although no individuals were recorded during the field assessment, the survey area occurs within the known distribution of the species with previous records occurring to within 500 m of the survey area at Lot 550. Habitat use would be restricted to the rocky gullies and immediate surrounds for foraging. No water bodies are present and no large rocky faces or walls are present for animals to persist long term therefore use is likely opportunistic for disbursal or use during productive times. Lot 505 is not suitable for the species. |
| Western Pebble-mound Mound (*Pseudomys chapmani*) | Priority 4 | | **Present** Numerous active and non active mounds were recorded in Lot 550 and 505. Most mounds were restricted to Lot 505. Remote cameras were deployed for 10 days on an active mound in both Lot 505 and 550 and both mounds recorded small mice nocturnally active. |
| Oriental Plover (*Charadrius veredus*) | International Agreement | Migratory, Marine | **Likely** No individuals were recorded during the field assessment, however habitat is present on the Stony/Sandy Plain. This species is migratory therefore is not limited to foraging habitat within the survey area. |
| Peregrine Falcon (*Falco peregrinus*) | Other Specially Protected | | **Present** One male adult bird was recorded foraging in Lot 550 within rocky gully on the northern boundary. |
| Cape Range Slider (*Lerista allochira*) | Priority 3 | | **Present** One animal was recorded in Lot 550 from within *Ficus* sp. Litter. The species disappeared into a rocky crevice. |

| Common name | Status | | Likelihood of occurrence |
|---|---|---|---|
| | BC Act/ DBCA | EPBC Act | |
| Cape Range Stone Gecko (*Diplodactylus capensis*) | Priority 2 | | **Likely** The survey area occurs within the known distribution of the species. No individuals were recorded during the field assessment, however there is some habitat present and they have been recorded at similar sites around Exmouth. |

# 5. Discussion and conclusion

## 5.1 Flora and Vegetation

Five vegetation types were described and mapped across four broad landforms (plains; limestone hills and ranges; drainage lines; and cracking clay depression) within the survey area. The vegetation within the survey area is not considered to be restricted to the survey area or considered to be significant vegetation as it is likely to have high representation in both the local and regional area based on observations of surrounding vegetation and previous surveys in the region.

The recorded vegetation types did not represent any EPBC Act or BC Act listed TECs or DBCA listed PECs. The condition of the vegetation within the survey area ranged from Excellent to Poor, with the majority (69%) considered to be in Excellent condition. The survey area covered a total of 117.53 ha of which only 1.60 ha (1.4%) is cleared (vehicle tracks). The vegetation structure is largely intact across the survey area with typical species diversity for the bioregion. Areas adjacent to vehicle tracks, within the sandy/clay floodplain and drainage areas had higher introduced species cover, in particular **Cenchrus ciliaris*.

No Threatened flora listed under the EPBC Act or BC Act were recorded from the survey area. Seven DBCA listed Priority taxa were recorded from the survey area; *Acanthocarpus rupestris* (Priority 2), *Tinospora esiangkara* (Priority 2), *Acacia alexandri* (Priority 3), *Corchorus congener* (Priority 3), *Eremophila forrestii* subsp. *capensis* (Priority 3), *Grevillea calcicola* (Priority 3) and *Brachychiton obtusilobus* (Priority 4). These Priority flora (excluding *Acanthocarpus rupestris* and *Corcorus congener*) have a restricted distribution confined to the Cape Range subregion on the Exmouth Peninsula (WA Herbarium 1998-). None of the flora recorded during the survey represented range extensions.

The likelihood of occurrence assessment post-field survey concluded that no additional significant flora are considered likely to occur within the survey area given that suitable search effort did not record these species and/or due to lack of suitable habitat present.

## 5.2 Fauna

Four broad fauna habitat types (excluding cleared land) were recorded across the survey area both Lots 505 and 550. The habitat types Rocky Gully, Undulating Low Hills, Creeklines and Minor Drainage Lines and Stony/Sandy Plain are all high value to significant species recorded or likely to occur in the survey area.

Three significant fauna species were recorded during the survey the Cape Range Slider (P3), Peregrine Falcon (OS) and Western Pebble-mound Mouse (P4). A likelihood of occurrence assessment for significant fauna concluded that three additional species (Black-footed Rock Wallaby (Endangered), Cape Range Stone Gecko (P2) and Oriental Plover (MI) are considered likely to occur within the survey area.

Western Pebble-mound Mouse (P4) was recorded in Lot 550 and Lot 505. One active mound was recorded in Lot 550, while 13 mounds were recorded from Lot 505. Of these 13 mounds, one was confirmed active, two possibly active and the remainder were non active mounds. It is noted that some of these non-active mounds were abandoned not long ago. All mounds were found in Undulating Low Hills or on Stony/Sandy plain. These records are significant for the Cape Range region as the species is only known from historical evidence and/or suspected of being present. This record confirms their presence in the region and becomes a significant record for the Cape Range area. This species was not identified by the previous consultant nor present in database searches. Therefore the data provided in this report is based on a single field assessment. Without further assessment, due to the presence of active and non active mounds and the significance of these in the greater area, the habitat that the mounds are based should remain untouched.

There are multiple records of Peregrine Falcon (OS) surrounding the survey area, mostly in association with the Cape Range and surrounding plains. Peregrine Falcon (OS) was recorded foraging in Lot 550 within a rocky gully on the northern boundary. No suitable breeding habitat is present in the survey area therefore the survey area would be used for foraging only. It is potentially an occasional visitor to the area as part of a larger home range.

Cape Range Slider (P3) was recorded within Lot 550, the survey area is within the known distribution of the species and suitable habitat is present. Cape Range Slider (P3) is a very cryptic species and only found if trapped or searched for. With additional effort it is likely other specimens would be recorded in the immediate area.

Cape Range Stone Gecko (P2) is known from the area and core habitat for this species recorded within the survey area includes Undulating Low Hills and Stony/Sandy Plain but Rocky Gully is also likely to be used. None were recorded during the survey area, however few active geckos were recorded during the nocturnal surveys indicating that this species may not have been active at the time of the surveys.

Black Footed Rock Wallaby (Endangered) are known from the Cape Range particularly along the Yardie Creek Gorge and the surrounding range. The species is unlikely to utilise Lot 505 due to the lack of habitat present. Lot 550 has rocky gullies with exposed rocky walls and breakaways of limestone which provide suitable habitat for the species. There are scatted sighting records nearby (the closest 500 m away), however the rocky gullies present are quite small and unlikely to support individuals or a group long term. The habitats available may only be utilised opportunistically via animal dispersal or during seasonal favourable conditions.

The survey area is likely to provide suitable habitat for Oriental Plover (Migratory), which is known from region including from grassy plains or sparsely vegetated stony plains. The habitat type Stony/Sandy Plain may provide suitable habitat for this species, however being a migratory bird, use of the survey area would be irregular and opportunistic.

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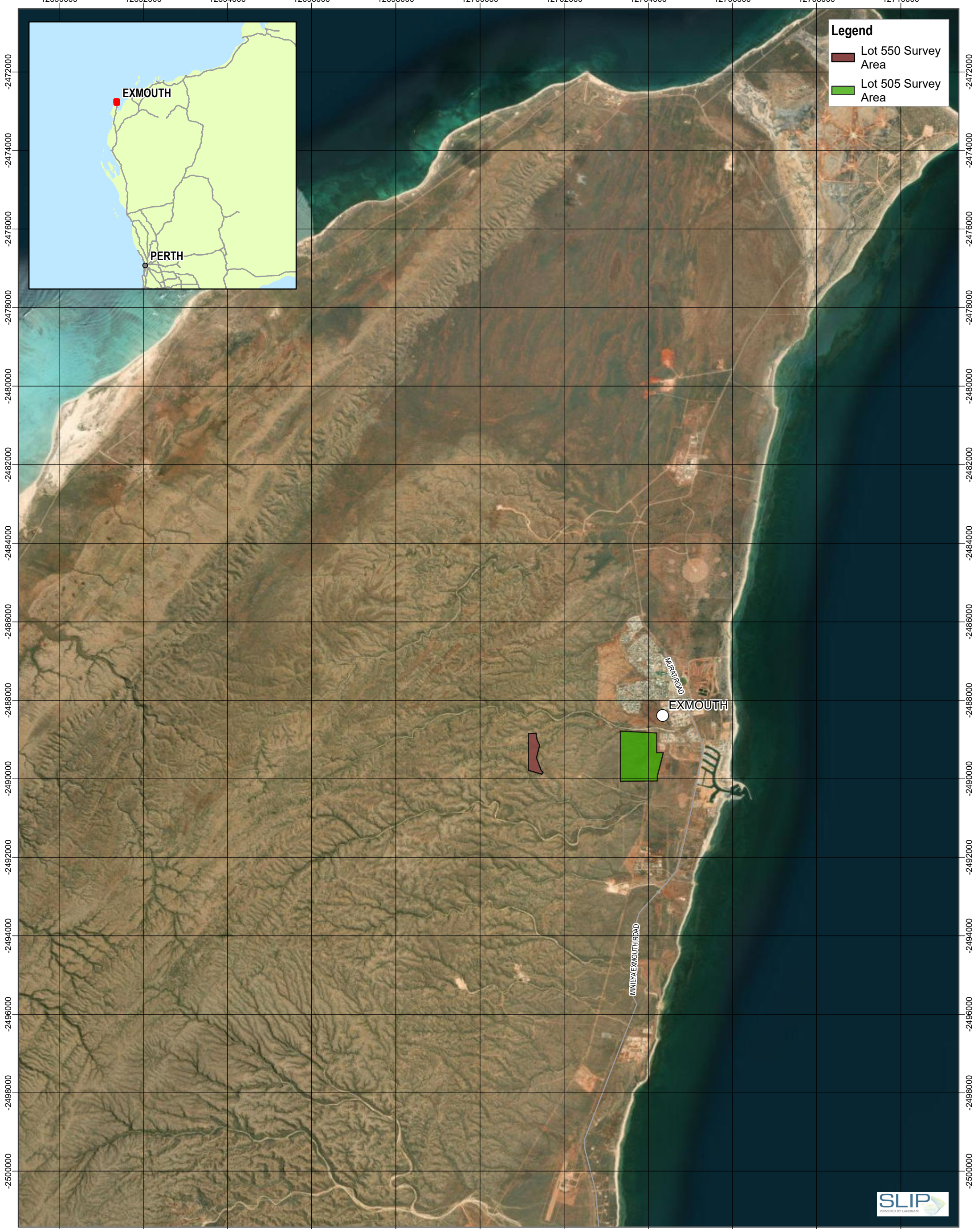
# Appendices

# Appendix A

## Figures

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Grid: GCS WGS 1984

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**Horizon Power**
**Exmouth Renewables Project**

## Survey Area Locations

Project No. **61-12579699**
Revision No. **0**
Date **07/11/2022**

# FIGURE 1

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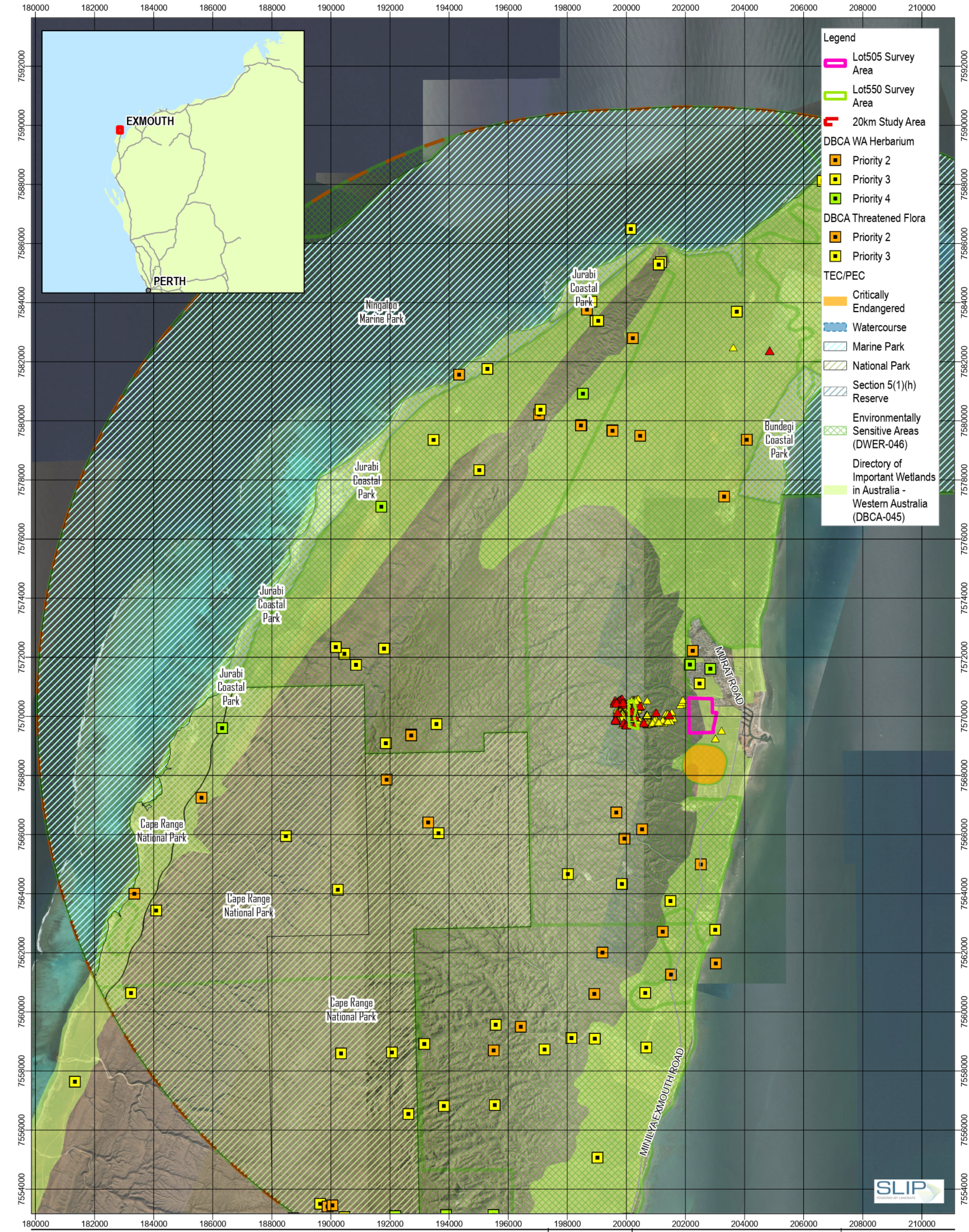


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Kilometres

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Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 50

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**Horizon Power**

**Exmouth Renewables Project**

**Environmental Constraints**

Project No. **61-12579699**
Revision No. **0**
Date **12/15/2022**

**FIGURE 2a**

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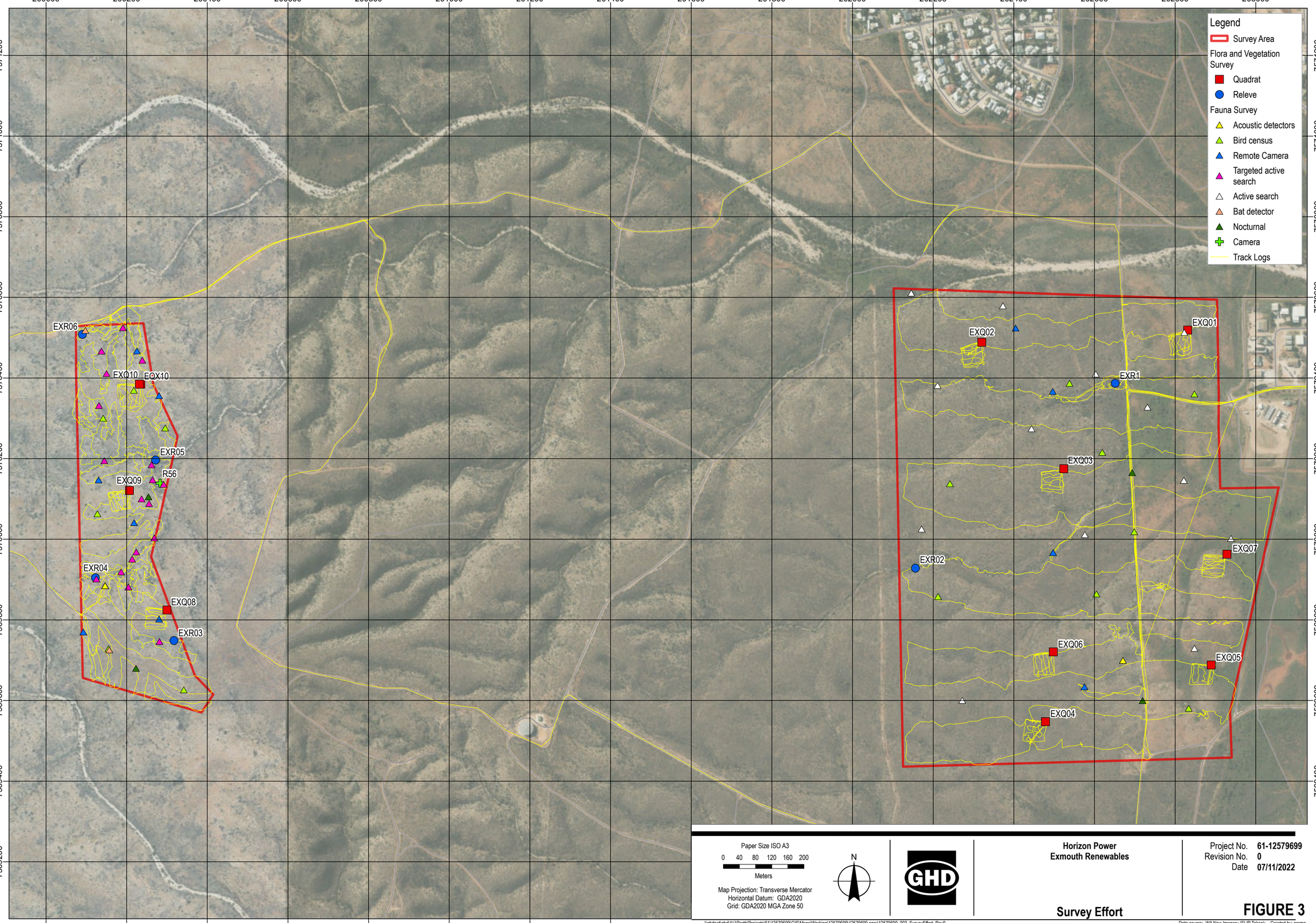


Paper Size ISO A3

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Meters

Map Projection: Transverse Mercator
Horizontal Datum: GDA2020
Grid: GDA2020 MGA Zone 50

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**Horizon Power**
**Exmouth Renewables**

## Survey Effort

Project No. **61-12579699**
Revision No. **0**
Date **07/11/2022**

# FIGURE 3

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7571200 7571000 7570800 7570600 7570400 7570200 7570000 7569800 7569600 7569400 7569200

Legend

Survey Area

Vegetation Type

VT01

VT02

VT03

VT04

VT05

Cleared

Paper Size ISO A3

0 50 100 150 200

Metres

Map Projection: Transverse Mercator
Horizontal Datum: GDA2020
Grid: GDA2020 MGA Zone 50

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Horizon Power
Exmouth Renewables

Vegetation Type

Project No. 61-12579699
Revision No. 0
Date 07/11/2022

FIGURE 4

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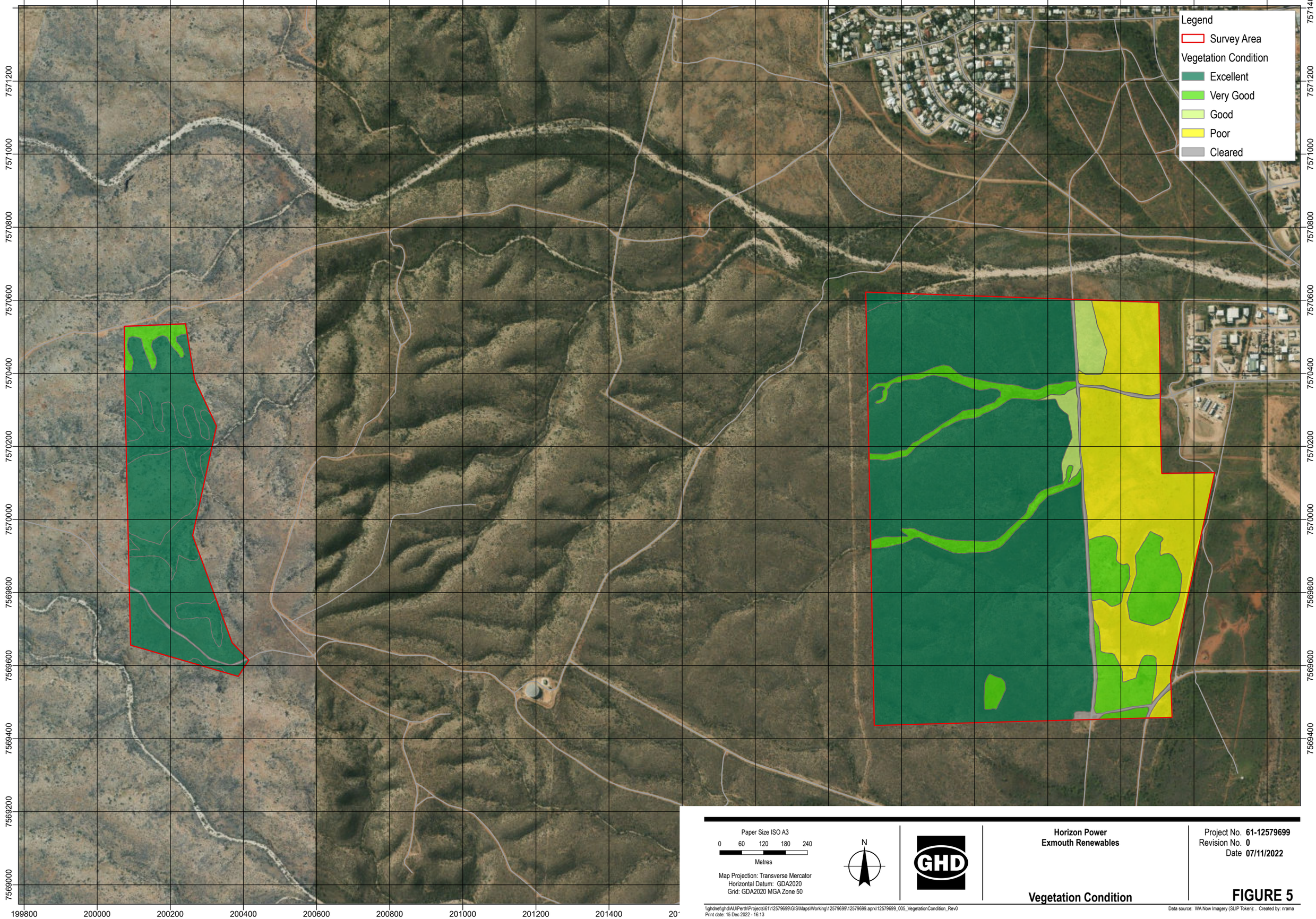


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Metres

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Grid: GDA2020 MGA Zone 50

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**Horizon Power**
**Exmouth Renewables**

## Vegetation Condition

Project No. **61-12579699**
Revision No. **0**
Date **07/11/2022**

**FIGURE 5**

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EXR06 EQX10 EXR05 EXQ09 EXR04 EXQ08 EXR03 EXR02 EXQ02 EXQ01 EXR1 EXQ03 EXQ07 EXQ06 EXQ05 EXQ04

Legend

- Lot 505 Survey Area

Significant Flora Records

- *Acacia alexandri* (P3)
- *Acanthocarpus rupestris* (P2)
- *Brachychiton obtusilobus* (P4)
- *Eremophila forrestii* subsp. *capensis* (P3)
- *Grevillea calcicola* (P3)
- *Tinospora esiangkara* (P2)

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Metres

Map Projection: Transverse Mercator
Horizontal Datum: GDA2020
Grid: GDA2020 MGA Zone 50

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**Horizon Power**
**Exmouth Renewables Project**

**Significant Flora**

Project No. **61-12579699**
Revision No. **0**
Date **07/11/2022**

**FIGURE 6a**

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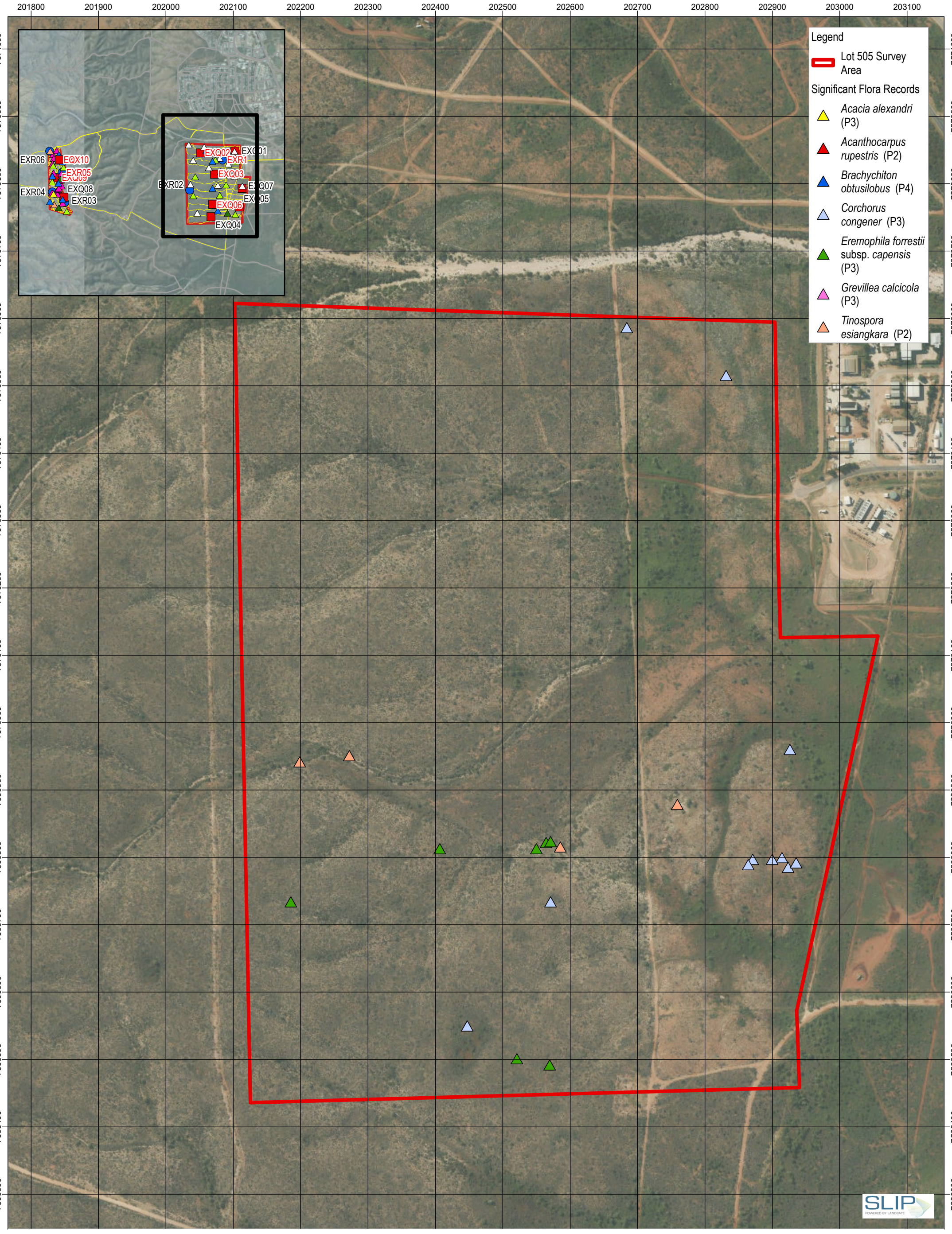


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Metres

Map Projection: Transverse Mercator
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Grid: GDA2020 MGA Zone 50

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**Horizon Power**
**Exmouth Renewables Project**

**Significant Flora**

Project No. **61-12579699**
Revision No. **0**
Date **07/11/2022**

**FIGURE 6b**

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7571200 7571000 7570800 7570600 7570400 7570200 7570000 7569800 7569600 7569400 7569200 7569000

Legend

Survey Area

Significant Fauna

- *Falco peregrinus* (OS)
- *Lerista allichira* (P3)
- *Pseudomys chapmani* (P4) mounds

Habitat

- Rocky Gully
- Stony/sandy plain
- Undulating Low Hills
- Creek and minor drainage lines
- Cleared

Paper Size ISO A3

0 60 120 180 240

Metres

Map Projection: Transverse Mercator
Horizontal Datum: GDA2020
Grid: GDA2020 MGA Zone 50

N

GHD

**Horizon Power**
**Exmouth Renewables**

## Significant Fauna and Habitat

Project No. **61-12579699**
Revision No. **0**
Date **07/11/2022**

**FIGURE 7**

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# Appendix B

## Relevant legislation, background information and conservation codes

# Relevant legislation

## Federal *Environment Protection and Biodiversity Conservation Act 1999*

The *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) is the Federal Government's central piece of environmental legislation. It provides a legal framework to protect and manage nationally and internationally important flora and ecological communities and heritage places, which are defined in the EPBC Act as Matters of National Environmental Significance (MNES).

The biological aspects listed as MNES include:

– Nationally threatened flora species and ecological communities
– Migratory species

A person must not undertake an action that has, will have, or is likely to have a significant impact (direct or indirect) on MNES, without approval from the Federal Minister for the Environment.

The EPBC Act is administered by the Department of Climate Change, Energy, the Environment and Water (DCCEEW).

## State *Environmental Protection Act 1986*

The *Environmental Protection Act 1986* (EP Act) is the primary legislative Act dealing with the protection of the environment in Western Australia. The Act allows the Environmental Protection Authority (EPA), to prevent, control and abate pollution and environmental harm, for the conservation, preservation, protection, enhancement and management of the environment and for matters incidental to or connected with the foregoing. Part IV of the EP Act is administered by the EPA and makes provisions for the EPA to undertake environmental impact assessment of significant proposals, strategic proposals and land use planning schemes.

The Department of Water and Environment Regulation (DWER) is responsible for administering the clearing provisions of the EP Act (Part V). Clearing of native vegetation in Western Australia requires a permit from the DWER, unless exemptions apply. Applications for clearing permits are assessed by the Department and decisions are made to grant or refuse the application in accordance with the Act. When making a decision the assessment considers clearing against the ten clearing principles as specified in Schedule 5 of the EP Act:

1. Native vegetation should not be cleared if it comprises a high level of biodiversity.
2. Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of a significance habitat for fauna indigenous to Western Australia.
3. Native vegetation should not be cleared if it includes, or is necessary, for the continued existence of rare flora.
4. Native vegetation should not be cleared if it comprises the whole or part of native vegetation in an area that has been extensively cleared.
5. Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared.
6. Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland.
7. Native vegetation should not be cleared if the clearing of the vegetation is likely to have an impact on the environmental values of any adjacent or nearby conservation area.
8. Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation.
9. Native vegetation should not be cleared if the clearing of the vegetation is likely to cause deterioration in the quality of surface or underground water.

10. Native vegetation should not be cleared if clearing the vegetation is likely to cause, or exacerbate, the incidence of flooding.

Exemptions for clearing include clearing that is a requirement of a written law or authorised under certain statutory processes (listed in Schedule 6 of the EP Act) and exemptions for prescribed low impact day-to-day activities (prescribed in the Environmental Protection (Clearing of Native Vegetation) Regulations 2004); these exemptions do not apply in environmentally sensitive areas (ESAs).

# State *Biodiversity and Conservation Act 2016*

The *Biodiversity Conservation Act 2016* (BC Act) provides for the conservation and protection of biodiversity and biodiversity components, as well as the promotion of the ecologically sustainable use of biodiversity components in Western Australia. The BC Act replaces both the repealed *Wildlife Conservation Act 1950* (WC Act) and the *Sandalwood Act 1929* (Sandalwood Act), as well as their associated regulations. To attain the objectives of the BC Act, principles of ecological sustainable development have been established:

– Decision-making processes should effectively integrate both long-term and short-term economic, environmental, social and equitable considerations
– If there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation
– The present generation should ensure that the health, diversity and productivity of the environment is maintained or enhanced for the benefit of future generations
– The conservation of biodiversity and ecological integrity should be a fundamental consideration indecision-making
– Improved valuation, pricing and incentive mechanisms should be promoted.

The BC Act is administered by the Department of Biodiversity Conservation and Attractions (DBCA).

# State *Biosecurity and Agriculture Management Act 2007*

The *Biosecurity and Agriculture Management Act 2007* (BAM Act) and associated regulations are administered by the Department of Primary Industries and Regional Development (DPIRD) and replace the repealed *Agriculture and Related Resources Protection Act 1976.* The main purposes of the BAM Act and its regulations are to:

– Prevent new animal and plant pests (vermin and weeds) and diseases from entering WA
– Manage the impact and spread of those pests already present in the state
– Safely manage the use of agricultural and veterinary chemicals
– Increased control over the sale of agricultural products that contain violative chemical residues.

The Western Australian Organism List (WAOL) provides the status of organisms which have been categorised under the BAM Act. A Declared Pest is a prohibited organism or an organism for which a declaration under Section 22(2) of the Act is in force. Declared Pests may be assigned a control category including: C1 (exclusion), C2 (eradication) and C3 (management). The category may apply to the whole of the State, LGAs, districts, individual properties or even paddocks, and all landholders are obliged to comply with the specific category of control. Categories of control are defined below.

*DPIRD Categories for Declared Pests under the BAM Act*

| Control class code | Description |
|---|---|
| C1 (Exclusion) | Pests will be assigned to this category if they are not established in Western Australia and control measures are to be taken, including border checks, in order to prevent them entering and establishing in the State. |
| C2 (Eradication) | Pests will be assigned to this category if they are present in Western Australia in low enough numbers or in sufficiently limited areas that their eradication is still a possibility. |
| C3 (Management) | Pests will be assigned to this category if they are established in Western Australia but it is feasible, or desirable, to manage them in order to limit their damage. Control measures can prevent a C3 pest from increasing in population size or density or moving from an area in which it is established into an area which currently is free of that pest. |

# Background information

## Environmentally Sensitive Areas

Environmentally Sensitive Areas (ESAs) are declared by the Minister for Environment under Section 51B of the EP Act. The Table below outlines the aspects of areas declared as ESA in the Environmental Protection (Environmentally Sensitive Areas) Notice 2005.

***Aspects of ESAs***

| Aspects of Environmentally Sensitive Areas |
|---|
| A declared World Heritage property as defined in Section 12 of the EPBC Act. |
| An area that is included on the Register of the National Estate (RNE), because of its natural values, under the *Australian Heritage Commission Act 1975* of the Commonwealth (the RNE was closed in 2007 and is no longer a statutory list – all references to the RNE were removed from the EPBC Act on 19 February 2012). |
| A defined wetland and the area within 50 m of the wetland. Defined wetlands include Ramsar wetlands, conservation category wetlands and nationally important wetlands. |
| The area covered by vegetation within 50 m of rare flora, to the extent to which the vegetation is continuous with the vegetation in which the rare flora is located. |
| The area covered by a Threatened Ecological Community. |
| A Bush Forever Site listed in "Bush Forever" Volumes 1 and 2 (2000), published by the Western Australia Planning Commission, except to the extent to which the site is approved to be developed by the Western Australia Planning Commission. |
| The areas covered by the Environmental Protection (Gnangara Mound Crown Land) Policy 1992. |
| The areas covered by the Environmental Protection (Western Swamp Tortoise Habitat) Policy 2002. |
| The areas covered by the lakes to which the *Environmental Protection (Swan Coastal Plain Lakes) Policy 1992* (EPP Lakes) applies. |
| Protected wetlands as defined in the Environmental Protection (South West Agricultural Zone Wetlands) Policy 1998. |

## Reserves and conservation areas

### Department of Biodiversity, Conservation and Attractions managed lands and waters

DBCA manages lands and waters throughout Western Australia to conserve ecosystems and species, and to provide for recreation and appreciation of the natural environment. DBCA managed lands and waters include national parks, conservation parks and reserves, marine parks and reserves, regional parks, nature reserves, State forest and timber reserves. Access to, or through, some areas of DBCA managed lands may require a permit or could be restricted due to management activities. Proposed land use changes and development proposals that abut DBCA managed lands will generally be referred to DBCA throughout the assessment process.

## Wetlands

Wetlands include not only lakes with open water, but areas of seasonally, intermittently or permanently waterlogged soil.

### Ramsar Wetlands (Wetlands of International Importance)

The Convention of Wetlands of International Importance was signed in 1971 at the Iranian town of Ramsar. The Convention has since been referred to as the Ramsar Convention. Ramsar Listed wetlands are "sites containing

representative, rare or unique wetlands, or wetlands that are important for conserving biological diversity … because of their ecological, botanical, zoological, limnological or hydrological importance" (DCCEEW 2021b). Once a Ramsar Listed Wetland is designated, the country agrees to manage its conservation and ensure its wise use. Under the Convention, wise use is broadly defined as "maintaining the ecological character of a wetland" (DCCEEW 2021b).

## Nationally important wetlands

Wetlands of national significance are listed under the Directory of Important Wetlands in Australia. Nationally important wetlands are wetlands which meet at least one of the following criteria (DCCEEW 2021a):

- It is a good example of a wetland type occurring within a biogeographic region in Australia
- It is a wetland which plays an important ecological or hydrological role in the natural functioning of a major wetland system/complex
- It is a wetland which is important as the habitat for animal taxa at a vulnerable stage in their life cycles, or provides a refuge when adverse conditions such as drought prevail
- The wetland supports one percent or more of the national populations of any native plant or animal taxa
- The wetland supports native plant or animal taxa or communities which are considered endangered or vulnerable at the national level
- The wetland is of outstanding historical or cultural significance.

# Vegetation extent and status

The National Objectives and Targets for Biodiversity Conservation 2001–2005 (Commonwealth of Australia 2001) recognise that the retention of 30 percent or more of the pre-clearing extent of each ecological community is necessary if Australia's biological diversity is to be protected. This is the threshold level below which species loss appears to accelerate exponentially and loss below this level should not be permitted. This level of recognition is in keeping with the targets recommended in the review of the National Strategy for the Conservation of Australia's Biological Diversity (ANZECC 2000).

The extent of remnant native vegetation in WA has been assessed by Shepherd et al. (2002) and the GoWA (2019), based on broadscale vegetation association mapping by Beard (various publications). The GoWA produces Statewide Vegetation Statistics Reports that are used for a number of purposes including conservation planning, land use planning and when assessing development applications. The reports are updated every 2-3 years.

# Vegetation condition

The vegetation condition can be assessed in accordance with the vegetation condition rating scale for the Eremaean and Northern Botanical Provinces (EPA 2016a). The scale recognises the intactness of vegetation and consists of six rating levels as outlined below.

*Vegetation condition rating scale for the Eremaean and Northern Botanical Provinces*

| Condition | Eremaean and Northern Botanical Provinces description |
|---|---|
| Excellent | Pristine or nearly so, no obvious signs of damage caused by human activities since European settlement. |
| Very Good | Some relatively slight signs of damage caused by human activities since European settlement. For example, some signs of damage to tree trunks caused by repeated fire, the presence of some relatively non-aggressive weeds, or occasional vehicle tracks. |
| Good | More obvious signs of damage caused by human activity since European settlement, including some obvious impact on the vegetation structure such as at caused by low levels of grazing or slightly aggressive weed. |
| Poor | Still retains basic vegetation structure or ability to regenerate it after very obvious impacts of human activities since European settlement, such as grazing, partial clearing, frequent fires or aggressive weeds. |
| Degraded | Severely impacted by grazing, very frequent fires, clearing or a combination of these activities. Scope for some regeneration but not to a state approaching good condition without intensive management. Usually with a number of weed species present including very aggressive species. |
| Completely Degraded | Areas that are completely or almost completely without native species in the structure of their vegetation; i.e. areas that are cleared or 'parkland cleared' with their flora comprising weed or crop species with isolated native trees or shrubs. |

# Conservation codes

Species of significant flora and communities are protected under both Federal and State Acts. The Federal EPBC Act provides a legal framework to protect and manage nationally important flora and communities. The State BC Act is the primary wildlife conservation legislation in Western Australia. Information on the conservation codes is summarised in the following sections.

# Ecological communities

## Significant communities

Ecological communities are defined as naturally occurring biological assemblages that occur in a particular type of habitat (English and Blyth 1997). Federally listed Threatened Ecological Communities (TECs) are protected under the EPBC Act. The BC Act provides for the Minister to list an ecological community as a TEC (section 27), or as a collapsed ecological community (section 31) statutory listing of State TECs by the Minister. The legislation also describes statutory processes for preparing recovery plans for TECs, the registration of their critical habitat, and penalties for unauthorised modification of TECs.

Possible TECs that do not meet survey criteria are added to the DBCA Priority Ecological Community (PEC) List under Priorities 1, 2 and 3. These are ecological communities that are adequately known; are rare but not threatened, or meet criteria for Near Threatened. PECs 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. PECs are not listed under any formal Federal or State legislation, however, may be listed as TECs under the EPBC Act.

***Codes and definitions for TECs listed under the EPBC Act and/or BC Act***

| Categories | Definition |
|---|---|
| **Federal Government Conservation Categories (EPBC Act)** | |
| Critically Endangered (CR) | An ecological community if, at that time, is facing an extremely high risk of extinction in the wild in the immediate future, as determined in accordance with the prescribed criteria (as outlined in Environment Protection and Biodiversity Conservation Regulations 2000). |
| Endangered (EN) | An ecological community if, at that time:<br>– is not critically endangered; and<br>– is facing a very high risk of extinction in the wild in the near future, as determined in accordance with the prescribed criteria (as outlined in Environment Protection and Biodiversity Conservation Regulations 2000). |
| Vulnerable (VU) | An ecological community if, at that time:<br>– is not critically endangered or endangered; and<br>– is facing a high risk of extinction in the wild in the near future, as determined in accordance with the prescribed criteria (as outlined in Environment Protection and Biodiversity Conservation Regulations 2000). |
| **Western Australia Conservation Categories (BC Act)** | |
| Threatened Ecological Communities | |
| Critically Endangered (CR) | 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. |
| Endangered (EN) | 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. |

| Categories | Definition |
|---|---|
| Vulnerable (VU) | 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. |

Collapsed ecological communities

An ecological community is eligible for listing as a collapsed ecological community at a particular time if, at that time –

– there is no reasonable doubt that the last occurrence of the ecological community has collapsed); or

– the ecological community has been so extensively modified throughout its range that no occurrence of it is likely to recover –

- its species composition or structure; or
- its species composition and structure.

Section 33 of the BC Act provides for a collapsed ecological community to be regarded as a threatened ecological community if it is discovered in a state that no longer makes it eligible for listing as a collapsed ecological community.

***Categories and definitions for PECs as listed by the DBCA***

| Category | Descriptions |
|---|---|
| Priority 1 | Poorly known ecological communities.<br>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 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. |
| Priority 2 | Poorly known ecological communities.<br>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 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. |
| Priority 3 | Poorly known ecological communities.<br>– 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 or:<br>– 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, or;<br>– 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, and inappropriate fire regimes.<br>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. |
| Priority 4 | 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.<br>– 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.<br>– 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 Vulnerable. |

| Category | Descriptions |
|---|---|
| | – Ecological communities that have been removed from the list of threatened communities during the past five years. |
| Priority 5 | Conservation Dependent ecological communities.<br>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. |

## Other significant vegetation

Vegetation may be significant for a range of reasons other than a statutory listing. The EPA (2016a, b) states that significant vegetation may include vegetation that includes the following:

- Restricted distribution
- Degree of historical impact from threatening processes
- A role as a refuge
- Providing an important function required to maintain ecological integrity of a significant ecosystem
- Local endemism in restricted habitats
- Novel combinations of taxa
- A role as a key habitat for Threatened species or large population representing a significant proportion of the local to regional total population of a species
- Being representative of a vegetation unit in 'pristine' condition in a highly cleared landscape, recently discovered range extensions, or isolated outliers of the main range.

This may apply at a number of levels, so the unit may be significant when considered at the fine-scale (intra-locality), intermediate-scale (locality or inter-locality) or broad-scale (local to region).

# Flora

## Significant flora

Species of significant flora are protected under both Federal and State legislation. Any activities that are deemed to have a significant impact on species that are recognised by the EPBC Act, and/or the BC Act can warrant referral to DCCEEW and/or the EPA.

The Federal conservation level of flora species and their significance status is assessed under the EPBC Act. The significance levels for flora used in the EPBC Act align with the International Union for Conservation of Nature (IUCN) Red List criteria, which are internationally recognised as providing best practice for assigning the conservation status of species.

The State conservation level of flora species and their significance status also follows the IUCN Red List criteria. Under the BC Act flora can be listed as Threatened, Extinct and as Specially Protected species.

Threatened species are those are species which have been adequately searched for and are deemed to be, in the wild, either rare, under identifiable threat of extinction, or otherwise in need of special protection, and have been gazetted as such. The assessment of the conservation status of Threatened species is based on their national extent and ranked according to their level of threat using IUCN Red List categories and criteria. Specially protected species meet 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 or Extinct species under the BC Act cannot also be listed as Specially Protected species.

Possibly threatened species that do not meet survey criteria, or are otherwise data deficient, are added to the 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 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, 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.

For the purposes of this assessment, all species listed under the EPBC Act, BC Act and DBCA Priority species are considered significant.

*Categories and definitions for EPBC Act and BC Act listed flora species*

| Conservation category | Definition |
|---|---|
| **Threatened species** | |
| Critically Endangered (CR) | Threatened 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".<br>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. |
| Endangered (EN) | 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".<br>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. |
| Vulnerable (VU) | 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".<br>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. |
| **Extinct species** | |
| Extinct (EX) | 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). |
| Extinct in the Wild (EW) | 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). |

*Codes for DBCA listed Priority flora*

| Priority category | Definition |
|---|---|
| Priority 1 | Poorly-known taxa<br>Species that are known from one or a few locations (generally five or less) which are potentially at risk. All occurrences are either: very small; or on lands not managed for conservation, e.g. agricultural or pastoral lands, urban areas, road and rail reserves, gravel reserves and active mineral leases; or otherwise under threat of habitat destruction or degradation. Species may be included if they are comparatively well known from one or more locations but do not meet adequacy of survey requirements and appear to be under immediate threat from known threatening processes. Such species are in urgent need of further survey. |
| Priority 2 | Poorly-known taxa<br>Species that are known from one or a few locations (generally five or less), some of which are on lands managed primarily for nature conservation, e.g. national parks, conservation parks, nature reserves and other lands with secure tenure being managed for conservation. Species may be included if they are comparatively well known from one or more locations but do not meet adequacy of survey requirements and appear to be under threat from known threatening processes. Such species are in urgent need of further survey. |
| Priority 3 | Poorly-known taxa<br>Species that are known from several locations, and the species does not appear to be under imminent threat, or from few but widespread locations with either large population size or significant remaining areas of apparently suitable habitat, much of it not under imminent threat. Species may be included if they are comparatively well known from several locations but do not meet adequacy of survey requirements and known threatening processes exist that could affect them. Such species are in need of further survey. |
| Priority 4 | Rare, Near Threatened and other taxa in need of monitoring |

| Priority category | Definition |
|---|---|
| | – Rare: Taxa 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 taxa are usually represented on conservation lands.<br>– Near Threatened. Taxa that are considered to have been adequately surveyed and that do not qualify for Conservation Dependent, but that are close to qualifying for Vulnerable.<br>– Taxa that have been removed from the list of threatened taxa during the past five years for reasons other than taxonomy. |

## Other significant flora

Flora species, subspecies, varieties, hybrids and ecotypes may be significant for a range of reasons, other than a statutory listing. The EPA (2016a, b) states that significant flora may include taxa that have/are:

– A keystone role in a particular habitat for Threatened or Priority flora species, or large populations representing a considerable proportion of the local or regional total population of a species
– Relictual status, being representation of taxonomic or physiognomic groups that no longer occur widely in the broader landscape
– New species or anomalous features that indicate a potential new species
– Being representative of the range of a species (particularly, at the extremes of range, recently discovered range extensions, or isolated outliers of the main range)
– Unusual species, including restricted subspecies, varieties, or naturally occurring hybrids
– Local endemism (a restricted distribution) or association with a restricted habitat type (e.g. surface water or groundwater dependent ecosystems).

# Introduced plants (weeds)

## Declared Pests

Information on species considered to be Declared Pests is provided under *State Biosecurity and Agriculture Management Act 2007.*

## Weeds of National Significance

The spread of weeds across a range of land uses or ecosystems is important in the context of socio-economic and environmental values. The assessment of Weeds of National Significance (WoNS) is based on four major criteria:

– Invasiveness
– Impacts
– Potential for spread
– Socio-economic and environmental values.

Australian state and territory governments have identified thirty-two Weeds of National Significance (WoNS); a list of 20 WoNS was endorsed in 1999 and a further 12 were added in 2012.

# Fauna Conservation codes

# Conservation significant fauna

The Federal conservation level of fauna species and their significance status is assessed under the EPBC Act. The significance levels for fauna used in the EPBC Act align with the International Union for Conservation of Nature (IUCN) Red List criteria, which are internationally recognised as providing best practice for assigning the conservation status of species. The EPBC Act also protects land and migratory species that are listed under International Agreements. The list of migratory species established under section 209 of the EPBC Act comprises:

– Migratory species which are native to Australia and are included in the appendices to the Bonn Convention (Convention on the Conservation of Migratory Species of Wild Animals Appendices I and II)
– Migratory species included in annexes established under the Japan-Australia Migratory Bird Agreement (JAMBA) and the China–Australia Migratory Bird Agreement (CAMBA)
– Native, migratory species identified in a list established under, or an instrument made under, an international agreement approved by the Minister, such as the republic of Korea–Australia Migratory Bird Agreement (ROKAMBA)

The State conservation level of fauna species and their significance status also follows the IUCN Red List criteria. Under the BC Act fauna can be listed as Threatened, Extinct and as Specially Protected species.

Threatened species are those are species which have been adequately searched for and are deemed to be, in the wild, either rare, under identifiable threat of extinction, or otherwise in need of special protection, and have been gazetted as such. The assessment of the conservation status of Threatened species is based on their national extent and ranked according to their level of threat using IUCN Red List categories and criteria. Specially protected species meet 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 or Extinct species under the BC Act cannot also be listed as Specially Protected species.

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

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

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

For the purposes of this assessment, all species listed under the EPBC Act, BC Act and DBCA Priority species are considered conservation significant.

***Conservation categories and definitions for EPBC Act and BC Act listed fauna species***

| Conservation category | Definition |
|---|---|
| **Threatened species** | |
| Critically Endangered (CR) | 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”.<br>Listed as critically endangered under section 19(1)(a) of the BC Act in accordance with criteria set out in section 20 and the ministerial guidelines. |
| Endangered (EN) | 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”.<br>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. |
| Vulnerable (VU) | 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”.<br>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. |
| **Extinct species** | |
| Extinct (EX) | 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). |
| Extinct in the Wild (EW) | Species that “is known only to survive in cultivation, in captivity or as a naturalized population well outside its past range, and it has not been recorded in its known habitat, at appropriate seasons, anywhere in its past range, despite surveys over a time frame appropriate to its lifecycle and form”, and listing is otherwise in accordance with the ministerial guidelines (section 25 of the BC Act). |
| **Specially protected species** | |

| Conservation category | Definition |
|---|---|
| Migratory (MI) | Fauna that periodically or occasionally visit Australia or an external Territory or the exclusive economic zone; or the species is subject of an international agreement that relates to the protection of migratory species and that binds the Commonwealth; and listing is otherwise in accordance with the ministerial guidelines (section 15 of the BC Act).<br>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. |
| Species of special conservation interest (conservation dependent fauna) (CD) | Fauna of special conservation need being species dependent on ongoing conservation intervention to prevent it becoming eligible for listing as threatened. |
| Other specially protected fauna (OS) | 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). |

***Conservation codes for DBCA listed Priority fauna***

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

# Other significant fauna

Fauna species may be significant for a range of reasons other than those protected by international agreement or treaty, Specially Protected or Priority Fauna. Significant fauna may include short-range endemic species, species that have declining populations or declining distributions, species at the extremes of their range, or isolated outlying populations, or species which may be undescribed (EPA2020).

# References

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# Appendix C

## Desktop searches

EPBC Act PMST (20 km)

Naturemap Reports (20 km)

Australian Government

Department of Agriculture, Water and the Environment

# EPBC Act Protected Matters Report

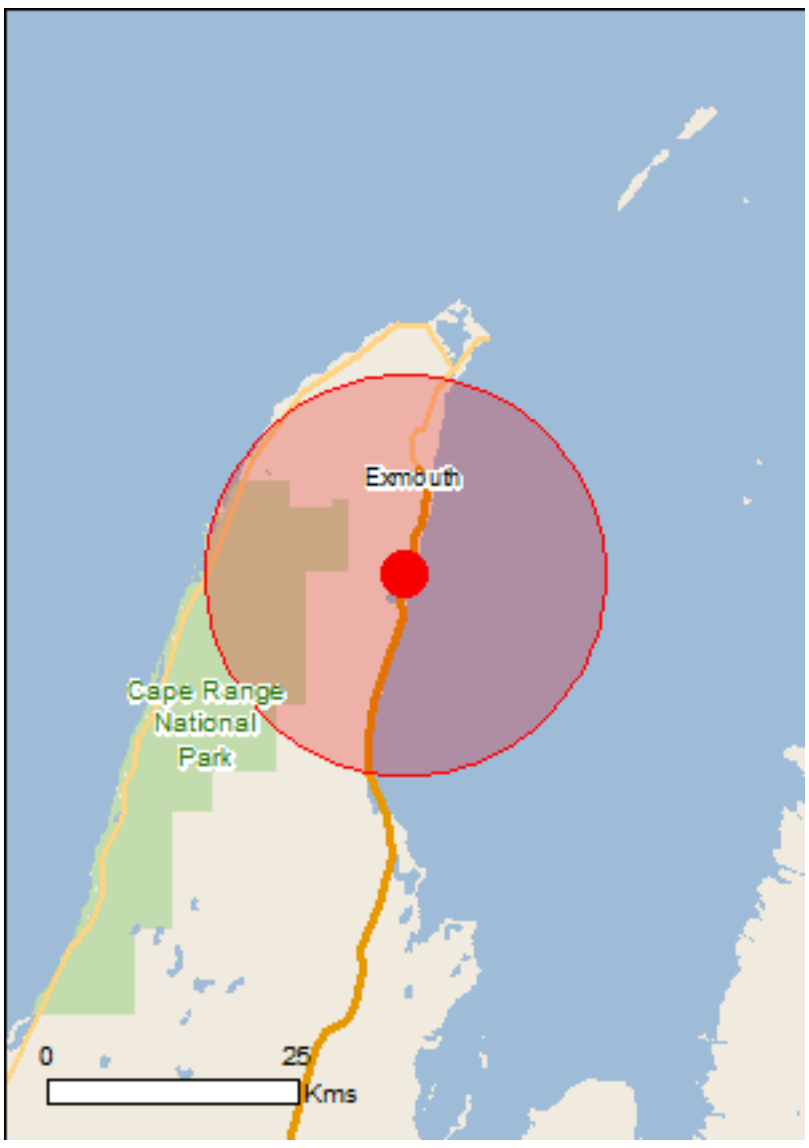
This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected.

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

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

Report created: 17/03/21 12:30:41

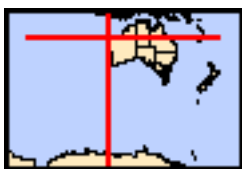







Coordinates

Buffer: 20.0Km



# Summary

## Matters of National Environmental Significance

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

| | |
|---|---|
| World Heritage Properties: | 1 |
| National Heritage Places: | 1 |
| Wetlands of International Importance: | None |
| Great Barrier Reef Marine Park: | None |
| Commonwealth Marine Area: | None |
| Listed Threatened Ecological Communities: | None |
| Listed Threatened Species: | 29 |
| Listed Migratory Species: | 42 |

## Other Matters Protected by the EPBC Act

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

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

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

| | |
|---|---|
| Commonwealth Land: | 4 |
| Commonwealth Heritage Places: | None |
| Listed Marine Species: | 77 |
| Whales and Other Cetaceans: | 13 |
| Critical Habitats: | None |
| Commonwealth Reserves Terrestrial: | None |
| Australian Marine Parks: | None |

## Extra Information

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

| | |
|---|---|
| State and Territory Reserves: | 3 |
| Regional Forest Agreements: | None |
| Invasive Species: | 11 |
| Nationally Important Wetlands: | 1 |
| Key Ecological Features (Marine) | None |

# Details

## Matters of National Environmental Significance

| World Heritage Properties | | [ Resource Information ] |
|---|---|---|
| Name | State | Status |
| The Ningaloo Coast | WA | Declared property |

| National Heritage Properties | | [ Resource Information ] |
|---|---|---|
| Name | State | Status |
| Natural | | |
| The Ningaloo Coast | WA | Listed place |

| Listed Threatened Species | | [ Resource Information ] |
|---|---|---|
| Name | Status | Type of Presence |
| Birds | | |
| Calidris canutus<br>Red Knot, Knot [855] | Endangered | Species or species habitat likely to occur within area |
| Calidris ferruginea<br>Curlew Sandpiper [856] | Critically Endangered | Species or species habitat known to occur within area |
| Falco hypoleucos<br>Grey Falcon [929] | Vulnerable | Species or species habitat likely to occur within area |
| Limosa lapponica  menzbieri<br>Northern Siberian Bar-tailed Godwit, Bar-tailed Godwit (menzbieri) [86432] | Critically Endangered | Species or species habitat known to occur within area |
| Macronectes giganteus<br>Southern Giant-Petrel, Southern Giant Petrel [1060] | Endangered | Species or species habitat may occur within area |
| Numenius madagascariensis<br>Eastern Curlew, Far Eastern Curlew [847] | Critically Endangered | Species or species habitat known to occur within area |
| Pezoporus occidentalis<br>Night Parrot [59350] | Endangered | Species or species habitat may occur within area |
| Rostratula australis<br>Australian Painted Snipe [77037] | Endangered | Species or species habitat likely to occur within area |
| Sternula nereis  nereis<br>Australian Fairy Tern [82950] | Vulnerable | Breeding known to occur within area |
| Thalassarche impavida<br>Campbell Albatross, Campbell Black-browed Albatross [64459] | Vulnerable | Species or species habitat may occur within area |
| Fish | | |
| Milyeringa veritas<br>Blind Gudgeon [66676] | Vulnerable | Species or species habitat known to occur within area |

| Name | Status | Type of Presence |
|---|---|---|
| Ophisternon candidum | | |
| Blind Cave Eel [66678] | Vulnerable | Species or species habitat known to occur within area |
| **Mammals** | | |
| Balaenoptera musculus | | |
| Blue Whale [36] | Endangered | Species or species habitat likely to occur within area |
| Dasyurus hallucatus | | |
| Northern Quoll, Digul [Gogo-Yimidir], Wijingadda [Dambimangari], Wiminji [Martu] [331] | Endangered | Species or species habitat may occur within area |
| Eubalaena australis | | |
| Southern Right Whale [40] | Endangered | Species or species habitat likely to occur within area |
| Megaptera novaeangliae | | |
| Humpback Whale [38] | Vulnerable | Breeding known to occur within area |
| Petrogale lateralis  lateralis | | |
| Black-flanked Rock-wallaby, Moororong, Black-footed Rock Wallaby [66647] | Endangered | Species or species habitat known to occur within area |
| Rhinonicteris aurantia (Pilbara form) | | |
| Pilbara Leaf-nosed Bat [82790] | Vulnerable | Species or species habitat known to occur within area |
| **Reptiles** | | |
| Aipysurus apraefrontalis | | |
| Short-nosed Seasnake [1115] | Critically Endangered | Species or species habitat known to occur within area |
| Caretta caretta | | |
| Loggerhead Turtle [1763] | Endangered | Breeding known to occur within area |
| Chelonia mydas | | |
| Green Turtle [1765] | Vulnerable | Breeding known to occur within area |
| Dermochelys coriacea | | |
| Leatherback Turtle, Leathery Turtle, Luth [1768] | Endangered | Foraging, feeding or related behaviour known to occur within area |
| Eretmochelys imbricata | | |
| Hawksbill Turtle [1766] | Vulnerable | Breeding known to occur within area |
| Natator depressus | | |
| Flatback Turtle [59257] | Vulnerable | Breeding known to occur within area |
| **Sharks** | | |
| Carcharias taurus  (west coast population) | | |
| Grey Nurse Shark (west coast population) [68752] | Vulnerable | Species or species habitat known to occur within area |
| Carcharodon carcharias | | |
| White Shark, Great White Shark [64470] | Vulnerable | Species or species habitat known to occur within area |
| Pristis clavata | | |
| Dwarf Sawfish, Queensland Sawfish [68447] | Vulnerable | Species or species habitat known to occur within area |
| Pristis zijsron | | |
| Green Sawfish, Dindagubba, Narrowsnout Sawfish [68442] | Vulnerable | Species or species habitat known to occur within area |
| Rhincodon typus | | |
| Whale Shark [66680] | Vulnerable | Species or species habitat may occur within area |

| Listed Migratory Species [ Resource Information ] | | |
|---|---|---|
| * Species is listed under a different scientific name on the EPBC Act - Threatened Species list. | | |
| Name | Threatened | Type of Presence |
| **Migratory Marine Birds** | | |
| Anous stolidus<br>Common Noddy [825] | | Species or species habitat likely to occur within area |
| Apus pacificus<br>Fork-tailed Swift [678] | | Species or species habitat likely to occur within area |
| Ardenna carneipes<br>Flesh-footed Shearwater, Fleshy-footed Shearwater [82404] | | Species or species habitat may occur within area |
| Calonectris leucomelas<br>Streaked Shearwater [1077] | | Species or species habitat may occur within area |
| Fregata ariel<br>Lesser Frigatebird, Least Frigatebird [1012] | | Species or species habitat likely to occur within area |
| Macronectes giganteus<br>Southern Giant-Petrel, Southern Giant Petrel [1060] | Endangered | Species or species habitat may occur within area |
| Thalassarche impavida<br>Campbell Albatross, Campbell Black-browed Albatross [64459] | Vulnerable | Species or species habitat may occur within area |
| **Migratory Marine Species** | | |
| Anoxypristis cuspidata<br>Narrow Sawfish, Knifetooth Sawfish [68448] | | Species or species habitat likely to occur within area |
| Balaena glacialis  australis<br>Southern Right Whale [75529] | Endangered* | Species or species habitat likely to occur within area |
| Balaenoptera edeni<br>Bryde's Whale [35] | | Species or species habitat may occur within area |
| Balaenoptera musculus<br>Blue Whale [36] | Endangered | Species or species habitat likely to occur within area |
| Carcharhinus longimanus<br>Oceanic Whitetip Shark [84108] | | Species or species habitat may occur within area |
| Carcharodon carcharias<br>White Shark, Great White Shark [64470] | Vulnerable | Species or species habitat known to occur within area |
| Caretta caretta<br>Loggerhead Turtle [1763] | Endangered | Breeding known to occur within area |
| Chelonia mydas<br>Green Turtle [1765] | Vulnerable | Breeding known to occur within area |
| Dermochelys coriacea<br>Leatherback Turtle, Leathery Turtle, Luth [1768] | Endangered | Foraging, feeding or related behaviour known to occur within area |
| Dugong dugon<br>Dugong [28] | | Breeding known to occur within area |
| Eretmochelys imbricata<br>Hawksbill Turtle [1766] | Vulnerable | Breeding known to occur within area |

| Name | Threatened | Type of Presence |
|---|---|---|
| Manta alfredi<br>Reef Manta Ray, Coastal Manta Ray, Inshore Manta Ray, Prince Alfred's Ray, Resident Manta Ray [84994] | | Species or species habitat known to occur within area |
| Manta birostris<br>Giant Manta Ray, Chevron Manta Ray, Pacific Manta Ray, Pelagic Manta Ray, Oceanic Manta Ray [84995] | | Species or species habitat known to occur within area |
| Megaptera novaeangliae<br>Humpback Whale [38] | Vulnerable | Breeding known to occur within area |
| Natator depressus<br>Flatback Turtle [59257] | Vulnerable | Breeding known to occur within area |
| Orcinus orca<br>Killer Whale, Orca [46] | | Species or species habitat may occur within area |
| Pristis clavata<br>Dwarf Sawfish, Queensland Sawfish [68447] | Vulnerable | Species or species habitat known to occur within area |
| Pristis zijsron<br>Green Sawfish, Dindagubba, Narrowsnout Sawfish [68442] | Vulnerable | Species or species habitat known to occur within area |
| Rhincodon typus<br>Whale Shark [66680] | Vulnerable | Species or species habitat may occur within area |
| Sousa chinensis<br>Indo-Pacific Humpback Dolphin [50] | | Species or species habitat known to occur within area |
| Tursiops aduncus (Arafura/Timor Sea populations)<br>Spotted Bottlenose Dolphin (Arafura/Timor Sea populations) [78900] | | Species or species habitat known to occur within area |
| **Migratory Terrestrial Species** | | |
| Hirundo rustica<br>Barn Swallow [662] | | Species or species habitat may occur within area |
| Motacilla cinerea<br>Grey Wagtail [642] | | Species or species habitat may occur within area |
| Motacilla flava<br>Yellow Wagtail [644] | | Species or species habitat may occur within area |
| **Migratory Wetlands Species** | | |
| Actitis hypoleucos<br>Common Sandpiper [59309] | | Species or species habitat known to occur within area |
| Calidris acuminata<br>Sharp-tailed Sandpiper [874] | | Species or species habitat known to occur within area |
| Calidris canutus<br>Red Knot, Knot [855] | Endangered | Species or species habitat likely to occur within area |
| Calidris ferruginea<br>Curlew Sandpiper [856] | Critically Endangered | Species or species habitat known to occur within area |
| Calidris melanotos<br>Pectoral Sandpiper [858] | | Species or species habitat may occur within area |

| Name | Threatened | Type of Presence |
|---|---|---|
| Charadrius veredus<br>Oriental Plover, Oriental Dotterel [882] | | Species or species habitat may occur within area |
| Glareola maldivarum<br>Oriental Pratincole [840] | | Species or species habitat may occur within area |
| Limosa lapponica<br>Bar-tailed Godwit [844] | | Species or species habitat known to occur within area |
| Numenius madagascariensis<br>Eastern Curlew, Far Eastern Curlew [847] | Critically Endangered | Species or species habitat known to occur within area |
| Pandion haliaetus<br>Osprey [952] | | Breeding known to occur within area |
| Tringa nebularia<br>Common Greenshank, Greenshank [832] | | Species or species habitat likely to occur within area |

## Other Matters Protected by the EPBC Act

### Commonwealth Land [ Resource Information ]

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

| Name |
|---|
| Commonwealth Land - |
| Defence - EXMOUTH ADMIN & HF TRANSMITTING |
| Defence - EXMOUTH VLF TRANSMITTER STATION |
| Defence - LEARMONTH RADAR SITE - TWIN TANKS EXMOUTH |

### Listed Marine Species [ Resource Information ]

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

| Name | Threatened | Type of Presence |
|---|---|---|
| Birds | | |
| Actitis hypoleucos<br>Common Sandpiper [59309] | | Species or species habitat known to occur within area |
| Anous stolidus<br>Common Noddy [825] | | Species or species habitat likely to occur within area |
| Apus pacificus<br>Fork-tailed Swift [678] | | Species or species habitat likely to occur within area |
| Ardea alba<br>Great Egret, White Egret [59541] | | Species or species habitat known to occur within area |
| Ardea ibis<br>Cattle Egret [59542] | | Species or species habitat may occur within area |
| Calidris acuminata<br>Sharp-tailed Sandpiper [874] | | Species or species habitat known to occur within area |
| Calidris canutus<br>Red Knot, Knot [855] | Endangered | Species or species habitat likely to occur within area |

| Name | Threatened | Type of Presence |
|---|---|---|
| Calidris ferruginea<br>Curlew Sandpiper [856] | Critically Endangered | Species or species habitat known to occur within area |
| Calidris melanotos<br>Pectoral Sandpiper [858] | | Species or species habitat may occur within area |
| Calonectris leucomelas<br>Streaked Shearwater [1077] | | Species or species habitat may occur within area |
| Charadrius veredus<br>Oriental Plover, Oriental Dotterel [882] | | Species or species habitat may occur within area |
| Chrysococcyx osculans<br>Black-eared Cuckoo [705] | | Species or species habitat known to occur within area |
| Fregata ariel<br>Lesser Frigatebird, Least Frigatebird [1012] | | Species or species habitat likely to occur within area |
| Glareola maldivarum<br>Oriental Pratincole [840] | | Species or species habitat may occur within area |
| Haliaeetus leucogaster<br>White-bellied Sea-Eagle [943] | | Species or species habitat known to occur within area |
| Hirundo rustica<br>Barn Swallow [662] | | Species or species habitat may occur within area |
| Limosa lapponica<br>Bar-tailed Godwit [844] | | Species or species habitat known to occur within area |
| Macronectes giganteus<br>Southern Giant-Petrel, Southern Giant Petrel [1060] | Endangered | Species or species habitat may occur within area |
| Merops ornatus<br>Rainbow Bee-eater [670] | | Species or species habitat may occur within area |
| Motacilla cinerea<br>Grey Wagtail [642] | | Species or species habitat may occur within area |
| Motacilla flava<br>Yellow Wagtail [644] | | Species or species habitat may occur within area |
| Numenius madagascariensis<br>Eastern Curlew, Far Eastern Curlew [847] | Critically Endangered | Species or species habitat known to occur within area |
| Pandion haliaetus<br>Osprey [952] | | Breeding known to occur within area |
| Puffinus carneipes<br>Flesh-footed Shearwater, Fleshy-footed Shearwater [1043] | | Species or species habitat may occur within area |
| Rostratula benghalensis (sensu lato)<br>Painted Snipe [889] | Endangered* | Species or species habitat likely to occur within area |
| Thalassarche impavida<br>Campbell Albatross, Campbell Black-browed | Vulnerable | Species or species |

| Name | Threatened | Type of Presence |
|---|---|---|
| Albatross [64459] | | habitat may occur within area |
| Tringa nebularia<br>Common Greenshank, Greenshank [832] | | Species or species habitat likely to occur within area |
| **Fish** | | |
| Acentronura larsonae<br>Helen's Pygmy Pipehorse [66186] | | Species or species habitat may occur within area |
| Bulbonaricus brauni<br>Braun's Pughead Pipefish, Pug-headed Pipefish [66189] | | Species or species habitat may occur within area |
| Campichthys tricarinatus<br>Three-keel Pipefish [66192] | | Species or species habitat may occur within area |
| Choeroichthys brachysoma<br>Pacific Short-bodied Pipefish, Short-bodied Pipefish [66194] | | Species or species habitat may occur within area |
| Choeroichthys latispinosus<br>Muiron Island Pipefish [66196] | | Species or species habitat may occur within area |
| Choeroichthys suillus<br>Pig-snouted Pipefish [66198] | | Species or species habitat may occur within area |
| Doryrhamphus dactyliophorus<br>Banded Pipefish, Ringed Pipefish [66210] | | Species or species habitat may occur within area |
| Doryrhamphus janssi<br>Cleaner Pipefish, Janss' Pipefish [66212] | | Species or species habitat may occur within area |
| Doryrhamphus multiannulatus<br>Many-banded Pipefish [66717] | | Species or species habitat may occur within area |
| Doryrhamphus negrosensis<br>Flagtail Pipefish, Masthead Island Pipefish [66213] | | Species or species habitat may occur within area |
| Festucalex scalaris<br>Ladder Pipefish [66216] | | Species or species habitat may occur within area |
| Filicampus tigris<br>Tiger Pipefish [66217] | | Species or species habitat may occur within area |
| Halicampus brocki<br>Brock's Pipefish [66219] | | Species or species habitat may occur within area |
| Halicampus grayi<br>Mud Pipefish, Gray's Pipefish [66221] | | Species or species habitat may occur within area |
| Halicampus nitidus<br>Glittering Pipefish [66224] | | Species or species habitat may occur within area |
| Halicampus spinirostris<br>Spiny-snout Pipefish [66225] | | Species or species habitat may occur within area |
| Haliichthys taeniophorus<br>Ribboned Pipehorse, Ribboned Seadragon | | Species or species |

| Name | Threatened | Type of Presence |
|---|---|---|
| [66226] | | habitat may occur within area |
| Hippichthys penicillus<br>Beady Pipefish, Steep-nosed Pipefish [66231] | | Species or species habitat may occur within area |
| Hippocampus angustus<br>Western Spiny Seahorse, Narrow-bellied Seahorse [66234] | | Species or species habitat may occur within area |
| Hippocampus histrix<br>Spiny Seahorse, Thorny Seahorse [66236] | | Species or species habitat may occur within area |
| Hippocampus kuda<br>Spotted Seahorse, Yellow Seahorse [66237] | | Species or species habitat may occur within area |
| Hippocampus planifrons<br>Flat-face Seahorse [66238] | | Species or species habitat may occur within area |
| Hippocampus trimaculatus<br>Three-spot Seahorse, Low-crowned Seahorse, Flat-faced Seahorse [66720] | | Species or species habitat may occur within area |
| Micrognathus micronotopterus<br>Tidepool Pipefish [66255] | | Species or species habitat may occur within area |
| Phoxocampus belcheri<br>Black Rock  Pipefish [66719] | | Species or species habitat may occur within area |
| Solegnathus hardwickii<br>Pallid Pipehorse, Hardwick's Pipehorse [66272] | | Species or species habitat may occur within area |
| Solegnathus lettiensis<br>Gunther's Pipehorse, Indonesian Pipefish [66273] | | Species or species habitat may occur within area |
| Solenostomus cyanopterus<br>Robust Ghostpipefish, Blue-finned Ghost Pipefish, [66183] | | Species or species habitat may occur within area |
| Syngnathoides biaculeatus<br>Double-end Pipehorse, Double-ended Pipehorse, Alligator Pipefish [66279] | | Species or species habitat may occur within area |
| Trachyrhamphus bicoarctatus<br>Bentstick Pipefish, Bend Stick Pipefish, Short-tailed Pipefish [66280] | | Species or species habitat may occur within area |
| Trachyrhamphus longirostris<br>Straightstick Pipefish, Long-nosed Pipefish, Straight Stick Pipefish [66281] | | Species or species habitat may occur within area |
| **Mammals** | | |
| Dugong dugon<br>Dugong [28] | | Breeding known to occur within area |
| **Reptiles** | | |
| Acalyptophis peronii<br>Horned Seasnake [1114] | | Species or species habitat may occur within area |
| Aipysurus apraefrontalis<br>Short-nosed Seasnake [1115] | Critically Endangered | Species or species habitat known to occur within area |
| Aipysurus duboisii<br>Dubois' Seasnake [1116] | | Species or species |

| Name | Threatened | Type of Presence |
|---|---|---|
| | | habitat may occur within area |
| Aipysurus eydouxii<br>Spine-tailed Seasnake [1117] | | Species or species habitat may occur within area |
| Aipysurus laevis<br>Olive Seasnake [1120] | | Species or species habitat may occur within area |
| Astrotia stokesii<br>Stokes' Seasnake [1122] | | Species or species habitat may occur within area |
| Caretta caretta<br>Loggerhead Turtle [1763] | Endangered | Breeding known to occur within area |
| Chelonia mydas<br>Green Turtle [1765] | Vulnerable | Breeding known to occur within area |
| Dermochelys coriacea<br>Leatherback Turtle, Leathery Turtle, Luth [1768] | Endangered | Foraging, feeding or related behaviour known to occur within area |
| Disteira kingii<br>Spectacled Seasnake [1123] | | Species or species habitat may occur within area |
| Disteira major<br>Olive-headed Seasnake [1124] | | Species or species habitat may occur within area |
| Emydocephalus annulatus<br>Turtle-headed Seasnake [1125] | | Species or species habitat may occur within area |
| Ephalophis greyi<br>North-western Mangrove Seasnake [1127] | | Species or species habitat may occur within area |
| Eretmochelys imbricata<br>Hawksbill Turtle [1766] | Vulnerable | Breeding known to occur within area |
| Hydrophis elegans<br>Elegant Seasnake [1104] | | Species or species habitat may occur within area |
| Hydrophis ornatus<br>Spotted Seasnake, Ornate Reef Seasnake [1111] | | Species or species habitat may occur within area |
| Natator depressus<br>Flatback Turtle [59257] | Vulnerable | Breeding known to occur within area |
| Pelamis platurus<br>Yellow-bellied Seasnake [1091] | | Species or species habitat may occur within area |

## Whales and other Cetaceans [ Resource Information ]

| Name | Status | Type of Presence |
|---|---|---|
| Mammals | | |
| Balaenoptera acutorostrata<br>Minke Whale [33] | | Species or species habitat may occur within area |
| Balaenoptera edeni<br>Bryde's Whale [35] | | Species or species habitat may occur within area |
| Balaenoptera musculus<br>Blue Whale [36] | Endangered | Species or species habitat likely to occur |

| Name | Status | Type of Presence |
|---|---|---|
| | | within area |
| Delphinus delphis<br>Common Dophin, Short-beaked Common Dolphin [60] | | Species or species habitat may occur within area |
| Eubalaena australis<br>Southern Right Whale [40] | Endangered | Species or species habitat likely to occur within area |
| Grampus griseus<br>Risso's Dolphin, Grampus [64] | | Species or species habitat may occur within area |
| Megaptera novaeangliae<br>Humpback Whale [38] | Vulnerable | Breeding known to occur within area |
| Orcinus orca<br>Killer Whale, Orca [46] | | Species or species habitat may occur within area |
| Sousa chinensis<br>Indo-Pacific Humpback Dolphin [50] | | Species or species habitat known to occur within area |
| Stenella attenuata<br>Spotted Dolphin, Pantropical Spotted Dolphin [51] | | Species or species habitat may occur within area |
| Tursiops aduncus<br>Indian Ocean Bottlenose Dolphin, Spotted Bottlenose Dolphin [68418] | | Species or species habitat likely to occur within area |
| Tursiops aduncus (Arafura/Timor Sea populations)<br>Spotted Bottlenose Dolphin (Arafura/Timor Sea populations) [78900] | | Species or species habitat known to occur within area |
| Tursiops truncatus s. str.<br>Bottlenose Dolphin [68417] | | Species or species habitat may occur within area |

## Extra Information

| State and Territory Reserves | [ Resource Information ] |
|---|---|
| Name | State |
| Bundegi Coastal Park | WA |
| Cape Range | WA |
| Jurabi Coastal Park | WA |

| Invasive Species | [ Resource Information ] |
|---|---|

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

| Name | Status | Type of Presence |
|---|---|---|
| Birds | | |
| Columba livia<br>Rock Pigeon, Rock Dove, Domestic Pigeon [803] | | Species or species habitat likely to occur within area |
| Mammals | | |

| Name | Status | Type of Presence |
|---|---|---|
| Canis lupus familiaris<br>Domestic Dog [82654] | | Species or species habitat likely to occur within area |
| Capra hircus<br>Goat [2] | | Species or species habitat likely to occur within area |
| Equus caballus<br>Horse [5] | | Species or species habitat likely to occur within area |
| Felis catus<br>Cat, House Cat, Domestic Cat [19] | | Species or species habitat likely to occur within area |
| Mus musculus<br>House Mouse [120] | | Species or species habitat likely to occur within area |
| Oryctolagus cuniculus<br>Rabbit, European Rabbit [128] | | Species or species habitat likely to occur within area |
| Rattus rattus<br>Black Rat, Ship Rat [84] | | Species or species habitat likely to occur within area |
| Vulpes vulpes<br>Red Fox, Fox [18] | | Species or species habitat likely to occur within area |
| **Plants** | | |
| Cenchrus ciliaris<br>Buffel-grass, Black Buffel-grass [20213] | | Species or species habitat likely to occur within area |
| **Reptiles** | | |
| Hemidactylus frenatus<br>Asian House Gecko [1708] | | Species or species habitat likely to occur within area |

| Nationally Important Wetlands | [ Resource Information ] |
|---|---|
| Name | State |
| Cape Range Subterranean Waterways | WA |

# Caveat

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

This report is designed to assist in identifying the locations of places which may be relevant in determining obligations under the Environment Protection and Biodiversity Conservation Act 1999. It holds mapped locations of World and National Heritage properties, Wetlands of International and National Importance, Commonwealth and State/Territory reserves, listed threatened, migratory and marine species and listed threatened ecological communities. Mapping of Commonwealth land is not complete at this stage. Maps have been collated from a range of sources at various resolutions.

Not all species listed under the EPBC Act have been mapped (see below) and therefore a report is a general guide only. Where available data supports mapping, the type of presence that can be determined from the data is indicated in general terms. People using this information in making a referral may need to consider the qualifications below and may need to seek and consider other information sources.

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

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

Where very little information is available for species or large number of maps are required in a short time-frame, maps are derived either from 0.04 or 0.02 decimal degree cells; by an automated process using polygon capture techniques (static two kilometre grid cells, alpha-hull and convex hull); or captured manually or by using topographic features (national park boundaries, islands, etc).  In the early stages of the distribution mapping process (1999-early 2000s) distributions were defined by degree blocks, 100K or 250K map sheets to rapidly create distribution maps. More reliable distribution mapping methods are used to update these distributions as time permits.

Only selected species covered by the following provisions of the EPBC Act have been mapped:

- migratory and
- marine

The following species and ecological communities have not been mapped and do not appear in reports produced from this database:

- threatened species listed as extinct or considered as vagrants
- some species and ecological communities that have only recently been listed
- some terrestrial species that overfly the Commonwealth marine area
- migratory species that are very widespread, vagrant, or only occur in small numbers

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

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

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

# Coordinates

-22.01464 114.11341

# 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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NatureMap
Mapping Western Australia's biodiversity

# NatureMap Species Report_Flora 20 km buffer

*Created By Guest user on 17/03/2021*

| | |
|---|---|
| **Kingdom** | Plantae |
| **Current Names Only** | Yes |
| **Core Datasets Only** | Yes |
| **Method** | 'By Circle' |
| **Centre** | 114° 06' 43" E,22° 01' 05" S |
| **Buffer** | 20km |
| **Group By** | Family |

| Family | Species | Records |
|---|---|---|
| Acanthaceae | 5 | 19 |
| Aizoaceae | 2 | 2 |
| Amaranthaceae | 13 | 25 |
| Anadyomenaceae | 2 | 4 |
| Apiaceae | 1 | 3 |
| Apocynaceae | 7 | 11 |
| Asparagaceae | 5 | 20 |
| Asphodelaceae | 1 | 1 |
| Asteraceae | 33 | 81 |
| Bignoniaceae | 1 | 2 |
| Bonnemaisoniaceae | 1 | 1 |
| Boraginaceae | 6 | 13 |
| Brassicaceae | 5 | 8 |
| Callithamniaceae | 1 | 1 |
| Campanulaceae | 2 | 2 |
| Capparaceae | 5 | 9 |
| Caulerpaceae | 10 | 14 |
| Celastraceae | 3 | 14 |
| Ceramiaceae | 2 | 2 |
| Champiaceae | 2 | 2 |
| Chenopodiaceae | 22 | 37 |
| Cladophoraceae | 1 | 1 |
| Cleomaceae | 1 | 2 |
| Colchicaceae | 1 | 5 |
| Commelinaceae | 1 | 3 |
| Convolvulaceae | 9 | 28 |
| Corallinaceae | 1 | 1 |
| Crassulaceae | 2 | 3 |
| Cymodoceaceae | 5 | 22 |
| Cyperaceae | 2 | 3 |
| Dichotomosiphonaceae | 1 | 1 |
| Dilleniaceae | 2 | 10 |
| Euphorbiaceae | 10 | 26 |
| Fabaceae | 54 | 189 |
| Frankeniaceae | 1 | 2 |
| Galaxauraceae | 2 | 2 |
| Gentianaceae | 1 | 1 |
| Geraniaceae | 2 | 4 |
| Goodeniaceae | 12 | 41 |
| Gracilariaceae | 2 | 4 |
| Gyrostemonaceae | 1 | 2 |
| Halimedaceae | 4 | 11 |
| Haloragaceae | 2 | 2 |
| Hemerocallidaceae | 3 | 3 |
| Hydrocharitaceae | 2 | 6 |
| Isoetaceae | 2 | 2 |
| Lamiaceae | 8 | 12 |
| Lauraceae | 3 | 8 |
| Liagoraceae | 2 | 4 |
| Loganiaceae | 1 | 5 |
| Loranthaceae | 6 | 24 |
| Malvaceae | 36 | 91 |
| Marsileaceae | 1 | 1 |
| Menispermaceae | 1 | 7 |
| Montiaceae | 2 | 3 |
| Moraceae | 2 | 5 |
| Myrtaceae | 15 | 113 |
| Nyctaginaceae | 2 | 2 |
| Oleaceae | 2 | 8 |
| Ophioglossaceae | 3 | 4 |
| Orchidaceae | 1 | 1 |
| Orobanchaceae | 1 | 1 |
| Phrymaceae | 1 | 5 |
| Phyllanthaceae | 4 | 6 |
| Pittosporaceae | 2 | 5 |
| Plantaginaceae | 3 | 7 |
| Plumbaginaceae | 2 | 10 |
| Poaceae | 33 | 67 |
| Polygonaceae | 1 | 1 |
| Polyphysaceae | 1 | 1 |
| Pottiaceae | 1 | 1 |
| Primulaceae | 2 | 2 |

| | | |
|---|---|---|
| Proteaceae | 8 | 34 |
| Pteridaceae | 3 | 3 |
| Rhizophoraceae | 1 | 1 |
| Rhizophyllidaceae | 1 | 2 |
| Rhodomelaceae | 2 | 2 |
| Ricciaceae | 3 | 3 |
| Rubiaceae | 3 | 6 |
| Ruppiaceae | 1 | 1 |
| Rutaceae | 1 | 2 |
| Santalaceae | 3 | 12 |
| Sapindaceae | 4 | 10 |
| Scrophulariaceae | 8 | 21 |
| Siphonocladaceae | 1 | 1 |
| Solanaceae | 8 | 18 |
| Solieriaceae | 1 | 2 |
| Thymelaeaceae | 2 | 4 |
| Udoteaceae | 1 | 1 |
| Urticaceae | 1 | 2 |
| Valoniaceae | 1 | 1 |
| Verbenaceae | 1 | 1 |
| Violaceae | 2 | 4 |
| Zygophyllaceae | 7 | 15 |
| **TOTAL** | **452** | **1185** |

| | Name ID | Species Name | Naturalised | Conservation Code | [1]Endemic To Query Area |
|---|---|---|---|---|---|
| **Acanthaceae** | | | | | |
| 1. | 6828 | *Avicennia marina (White Mangrove)* | | | |
| 2. | 7164 | *Dicladanthera forrestii* | | | |
| 3. | 11320 | *Dipteracanthus australasicus subsp. australasicus* | | | |
| 4. | 11746 | *Dipteracanthus australasicus subsp. corynothecus* | | | |
| 5. | 17327 | *Harnieria kempeana subsp. rhadinophylla* | | P2 | |
| **Aizoaceae** | | | | | |
| 6. | 2818 | *Sesuvium portulacastrum* | | | |
| 7. | 44305 | *Trianthema pilosum* | | | |
| **Amaranthaceae** | | | | | |
| 8. | 2645 | *Achyranthes aspera (Chaff Flower)* | | | |
| 9. | 2653 | *Alternanthera pungens (Khaki Weed)* | Y | | |
| 10. | 2657 | *Amaranthus clementii* | | | |
| 11. | 2677 | *Gomphrena celosioides (Gomphrena Weed)* | Y | | |
| 12. | 2699 | *Ptilotus axillaris (Mat Mulla Mulla)* | | | |
| 13. | 2711 | *Ptilotus clementii (Tassel Top)* | | | |
| 14. | 2717 | *Ptilotus divaricatus (Climbing Mulla Mulla)* | | | |
| 15. | 2721 | *Ptilotus exaltatus (Tall Mulla Mulla)* | | | |
| 16. | 2731 | *Ptilotus helipteroides (Hairy Mulla Mulla)* | | | |
| 17. | 2747 | *Ptilotus obovatus (Cotton Bush)* | | | |
| 18. | 2751 | *Ptilotus polystachyus (Prince of Wales Feather)* | | | |
| 19. | 2766 | *Ptilotus villosiflorus* | | | |
| 20. | 43203 | *Surreya diandra* | | | |
| **Anadyomenaceae** | | | | | |
| 21. | 35872 | *Anadyomene plicata* | | | |
| 22. | 35858 | *Anadyomene wrightii* | | | |
| **Apiaceae** | | | | | |
| 23. | 6218 | *Daucus glochidiatus (Australian Carrot)* | | | |
| **Apocynaceae** | | | | | |
| 24. | 6569 | *Catharanthus roseus (Pink Periwinkle)* | Y | | |
| 25. | 6584 | *Cynanchum floribundum (Dumara Bush, Tjipa)* | | | |
| 26. | 48280 | *Cynanchum viminale subsp. australe* | | | |
| 27. | 12832 | *Gymnanthera cunninghamii* | | P3 | |
| 28. | 12949 | *Marsdenia australis* | | | |
| 29. | 48987 | *Vincetoxicum flexuosum* | | | |
| 30. | 48986 | *Vincetoxicum lineare* | | | |
| **Asparagaceae** | | | | | |
| 31. | 1208 | *Acanthocarpus preissii* | | | |
| 32. | 1209 | *Acanthocarpus robustus* | | | |
| 33. | 1210 | *Acanthocarpus rupestris* | | P2 | |
| 34. | 1211 | *Acanthocarpus verticillatus* | | | |
| 35. | 46756 | *Thysanotus exfimbriatus* | | | |
| **Asphodelaceae** | | | | | |
| 36. | 1364 | *Asphodelus fistulosus (Onion Weed)* | Y | | |
| **Asteraceae** | | | | | |
| 37. | 7822 | *Angianthus acrohyalinus (Hook-leaf Angianthus)* | | | |
| 38. | 7838 | *Arctotheca calendula (Cape Weed, African Marigold)* | Y | | |
| 39. | 7854 | *Bidens bipinnata (Bipinnate Beggartick)* | Y | | |
| 40. | 46338 | *Bidens subalternans var. simulans* | Y | | |
| 41. | 7871 | *Brachyscome ciliaris* | | | |
| 42. | 7958 | *Decazesia hecatocephala* | | | |
| 43. | 35558 | *Flaveria trinervia (Speedy Weed)* | Y | | |
| 44. | 8086 | *Hypochaeris glabra (Smooth Catsear)* | Y | | |
| 45. | 8098 | *Launaea sarmentosa* | | | |
| 46. | 8107 | *Minuria cunninghamii (Bush Minuria)* | | | |
| 47. | 8110 | *Minuria leptophylla (Minnie Daisy)* | | | |
| 48. | 42024 | *Olearia sp. Kennedy Range (G. Byrne 66)* | | | |
| 49. | 20611 | *Pembertonia latisquamea* | | | |
| 50. | 34997 | *Peripleura arida* | | | |
| 51. | 35003 | *Peripleura hispidula var. setosa* | | | |
| 52. | 8167 | *Pluchea dentex* | | | |
| 53. | 43944 | *Pluchea longiseta* | | | |
| 54. | 8168 | *Pluchea rubelliflora* | | | |

| | Name ID | Species Name | Naturalised | Conservation Code | [1]Endemic To Query Area |
|---|---|---|---|---|---|
| 55. | 45237 | *Podolepis aristata subsp. aristata* | | | |
| 56. | 45242 | *Podolepis remota* | | | |
| 57. | 8189 | *Pseudognaphalium luteoalbum (Jersey Cudweed)* | | | |
| 58. | 8192 | *Pterocaulon sphacelatum (Apple Bush, Fruit Salad Plant)* | | | |
| 59. | 8193 | *Pterocaulon sphaeranthoides* | | | |
| 60. | 13301 | *Rhodanthe floribunda* | | | |
| 61. | 13297 | *Rhodanthe psammophila* | | | |
| 62. | 13254 | *Rhodanthe stricta* | | | |
| 63. | 45146 | *Roebuckiella oncocarpa* | | | |
| 64. | 25880 | *Senecio hamersleyensis* | | | |
| 65. | 8213 | *Senecio magnificus (Showy Groundsel)* | | | |
| 66. | 25883 | *Senecio pinnatifolius var. pinnatifolius* | | | |
| 67. | 8223 | *Sigesbeckia orientalis (Indian Weed)* | Y | | |
| 68. | 8231 | *Sonchus oleraceus (Common Sowthistle)* | Y | | |
| 69. | 8237 | *Streptoglossa decurrens* | | | |
| **Bignoniaceae** | | | | | |
| 70. | 36447 | *Tecoma stans var. stans* | Y | | |
| **Bonnemaisoniaceae** | | | | | |
| 71. | 26486 | *Asparagopsis taxiformis* | | | |
| **Boraginaceae** | | | | | |
| 72. | 6680 | *Cynoglossum australe (Australian Hound's-tongue)* | | | |
| 73. | 29840 | *Halgania cyanea var. Allambi Stn (B.W. Strong 676)* | | | |
| 74. | 6705 | *Heliotropium crispatum* | | | |
| 75. | 17305 | *Heliotropium glanduliferum* | | | |
| 76. | 6713 | *Heliotropium ovalifolium* | | | |
| 77. | 6727 | *Trichodesma zeylanicum (Camel Bush, Kumbalin)* | | | |
| **Brassicaceae** | | | | | |
| 78. | 3032 | *Lepidium muelleri-ferdinandii* | | | |
| 79. | 3035 | *Lepidium pedicellosum* | | | |
| 80. | 3039 | *Lepidium platypetalum (Slender Peppercress)* | | | |
| 81. | 3061 | *Raphanus raphanistrum (Wild Radish)* | Y | | |
| 82. | 3072 | *Sisymbrium orientale (Indian Hedge Mustard)* | Y | | |
| **Callithamniaceae** | | | | | |
| 83. | 27204 | *Ptilocladia vestita* | | | |
| **Campanulaceae** | | | | | |
| 84. | 7403 | *Lobelia heterophylla (Wing-seeded Lobelia)* | | | |
| 85. | 48829 | *Wahlenbergia capillaris* | | | |
| **Capparaceae** | | | | | |
| 86. | 2976 | *Capparis lasiantha (Split Jack, Balqarda)* | | | |
| 87. | 2978 | *Capparis mitchellii (Wild Orange)* | | | |
| 88. | | *Capparis sp.* | | | |
| 89. | 2981 | *Capparis spinosa* | | | |
| 90. | 48291 | *Capparis spinosa subsp. nummularia* | | | |
| **Caulerpaceae** | | | | | |
| 91. | 26554 | *Caulerpa brachypus* | | | |
| 92. | 42620 | *Caulerpa chemnitzia* | | | |
| 93. | 35158 | *Caulerpa corynephora* | | | |
| 94. | 26559 | *Caulerpa cupressoides* | | | |
| 95. | 27378 | *Caulerpa cupressoides var. lycopodium* | | | |
| 96. | 44547 | *Caulerpa lamourouxii* | | | |
| 97. | 26568 | *Caulerpa lentillifera* | | | |
| 98. | 44551 | *Caulerpa macrodisca* | | | |
| 99. | 26576 | *Caulerpa serrulata* | | | |
| 100. | 26577 | *Caulerpa sertularioides* | | | |
| **Celastraceae** | | | | | |
| 101. | 4734 | *Stackhousia muricata* | | | |
| 102. | 43601 | *Stackhousia sp. Mid west coastal (D. & B. Bellairs 6561)* | | | |
| 103. | 4736 | *Stackhousia umbellata* | | P3 | |
| **Ceramiaceae** | | | | | |
| 104. | 26469 | *Anotrichium tenue* | | | |
| 105. | 27310 | *Spyridia filamentosa* | | | |
| **Champiaceae** | | | | | |
| 106. | 26618 | *Champia parvula* | | | |
| 107. | 26619 | *Champia stipitata* | | | |

| | Name ID | Species Name | Naturalised | Conservation Code | [1]Endemic To Query Area |
|---|---|---|---|---|---|
| **Chenopodiaceae** | | | | | |
| 108. | 2453 | *Atriplex codonocarpa (Flat-topped Saltbush)* | | | |
| 109. | 2476 | *Atriplex semilunaris (Annual Saltbush)* | | | |
| 110. | 2489 | *Chenopodium gaudichaudianum (Cottony Saltbush)* | | | |
| 111. | 2499 | *Dissocarpus paradoxus (Curious Saltbush)* | | | |
| 112. | 33501 | *Dysphania cristata (Crested Goosefoot)* | | | |
| 113. | 2511 | *Enchylaena tomentosa (Barrier Saltbush)* | | | |
| 114. | 2546 | *Maireana integra* | | | |
| 115. | 2556 | *Maireana planifolia (Low Bluebush)* | | | |
| 116. | 2558 | *Maireana polypterygia (Gascoyne Bluebush)* | | | |
| 117. | 11662 | *Maireana tomentosa subsp. tomentosa* | | | |
| 118. | 2573 | *Neobassia astrocarpa* | | | |
| 119. | 2582 | *Rhagodia eremaea (Thorny Saltbush)* | | | |
| 120. | 2584 | *Rhagodia preissii* | | | |
| 121. | 11240 | *Rhagodia preissii subsp. obovata* | | | |
| 122. | 2609 | *Sclerolaena diacantha (Grey Copperburr)* | | | |
| 123. | 8877 | *Sclerolaena gardneri* | | | |
| 124. | 33236 | *Tecticornia halocnemoides (Shrubby Samphire)* | | | |
| 125. | 33238 | *Tecticornia halocnemoides subsp. tenuis* | | | |
| 126. | 33318 | *Tecticornia indica subsp. leiostachya (Samphire)* | | | |
| 127. | 31618 | *Tecticornia pruinosa* | | | |
| 128. | 33220 | *Tecticornia pterygosperma subsp. denticulata* | | | |
| 129. | 2644 | *Threlkeldia diffusa (Coast Bonefruit)* | | | |
| **Cladophoraceae** | | | | | |
| 130. | 26658 | *Cladophora vagabunda* | | | |
| **Cleomaceae** | | | | | |
| 131. | 2988 | *Cleome viscosa (Tickweed, Tjinduwadhu)* | | | |
| **Colchicaceae** | | | | | |
| 132. | 1400 | *Wurmbea odorata* | | | |
| **Commelinaceae** | | | | | |
| 133. | 1165 | *Commelina ensifolia (Wandering Jew, Buargu)* | | | |
| **Convolvulaceae** | | | | | |
| 134. | 31274 | *Duperreya commixta* | | | |
| 135. | 11416 | *Evolvulus alsinoides var. decumbens* | | | |
| 136. | 11200 | *Evolvulus alsinoides var. villosicalyx* | | | |
| 137. | 6624 | *Ipomoea costata (Rock Morning Glory, Kanti)* | | | |
| 138. | 6633 | *Ipomoea muelleri (Poison Morning Glory, Yumbu)* | | | |
| 139. | 11312 | *Ipomoea pes-caprae subsp. brasiliensis* | | | |
| 140. | 6637 | *Ipomoea polymorpha* | | | |
| 141. | 6641 | *Ipomoea yardiensis (Yardie Morning Glory)* | | | |
| 142. | 6653 | *Polymeria ambigua (Morning Glory)* | | | |
| **Corallinaceae** | | | | | |
| 143. | 26983 | *Jania adhaerens* | | | |
| **Crassulaceae** | | | | | |
| 144. | 3137 | *Crassula colorata (Dense Stonecrop)* | | | |
| 145. | 11563 | *Crassula colorata var. colorata* | | | |
| **Cymodoceaceae** | | | | | |
| 146. | 128 | *Cymodocea angustata* | | | |
| 147. | 129 | *Cymodocea serrulata* | | | |
| 148. | 131 | *Halodule uninervis* | | | |
| 149. | 132 | *Syringodium isoetifolium* | | | |
| 150. | 133 | *Thalassodendron ciliatum* | | | |
| **Cyperaceae** | | | | | |
| 151. | 750 | *Bulbostylis barbata* | | | |
| 152. | 814 | *Cyperus squarrosus* | | | |
| **Dichotomosiphonaceae** | | | | | |
| 153. | 26498 | *Avrainvillea obscura* | | | |
| **Dilleniaceae** | | | | | |
| 154. | 5171 | *Hibbertia spicata* | | | |
| 155. | 11481 | *Hibbertia spicata subsp. spicata* | | | |
| **Euphorbiaceae** | | | | | |
| 156. | 17422 | *Adriana tomentosa var. tomentosa* | | | |
| 157. | 35307 | *Euphorbia australis var. australis* | | | |
| 158. | 4619 | *Euphorbia biconvexa* | | | |

| | Name ID | Species Name | Naturalised | Conservation Code | [1]Endemic To Query Area |
|---|---|---|---|---|---|
| 159. | 4626 | *Euphorbia drummondii (Caustic Weed, Piwi)* | | | |
| 160. | 4635 | *Euphorbia myrtoides* | | | |
| 161. | 4644 | *Euphorbia sharkoensis* | | | |
| 162. | 4647 | *Euphorbia tannensis* | | | |
| 163. | 12097 | *Euphorbia tannensis subsp. eremophila (Desert Spurge)* | | | |
| 164. | 42879 | *Euphorbia trigonosperma* | | | |
| 165. | 4658 | *Mallotus nesophilus* | | | |
| **Fabaceae** | | | | | |
| 166. | 13074 | *Acacia alexandri* | | P3 | |
| 167. | 3223 | *Acacia arida* | | | |
| 168. | 3241 | *Acacia bivenosa* | | | |
| 169. | 3270 | *Acacia coriacea (Wirewood)* | | | |
| 170. | 13500 | *Acacia coriacea subsp. coriacea* | | | |
| 171. | 3356 | *Acacia gregorii (Gregory's Wattle)* | | | |
| 172. | 29015 | *Acacia pyrifolia var. pyrifolia* | | | |
| 173. | 13071 | *Acacia ryaniana* | | P2 | |
| 174. | 13078 | *Acacia sclerosperma subsp. sclerosperma* | | | |
| 175. | 29135 | *Acacia sericophylla* | | | |
| 176. | 3549 | *Acacia spathulifolia* | | | |
| 177. | 13076 | *Acacia startii* | | P3 | |
| 178. | 13070 | *Acacia synchronicia* | | | |
| 179. | 3577 | *Acacia tetragonophylla (Kurara, Wakalpuka)* | | | |
| 180. | 3749 | *Canavalia rosea (Wild Jack Bean)* | | | |
| 181. | 13114 | *Chorizema racemosum* | | | |
| 182. | 3774 | *Crotalaria cunninghamii (Green Birdflower, Bilbun)* | | | |
| 183. | 18147 | *Crotalaria incana subsp. incana* | Y | | |
| 184. | 20179 | *Crotalaria medicaginea var. neglecta* | | | |
| 185. | 17439 | *Cullen lachnostachys* | | | |
| 186. | 17118 | *Cullen leucanthum* | | | |
| 187. | 17120 | *Cullen pogonocarpum* | | | |
| 188. | 14375 | *Daviesia pleurophylla* | | P2 | |
| 189. | 3871 | *Erythrina vespertilio (Yulbah)* | | | |
| 190. | 3938 | *Glycine canescens (Silky Glycine)* | | | |
| 191. | 45436 | *Indigofera chamaeclada subsp. pubens* | | | |
| 192. | 3973 | *Indigofera colutea (Sticky Indigo)* | | | |
| 193. | 3981 | *Indigofera linnaei (Birdsville Indigo)* | | | |
| 194. | 3982 | *Indigofera monophylla* | | | |
| 195. | 3987 | *Indigofera trita* | | | |
| 196. | 3989 | *Isotropis atropurpurea (Poison Sage)* | | | |
| 197. | 16489 | *Leptosema macrocarpum* | | | |
| 198. | 18351 | *Leucaena leucocephala subsp. leucocephala* | Y | | |
| 199. | 4060 | *Lotus australis (Austral Trefoil)* | | | |
| 200. | 4097 | *Mirbelia ramulosa* | | | |
| 201. | 4105 | *Mirbelia viminalis* | | | |
| 202. | 3673 | *Parkinsonia aculeata (Parkinsonia)* | Y | | |
| 203. | 3674 | *Petalostylis cassioides* | | | |
| 204. | 4191 | *Rhynchosia minima (Rhynchosia)* | | | |
| 205. | 12280 | *Senna artemisioides subsp. oligophylla* | | | |
| 206. | 18443 | *Senna ferraria* | | | |
| 207. | 12307 | *Senna glutinosa subsp. glutinosa* | | | |
| 208. | 12309 | *Senna glutinosa subsp. pruinosa* | | | |
| 209. | 12312 | *Senna notabilis* | | | |
| 210. | 12353 | *Stylosanthes hamata (Verano Stylo)* | Y | | |
| 211. | 13596 | *Swainsona complanata* | | | |
| 212. | 12356 | *Swainsona formosa* | | | |
| 213. | 4231 | *Swainsona kingii* | | | |
| 214. | 4242 | *Swainsona pterostylis* | | | |
| 215. | 19531 | *Tephrosia rosea var. clementii* | | | |
| 216. | 46053 | *Tephrosia sp. North West Cape (G. Marsh 81)* | | P2 | |
| 217. | 30716 | *Vachellia farnesiana (Mimosa Bush)* | Y | | |
| 218. | 4323 | *Vigna lanceolata (Maloga Vigna, Wega)* | | | |
| 219. | 31391 | *Vigna sp. Hamersley Clay (A.A. Mitchell PRP 113)* | | | |
| **Frankeniaceae** | | | | | |
| 220. | 5209 | *Frankenia pauciflora (Seaheath)* | | | |
| **Galaxauraceae** | | | | | |
| 221. | 29616 | *Dichotomaria marginata* | | | |
| 222. | 26835 | *Galaxaura rugosa* | | | |
| **Gentianaceae** | | | | | |

| | Name ID | Species Name | Naturalised | Conservation Code | [1]Endemic To Query Area |
|---|---|---|---|---|---|
| 223. | 41660 | *Schenkia australis* | | | |
| **Geraniaceae** | | | | | |
| 224. | 4332 | *Erodium botrys (Long Storksbill)* | Y | | |
| 225. | 4335 | *Erodium cygnorum (Blue Heronsbill)* | | | |
| **Goodeniaceae** | | | | | |
| 226. | 7448 | *Dampiera incana (Hoary Dampiera)* | | | |
| 227. | 11723 | *Dampiera incana var. incana* | | | |
| 228. | 7509 | *Goodenia forrestii* | | | |
| 229. | 7526 | *Goodenia microptera* | | | |
| 230. | 12574 | *Goodenia prostrata* | | | |
| 231. | 7556 | *Goodenia tenuiloba* | | | |
| 232. | 7588 | *Lechenaultia subcymosa (Wide-branching Leschenaultia)* | | | |
| 233. | 7606 | *Scaevola crassifolia (Thick-leaved Fan-flower)* | | | |
| 234. | 7608 | *Scaevola cunninghamii* | | | |
| 235. | 12584 | *Scaevola pulchella* | | | |
| 236. | 7644 | *Scaevola spinescens (Currant Bush, Maroon)* | | | |
| 237. | 7648 | *Scaevola tomentosa (Raggedleaf Fanflower)* | | | |
| **Gracilariaceae** | | | | | |
| 238. | 35899 | *Gracilaria canaliculata* | | | |
| 239. | 35905 | *Hydropuntia eucheumatoides* | | | |
| **Gyrostemonaceae** | | | | | |
| 240. | 2784 | *Gyrostemon ramulosus (Corkybark)* | | | |
| **Halimedaceae** | | | | | |
| 241. | 26892 | *Halimeda discoidea* | | | |
| 242. | 26894 | *Halimeda macroloba* | | | |
| 243. | 26898 | *Halimeda velasquezii* | | | |
| 244. | 47213 | *Halimeda versatilis* | | | |
| **Haloragaceae** | | | | | |
| 245. | 6174 | *Haloragis gossei* | | | |
| 246. | 6180 | *Haloragis trigonocarpa* | | | |
| **Hemerocallidaceae** | | | | | |
| 247. | 1284 | *Corynotheca flexuosissima* | | | |
| 248. | 1360 | *Tricoryne corynothecoides* | | | |
| 249. | 29477 | *Tricoryne sp. Mullewa (G.J. Keighery 12080)* | | | |
| **Hydrocharitaceae** | | | | | |
| 250. | 164 | *Halophila ovalis (Sea Wrack)* | | | |
| 251. | 169 | *Thalassia hemprichii* | | | |
| **Isoetaceae** | | | | | |
| 252. | 11 | *Isoetes drummondii (Quillwort)* | | | |
| 253. | 12 | *Isoetes inflata* | | | |
| **Lamiaceae** | | | | | |
| 254. | 13689 | *Clerodendrum tomentosum var. lanceolatum* | | | |
| 255. | 13690 | *Clerodendrum tomentosum var. tomentosum* | | | |
| 256. | 6754 | *Dicrastylis cordifolia* | | | |
| 257. | 6910 | *Plectranthus intraterraneus* | | | |
| 258. | 35276 | *Plectranthus scutellarioides* | | | |
| 259. | 41063 | *Quoya loxocarpa* | | | |
| 260. | 41061 | *Quoya paniculata* | | | |
| 261. | 48603 | *Teucrium teucriiflorum* | | | |
| **Lauraceae** | | | | | |
| 262. | 12073 | *Cassytha aurea var. aurea* | | | |
| 263. | 2949 | *Cassytha capillaris* | | | |
| 264. | 11242 | *Cassytha racemosa forma pilosa* | | | |
| **Liagoraceae** | | | | | |
| 265. | 26837 | *Ganonema farinosum* | | | |
| 266. | 26912 | *Helminthocladia australis* | | | |
| **Loganiaceae** | | | | | |
| 267. | 16798 | *Logania litoralis* | | | |
| **Loranthaceae** | | | | | |
| 268. | 2369 | *Amyema benthamii* | | | |
| 269. | 2372 | *Amyema fitzgeraldii (Pincushion Mistletoe)* | | | |
| 270. | 2380 | *Amyema miquelii (Stalked Mistletoe)* | | | |
| 271. | 13266 | *Amyema miraculosa subsp. miraculosa* | | | |

| | Name ID | Species Name | Naturalised | Conservation Code | [1]Endemic To Query Area |
|---|---|---|---|---|---|
| 272. | 2383 | *Amyema preissii (Wireleaf Mistletoe)* | | | |
| 273. | 11874 | *Amyema sanguinea var. sanguinea* | | | |
| **Malvaceae** | | | | | |
| 274. | 9080 | *Abutilon cunninghamii* | | | |
| 275. | 4891 | *Abutilon fraseri (Lantern Bush)* | | | |
| 276. | 11325 | *Abutilon indicum var. australiense* | | | |
| 277. | 4895 | *Abutilon lepidum* | | | |
| 278. | 4901 | *Abutilon otocarpum (Desert Chinese Lantern)* | | | |
| 279. | | *Abutilon sp.* | | | |
| 280. | 14115 | *Abutilon sp. Cape Range (A.S. George 1312)* | | | |
| 281. | 42920 | *Abutilon sp. Dioicum (A.A. Mitchell PRP 1618)* | | | |
| 282. | 4904 | *Alyogyne cuneiformis (Coastal Hibiscus)* | | | |
| 283. | 4907 | *Alyogyne pinoniana (Sand Hibiscus)* | | | |
| 284. | 40910 | *Androcalva luteiflora (Yellow-flowered Rulingia)* | | | |
| 285. | 12714 | *Brachychiton obtusilobus* | | P4 | |
| 286. | 18410 | *Corchorus carnarvonensis* | | | |
| 287. | 18411 | *Corchorus congener* | | P3 | |
| 288. | 13560 | *Corchorus crozophorifolius* | | | |
| 289. | | *Corchorus sp.* | | | |
| 290. | 4918 | *Gossypium robinsonii (Wild Cotton)* | | | |
| 291. | 11559 | *Gossypium sturtianum var. sturtianum* | | | |
| 292. | 17782 | *Hannafordia quadrivalvis subsp. recurva* | | | |
| 293. | 4925 | *Hibiscus coatesii* | | | |
| 294. | 4930 | *Hibiscus goldsworthii* | | | |
| 295. | 4933 | *Hibiscus leptocladus* | | | |
| 296. | 4942 | *Hibiscus sturtii (Sturt's Hibiscus)* | | | |
| 297. | 4960 | *Lawrencia viridigrisea* | | | |
| 298. | 4962 | *Malvastrum americanum (Spiked Malvastrum)* | Y | | |
| 299. | 5051 | *Melhania oblongifolia* | | | |
| 300. | 4966 | *Sida arenicola* | | | |
| 301. | 4970 | *Sida calyxhymenia (Tall Sida)* | | | |
| 302. | 4977 | *Sida fibulifera (Silver Sida)* | | | |
| 303. | 4982 | *Sida kingii* | | | |
| 304. | 18149 | *Sida rohlenae subsp. rohlenae* | | | |
| 305. | 4989 | *Sida spinosa (Spiny Sida)* | | | |
| 306. | 14694 | *Triumfetta clementii* | | | |
| 307. | 13481 | *Triumfetta ramosa* | | | |
| 308. | 17529 | *Triumfetta tenuiseta* | | | |
| 309. | 5106 | *Waltheria indica* | | | |
| **Marsileaceae** | | | | | |
| 310. | | *Marsilea sp.* | | | |
| **Menispermaceae** | | | | | |
| 311. | 17345 | *Tinospora esiangkara* | | P2 | |
| **Montiaceae** | | | | | |
| 312. | 2864 | *Calandrinia ptychosperma* | | | |
| 313. | 49022 | *Calandrinia sp. Cape Range (F. Obbens FO 10/18)* | | P2 | |
| **Moraceae** | | | | | |
| 314. | 19648 | *Ficus brachypoda* | | | |
| 315. | 12096 | *Ficus virens var. virens* | | | |
| **Myrtaceae** | | | | | |
| 316. | 5484 | *Calytrix truncatifolia* | | | |
| 317. | 17093 | *Corymbia hamersleyana* | | | |
| 318. | 17092 | *Corymbia opaca* | | | |
| 319. | 17084 | *Corymbia zygophylla* | | | |
| 320. | 35345 | *Eucalyptus camaldulensis subsp. obtusa (Blunt-budded River Red Gum)* | | | |
| 321. | 5752 | *Eucalyptus prominens* | | | |
| 322. | 15597 | *Eucalyptus ultima* | | | |
| 323. | 14548 | *Eucalyptus victrix* | | | |
| 324. | 15592 | *Eucalyptus xerothermica* | | | |
| 325. | 5879 | *Melaleuca bracteata (River Teatree)* | | | |
| 326. | 5887 | *Melaleuca cardiophylla (Tangling Melaleuca)* | | | |
| 327. | 6010 | *Pileanthus limacis (Coastal Coppercups)* | | | |
| 328. | 44710 | *Thryptomene dampieri* | | | |
| 329. | 6081 | *Verticordia forrestii (Forrest's Featherflower)* | | | |
| 330. | 12457 | *Verticordia serotina* | | P2 | |
| **Nyctaginaceae** | | | | | |
| 331. | 2770 | *Boerhavia coccinea (Tar Vine, Wituka)* | | | |

| | Name ID | Species Name | Naturalised | Conservation Code | [1]Endemic To Query Area |
|---|---|---|---|---|---|
| 332. | 2776 | *Commicarpus australis (Perennial Tar Vine)* | | | |
| **Oleaceae** | | | | | |
| 333. | 12059 | *Jasminum didymum subsp. lineare (Desert Jasmine)* | | | |
| 334. | 29056 | *Jasminum sp. Exmouth (G. Marsh 77)* | | | |
| **Ophioglossaceae** | | | | | |
| 335. | 16 | *Helminthostachys zeylanica* | | P3 | |
| 336. | 12782 | *Ophioglossum gramineum* | | | |
| 337. | 17 | *Ophioglossum lusitanicum (Adders Tongue)* | | | |
| **Orchidaceae** | | | | | |
| 338. | 15426 | *Pterostylis aspera* | | | |
| **Orobanchaceae** | | | | | |
| 339. | 12492 | *Striga squamigera* | | | |
| **Phrymaceae** | | | | | |
| 340. | 7082 | *Mimulus gracilis* | | | |
| **Phyllanthaceae** | | | | | |
| 341. | 17626 | *Phyllanthus erwinii* | | | |
| 342. | 4677 | *Phyllanthus fuernrohrii (Sand Sponge)* | | P3 | |
| 343. | 45696 | *Phyllanthus hamelinii (Shark Bay Phyllanthus)* | | | |
| 344. | 4680 | *Phyllanthus maderaspatensis* | | | |
| **Pittosporaceae** | | | | | |
| 345. | 19744 | *Pittosporum angustifolium* | | | |
| 346. | 41300 | *Pittosporum phillyreoides (Weeping Pittosporum, Yaliti)* | | | |
| **Plantaginaceae** | | | | | |
| 347. | 7098 | *Stemodia grossa (Marsh Stemodia, Mindjaara)* | | | |
| 348. | 48755 | *Stemodia sp. Carnarvon (W.R. Barker 2154)* | | | |
| 349. | 17295 | *Stemodia sp. Onslow (A.A. Mitchell 76/148)* | | | |
| **Plumbaginaceae** | | | | | |
| 350. | 6490 | *Muellerolimon salicorniaceum* | | | |
| 351. | 6491 | *Plumbago zeylanica (Native Plumbago)* | | | |
| **Poaceae** | | | | | |
| 352. | 207 | *Aristida contorta (Bunched Kerosene Grass)* | | | |
| 353. | 12063 | *Aristida holathera var. holathera* | | | |
| 354. | 217 | *Aristida nitidula (Flat-awned Threeawn)* | | | |
| 355. | 235 | *Avena sativa (Common Oat)* | Y | | |
| 356. | 240 | *Bothriochloa ewartiana (Desert Bluegrass)* | | | |
| 357. | 258 | *Cenchrus ciliaris (Buffel Grass)* | Y | | |
| 358. | 266 | *Chloris barbata (Purpletop Chloris)* | Y | | |
| 359. | 273 | *Chrysopogon fallax (Golden Beard Grass)* | | | |
| 360. | 279 | *Cymbopogon ambiguus (Scentgrass)* | | | |
| 361. | 13741 | *Dichanthium sericeum subsp. humilius* | | | |
| 362. | 313 | *Digitaria ctenantha (Comb Finger Grass)* | | | |
| 363. | 328 | *Echinochloa colona (Awnless Barnyard Grass)* | Y | | |
| 364. | 357 | *Enneapogon caerulescens (Limestone Grass)* | | | |
| 365. | 360 | *Enneapogon lindleyanus (Wiry Nineawn, Purple-head Nineawn)* | | | |
| 366. | 375 | *Eragrostis cumingii (Cuming's Love Grass)* | | | |
| 367. | 380 | *Eragrostis eriopoda (Woollybutt Grass, Wangurnu)* | | | |
| 368. | 411 | *Eriachne helmsii (Buck Wanderrie Grass)* | | | |
| 369. | 413 | *Eriachne mucronata (Mountain Wanderrie Grass)* | | | |
| 370. | 414 | *Eriachne obtusa (Northern Wandarrie Grass)* | | | |
| 371. | 11011 | *Eulalia aurea* | | | |
| 372. | 458 | *Iseilema dolichotrichum* | | | |
| 373. | 503 | *Panicum decompositum (Native Millet, Kaltu-kaltu)* | | | |
| 374. | 518 | *Paspalidium clementii (Clements Paspalidium)* | | | |
| 375. | 525 | *Paspalidium tabulatum* | | | |
| 376. | 606 | *Setaria dielsii (Diels' Pigeon Grass)* | | | |
| 377. | 619 | *Sorghum plumosum (Plume Canegrass)* | | | |
| 378. | 625 | *Spinifex longifolius (Beach Spinifex)* | | | |
| 379. | 635 | *Sporobolus virginicus (Marine Couch)* | | | |
| 380. | 679 | *Triodia angusta* | | | |
| 381. | 13131 | *Triodia epactia* | | | |
| 382. | 48467 | *Triodia glabra* | | | |
| 383. | 17873 | *Triodia schinzii* | | | |
| 384. | 704 | *Triodia wiseana (Limestone Spinifex)* | | | |
| **Polygonaceae** | | | | | |
| 385. | 46434 | *Rumex hypogaeus* | | | |

| | Name ID | Species Name | Naturalised | Conservation Code | [1]Endemic To Query Area |
|---|---|---|---|---|---|
| | | | Y | | |
| **Polyphysaceae** | | | | | |
| 386. | 48409 | *Acetabularia caliculus* | | | |
| **Pottiaceae** | | | | | |
| 387. | 32415 | *Pottia scabrifolia* | | | |
| **Primulaceae** | | | | | |
| 388. | 6484 | *Samolus repens (Creeping Brookweed)* | | | |
| 389. | 14026 | *Samolus sp. Shark Bay (M.E. Trudgen 7410)* | | | |
| **Proteaceae** | | | | | |
| 390. | 1972 | *Grevillea calcicola* | | P3 | |
| 391. | 2001 | *Grevillea eriostachya (Flame Grevillea, Kaliny-kalinypa)* | | | |
| 392. | 2096 | *Grevillea stenobotrya* | | | |
| 393. | 2117 | *Grevillea variifolia (Cape Range Grevillea)* | | | |
| 394. | 15686 | *Grevillea variifolia subsp. bundera* | | | |
| 395. | 15685 | *Grevillea variifolia subsp. variifolia* | | | |
| 396. | 2207 | *Hakea stenophylla* | | | |
| 397. | 16897 | *Hakea stenophylla subsp. stenophylla* | | | |
| **Pteridaceae** | | | | | |
| 398. | 12796 | *Cheilanthes adiantoides* | | | |
| 399. | 31 | *Cheilanthes austrotenuifolia* | | | |
| 400. | 37 | *Cheilanthes lasiophylla (Woolly Cloak Fern)* | | | |
| **Rhizophoraceae** | | | | | |
| 401. | 5295 | *Rhizophora stylosa (Spotted-leaved Red Mangrove)* | | | |
| **Rhizophyllidaceae** | | | | | |
| 402. | 27186 | *Portieria hornemannii* | | | |
| **Rhodomelaceae** | | | | | |
| 403. | 26453 | *Amansia rhodantha* | | | |
| 404. | 27171 | *Polysiphonia blandii* | | | |
| **Ricciaceae** | | | | | |
| 405. | | *Riccia bifurca* | | | |
| 406. | | *Riccia limbata* | | | |
| 407. | | *Riccia vesiculosa* | | | |
| **Rubiaceae** | | | | | |
| 408. | 7338 | *Oldenlandia crouchiana* | | | |
| 409. | 18256 | *Opercularia spermacocea* | | | |
| 410. | 13339 | *Synaptantha tillaeacea var. tillaeacea* | | | |
| **Ruppiaceae** | | | | | |
| 411. | 114 | *Ruppia maritima (Sea Tassel)* | | | |
| **Rutaceae** | | | | | |
| 412. | 4456 | *Diplolaena grandiflora (Wild Rose)* | | | |
| **Santalaceae** | | | | | |
| 413. | 10977 | *Exocarpos aphyllus (Leafless Ballart)* | | | |
| 414. | 10765 | *Exocarpos sparteus (Broom Ballart, Djuk)* | | | |
| 415. | 2357 | *Santalum lanceolatum (Northern Sandalwood, Yarnguli)* | | | |
| **Sapindaceae** | | | | | |
| 416. | 11487 | *Alectryon oleifolius subsp. oleifolius* | | | |
| 417. | 4745 | *Diplopeltis eriocarpa (Hairy Pepperflower)* | | | |
| 418. | 4747 | *Diplopeltis intermedia* | | | |
| 419. | 11669 | *Diplopeltis intermedia var. intermedia* | | | |
| **Scrophulariaceae** | | | | | |
| 420. | 7198 | *Eremophila deserti* | | | |
| 421. | 29715 | *Eremophila forrestii subsp. capensis* | | P3 | |
| 422. | 15052 | *Eremophila forrestii subsp. forrestii* | | | |
| 423. | 7234 | *Eremophila longifolia (Berrigan, Tulypurpa)* | | | |
| 424. | 16363 | *Eremophila maculata subsp. brevifolia (Native Fuchsia)* | | | |
| 425. | 15032 | *Eremophila occidens* | | P2 | |
| 426. | 23997 | *Eremophila tietkensii* | | | |
| 427. | 16040 | *Eremophila youngii subsp. lepidota* | | P4 | |
| **Siphonocladaceae** | | | | | |
| 428. | 26507 | *Boergesenia forbesii* | | | |
| **Solanaceae** | | | | | |
| 429. | 47241 | *Datura leichhardtii subsp. leichhardtii* | | | |

| | Name ID | Species Name | Naturalised | Conservation Code | [1]Endemic To Query Area |
|---|---|---|---|---|---|
| | | | Y | | |
| 430. | 6966 | *Duboisia hopwoodii (Pituri, Kundugu)* | | | |
| 431. | 6974 | *Nicotiana glauca (Tree Tobacco)* | Y | | |
| 432. | 6976 | *Nicotiana occidentalis (Native Tobacco)* | | | |
| 433. | 11856 | *Nicotiana occidentalis subsp. occidentalis* | | | |
| 434. | 7002 | *Solanum diversiflorum* | | | |
| 435. | 7018 | *Solanum lasiophyllum (Flannel Bush, Mindjulu)* | | | |
| 436. | 47173 | *Solanum lycopersicum (Tomato)* | Y | | |
| **Solieriaceae** | | | | | |
| 437. | 26827 | *Eucheuma denticulatum* | | | |
| **Thymelaeaceae** | | | | | |
| 438. | 5230 | *Pimelea ammocharis* | | | |
| 439. | 11185 | *Pimelea microcephala subsp. microcephala* | | | |
| **Udoteaceae** | | | | | |
| 440. | 27121 | *Penicillus nodulosus* | | | |
| **Urticaceae** | | | | | |
| 441. | 12670 | *Parietaria cardiostegia* | | | |
| **Valoniaceae** | | | | | |
| 442. | 36143 | *Valonia fastigiata* | | | |
| **Verbenaceae** | | | | | |
| 443. | 6733 | *Lantana camara (Common Lantana)* | Y | | |
| **Violaceae** | | | | | |
| 444. | 5215 | *Hybanthus aurantiacus* | | | |
| 445. | 5219 | *Hybanthus enneaspermus* | | | |
| **Zygophyllaceae** | | | | | |
| 446. | 48891 | *Roepera fruticulosa* | | | |
| 447. | 48900 | *Roepera retivalvis* | | | |
| 448. | 4375 | *Tribulus cistoides* | | | |
| 449. | 4377 | *Tribulus hirsutus* | | | |
| 450. | 4379 | *Tribulus macrocarpus* | | | |
| 451. | 4380 | *Tribulus occidentalis (Perennial Caltrop)* | | | |
| 452. | 18072 | *Tribulus suberosus* | | | |

**Conservation Codes**
T - Rare or likely to become extinct
X - Presumed extinct
IA - Protected under international agreement
S - Other specially protected fauna
1 - Priority 1
2 - Priority 2
3 - Priority 3
4 - Priority 4
5 - Priority 5

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

NatureMap
Mapping Western Australia's biodiversity

# NatureMap Species Report_Fauna 20 km buffer

*Created By Guest user on 17/03/2021*

**Kingdom** Animalia
**Current Names Only** Yes
**Core Datasets Only** Yes
**Method** 'By Circle'
**Centre** 114° 06' 43" E,22° 01' 05" S
**Buffer** 20km
**Group By** Species Group

| Species Group | Species | Records |
|---|---|---|
| Amphibian | 4 | 56 |
| Bird | 194 | 2949 |
| Fish | 315 | 836 |
| Invertebrate | 69 | 847 |
| Mammal | 26 | 721 |
| Reptile | 82 | 623 |
| **TOTAL** | **690** | **6032** |

| | Name ID | Species Name | Naturalised | Conservation Code | [1]Endemic To Query Area |
|---|---|---|---|---|---|
| **Amphibian** | | | | | |
| 1. | 25375 | *Cyclorana maini (Sheep Frog)* | | | |
| 2. | 25424 | *Neobatrachus fulvus (Tawny Trilling Frog)* | | | |
| 3. | 25427 | *Neobatrachus sutor (Shoemaker Frog)* | | | |
| 4. | 25432 | *Pseudophryne douglasi (Gorge Toadlet)* | | | |
| **Bird** | | | | | |
| 5. | 24559 | *Acanthagenys rufogularis (Spiny-cheeked Honeyeater)* | | | |
| 6. | 25535 | *Accipiter cirrocephalus (Collared Sparrowhawk)* | | | |
| 7. | 25536 | *Accipiter fasciatus (Brown Goshawk)* | | | |
| 8. | 24282 | *Accipiter fasciatus subsp. fasciatus (Brown Goshawk)* | | | |
| 9. | 41323 | *Actitis hypoleucos (Common Sandpiper)* | | IA | |
| 10. | 25544 | *Aegotheles cristatus (Australian Owlet-nightjar)* | | | |
| 11. | 24301 | *Aegotheles cristatus subsp. cristatus (Australian Owlet-nightjar)* | | | |
| 12. | 24312 | *Anas gracilis (Grey Teal)* | | | |
| 13. | | *Anas platyrhynchos subsp. domesticus* | | | |
| 14. | 24316 | *Anas superciliosa (Pacific Black Duck)* | | | |
| 15. | 47414 | *Anhinga novaehollandiae (Australasian Darter)* | | | |
| 16. | 25634 | *Anous stolidus (Common Noddy)* | | IA | |
| 17. | 24599 | *Anthus australis subsp. australis (Australian Pipit)* | | | |
| 18. | 24285 | *Aquila audax (Wedge-tailed Eagle)* | | | |
| 19. | 25558 | *Ardea ibis (Cattle Egret)* | | | |
| 20. | 25559 | *Ardea intermedia (Intermediate Egret)* | | | |
| 21. | 41324 | *Ardea modesta (great egret, white egret)* | | | |
| 22. | 24341 | *Ardea pacifica (White-necked Heron)* | | | |
| 23. | 24343 | *Ardea sacra subsp. sacra (Eastern Reef Egret, Eastern Reef Heron)* | | | |
| 24. | 48573 | *Ardenna pacifica (Wedge-tailed Shearwater)* | | IA | |
| 25. | 24610 | *Ardeotis australis (Australian Bustard)* | | | |
| 26. | 25736 | *Arenaria interpres (Ruddy Turnstone)* | | IA | |
| 27. | 25566 | *Artamus cinereus (Black-faced Woodswallow)* | | | |
| 28. | 24352 | *Artamus cinereus subsp. melanops (Black-faced Woodswallow)* | | | |
| 29. | 25567 | *Artamus leucorynchus (White-breasted Woodswallow)* | | | |
| 30. | 24354 | *Artamus leucorynchus subsp. leucopygialis (White-breasted Woodswallow)* | | | |
| 31. | 24355 | *Artamus minor (Little Woodswallow)* | | | |
| 32. | 24356 | *Artamus personatus (Masked Woodswallow)* | | | |
| 33. | 24318 | *Aythya australis (Hardhead)* | | | |
| 34. | | *Barnardius zonarius* | | | |
| 35. | 24359 | *Burhinus grallarius (Bush Stone-curlew)* | | | |
| 36. | 47897 | *Butorides striata (Striated Heron, Mangrove Heron)* | | | |

| | Name ID | Species Name | Naturalised | Conservation Code | [1]Endemic To Query Area |
|---|---|---|---|---|---|
| 37. | 25716 | *Cacatua sanguinea (Little Corella)* | | | |
| 38. | 24727 | *Cacatua sanguinea subsp. westralensis (Little Corella)* | | | |
| 39. | 42307 | *Cacomantis pallidus (Pallid Cuckoo)* | | | |
| 40. | 24269 | *Calamanthus campestris (Rufous Fieldwren)* | | | |
| 41. | 24779 | *Calidris acuminata (Sharp-tailed Sandpiper)* | | IA | |
| 42. | 24780 | *Calidris alba (Sanderling)* | | IA | |
| 43. | 24784 | *Calidris ferruginea (Curlew Sandpiper)* | | T | |
| 44. | 24788 | *Calidris ruficollis (Red-necked Stint)* | | IA | |
| 45. | 24789 | *Calidris subminuta (Long-toed Stint)* | | IA | |
| 46. | 25600 | *Centropus phasianinus (Pheasant Coucal)* | | | |
| 47. | 24564 | *Certhionyx variegatus (Pied Honeyeater)* | | | |
| 48. | 25575 | *Charadrius leschenaultii (Greater Sand Plover)* | | T | |
| 49. | 25576 | *Charadrius mongolus (Lesser Sand Plover)* | | T | |
| 50. | 24377 | *Charadrius ruficapillus (Red-capped Plover)* | | | |
| 51. | 24321 | *Chenonetta jubata (Australian Wood Duck, Wood Duck)* | | | |
| 52. | 41332 | *Chlidonias leucopterus (White-winged Black Tern, white-winged tern)* | | IA | |
| 53. | | *Chroicocephalus novaehollandiae* | | | |
| 54. | 24288 | *Circus approximans (Swamp Harrier)* | | | |
| 55. | 24289 | *Circus assimilis (Spotted Harrier)* | | | |
| 56. | 24612 | *Colluricincla harmonica subsp. kolichisi (Grey Shrike-thrush)* | | | |
| 57. | 24399 | *Columba livia (Domestic Pigeon)* | Y | | |
| 58. | 25568 | *Coracina novaehollandiae (Black-faced Cuckoo-shrike)* | | | |
| 59. | 24362 | *Coracina novaehollandiae subsp. novaehollandiae (Black-faced Cuckoo-shrike)* | | | |
| 60. | 24416 | *Corvus bennetti (Little Crow)* | | | |
| 61. | 25593 | *Corvus orru (Torresian Crow)* | | | |
| 62. | 24671 | *Coturnix pectoralis (Stubble Quail)* | | | |
| 63. | 25701 | *Coturnix ypsilophora (Brown Quail)* | | | |
| 64. | 24420 | *Cracticus nigrogularis (Pied Butcherbird)* | | | |
| 65. | 25595 | *Cracticus tibicen (Australian Magpie)* | | | |
| 66. | 25596 | *Cracticus torquatus (Grey Butcherbird)* | | | |
| 67. | 24322 | *Cygnus atratus (Black Swan)* | | | |
| 68. | 25547 | *Dacelo leachii (Blue-winged Kookaburra)* | | | |
| 69. | 24324 | *Dendrocygna arcuata (Wandering Whistling Duck, Chestnut Whistling Duck)* | | | |
| 70. | 25607 | *Dicaeum hirundinaceum (Mistletoebird)* | | | |
| 71. | 24441 | *Dicaeum hirundinaceum subsp. hirundinaceum (Mistletoebird)* | | | |
| 72. | 24470 | *Dromaius novaehollandiae (Emu)* | | | |
| 73. | | *Egretta garzetta* | | | |
| 74. | | *Egretta novaehollandiae* | | | |
| 75. | | *Elanus axillaris* | | | |
| 76. | 47937 | *Elseyornis melanops (Black-fronted Dotterel)* | | | |
| 77. | 24631 | *Emblema pictum (Painted Finch)* | | | |
| 78. | | *Eolophus roseicapillus* | | | |
| 79. | 24653 | *Eopsaltria pulverulenta (Mangrove Robin)* | | | |
| 80. | 25578 | *Ephippiorhynchus asiaticus (Black-necked Stork)* | | | |
| 81. | 24567 | *Epthianura albifrons (White-fronted Chat)* | | | |
| 82. | 24568 | *Epthianura aurifrons (Orange Chat)* | | | |
| 83. | 24570 | *Epthianura tricolor (Crimson Chat)* | | | |
| 84. | 24837 | *Eremiornis carteri (Spinifex-bird)* | | | |
| 85. | 24379 | *Erythrogonys cinctus (Red-kneed Dotterel)* | | | |
| 86. | 47938 | *Esacus magnirostris (Beach Stone-curlew, Beach Thick-knee)* | | | |
| 87. | 25621 | *Falco berigora (Brown Falcon)* | | | |
| 88. | 25622 | *Falco cenchroides (Australian Kestrel, Nankeen Kestrel)* | | | |
| 89. | 25623 | *Falco longipennis (Australian Hobby)* | | | |
| 90. | 25624 | *Falco peregrinus (Peregrine Falcon)* | | S | |
| 91. | 25727 | *Fulica atra (Eurasian Coot)* | | | |
| 92. | 24793 | *Gallinago stenura (Pin-tailed Snipe)* | | IA | |
| 93. | 25730 | *Gallirallus philippensis (Buff-banded Rail)* | | | |
| 94. | 24765 | *Gallirallus philippensis subsp. mellori (Buff-banded Rail)* | | | |
| 95. | 42314 | *Gavicalis virescens (Singing Honeyeater)* | | | |
| 96. | 47954 | *Gelochelidon nilotica (Gull-billed Tern)* | | IA | |
| 97. | 24401 | *Geopelia cuneata (Diamond Dove)* | | | |
| 98. | 24402 | *Geopelia humeralis (Bar-shouldered Dove)* | | | |
| 99. | 25585 | *Geopelia striata (Zebra Dove)* | | | |
| 100. | 24404 | *Geophaps plumifera (Spinifex Pigeon)* | | | |
| 101. | 25530 | *Gerygone fusca (Western Gerygone)* | | | |
| 102. | 24276 | *Gerygone tenebrosa (Dusky Gerygone)* | | | |
| 103. | 24481 | *Glareola maldivarum (Oriental Pratincole)* | | IA | |
| 104. | 24443 | *Grallina cyanoleuca (Magpie-lark)* | | | |
| 105. | 25627 | *Haematopus fuliginosus (Sooty Oystercatcher)* | | | |
| 106. | 24487 | *Haematopus longirostris (Pied Oystercatcher)* | | | |

| | Name ID | Species Name | Naturalised | Conservation Code | [1]Endemic To Query Area |
|---|---|---|---|---|---|
| 107. | 24293 | *Haliaeetus leucogaster (White-bellied Sea-Eagle)* | | | |
| 108. | 25541 | *Haliastur indus (Brahminy Kite)* | | | |
| 109. | 24295 | *Haliastur sphenurus (Whistling Kite)* | | | |
| 110. | 24297 | *Hamirostra melanosternon (Black-breasted Buzzard)* | | | |
| 111. | 47965 | *Hieraaetus morphnoides (Little Eagle)* | | | |
| 112. | 25734 | *Himantopus himantopus (Black-winged Stilt)* | | | |
| 113. | 24491 | *Hirundo neoxena (Welcome Swallow)* | | | |
| 114. | 48587 | *Hydroprogne caspia (Caspian Tern)* | | IA | |
| 115. | 25638 | *Larus pacificus (Pacific Gull)* | | | |
| 116. | 25661 | *Lichmera indistincta (Brown Honeyeater)* | | | |
| 117. | 24582 | *Lichmera indistincta subsp. indistincta (Brown Honeyeater)* | | | |
| 118. | 25739 | *Limicola falcinellus (Broad-billed Sandpiper)* | | IA | |
| 119. | 30932 | *Limosa lapponica (Bar-tailed Godwit)* | | IA | |
| 120. | 25741 | *Limosa limosa (Black-tailed Godwit)* | | IA | |
| 121. | 25651 | *Malurus lamberti (Variegated Fairy-wren)* | | | |
| 122. | 25652 | *Malurus leucopterus (White-winged Fairy-wren)* | | | |
| 123. | 24583 | *Manorina flavigula (Yellow-throated Miner)* | | | |
| 124. | 47997 | *Melanodryas cucullata (Hooded Robin)* | | | |
| 125. | 24736 | *Melopsittacus undulatus (Budgerigar)* | | | |
| 126. | 24598 | *Merops ornatus (Rainbow Bee-eater)* | | | |
| 127. | | *Microcarbo melanoleucos* | | | |
| 128. | 25542 | *Milvus migrans (Black Kite)* | | | |
| 129. | 25545 | *Mirafra javanica (Horsfield's Bushlark, Singing Bushlark)* | | | |
| 130. | 25685 | *Neochmia ruficauda (Star Finch)* | | | |
| 131. | 25747 | *Ninox connivens (Barking Owl)* | | | |
| 132. | 24798 | *Numenius madagascariensis (Eastern Curlew)* | | T | |
| 133. | 24799 | *Numenius minutus (Little Curlew, Little Whimbrel)* | | IA | |
| 134. | 25742 | *Numenius phaeopus (Whimbrel)* | | IA | |
| 135. | 25564 | *Nycticorax caledonicus (Rufous Night Heron)* | | | |
| 136. | 24742 | *Nymphicus hollandicus (Cockatiel)* | | | |
| 137. | 24407 | *Ocyphaps lophotes (Crested Pigeon)* | | | |
| 138. | 24618 | *Oreoica gutturalis (Crested Bellbird)* | | | |
| 139. | 24620 | *Pachycephala lanioides (White-breasted Whistler)* | | | |
| 140. | 24621 | *Pachycephala melanura subsp. melanura (Mangrove Golden Whistler)* | | | |
| 141. | 25680 | *Pachycephala rufiventris (Rufous Whistler)* | | | |
| 142. | 48591 | *Pandion cristatus (Osprey, Eastern Osprey)* | | IA | |
| 143. | 24627 | *Pardalotus rubricatus (Red-browed Pardalote)* | | | |
| 144. | 25682 | *Pardalotus striatus (Striated Pardalote)* | | | |
| 145. | 24648 | *Pelecanus conspicillatus (Australian Pelican)* | | | |
| 146. | 48060 | *Petrochelidon ariel (Fairy Martin)* | | | |
| 147. | 48061 | *Petrochelidon nigricans (Tree Martin)* | | | |
| 148. | 24659 | *Petroica goodenovii (Red-capped Robin)* | | | |
| 149. | 24662 | *Phaethon lepturus (White-tailed Tropicbird)* | | IA | |
| 150. | 24663 | *Phaethon rubricauda (Red-tailed Tropicbird)* | | P4 | |
| 151. | 25697 | *Phalacrocorax carbo (Great Cormorant)* | | | |
| 152. | 24667 | *Phalacrocorax sulcirostris (Little Black Cormorant)* | | | |
| 153. | 25699 | *Phalacrocorax varius (Pied Cormorant)* | | | |
| 154. | 24409 | *Phaps chalcoptera (Common Bronzewing)* | | | |
| 155. | 24842 | *Platalea regia (Royal Spoonbill)* | | | |
| 156. | 24382 | *Pluvialis fulva (Pacific Golden Plover)* | | IA | |
| 157. | 24383 | *Pluvialis squatarola (Grey Plover)* | | IA | |
| 158. | 25703 | *Podargus strigoides (Tawny Frogmouth)* | | | |
| 159. | 24681 | *Poliocephalus poliocephalus (Hoary-headed Grebe)* | | | |
| 160. | 25706 | *Pomatostomus temporalis (Grey-crowned Babbler)* | | | |
| 161. | 24769 | *Porzana fluminea (Australian Spotted Crake)* | | | |
| 162. | 24390 | *Psophodes occidentalis (Western Wedgebill, Chiming Wedgebill)* | | | |
| 163. | | *Ptilonorhynchus guttatus* | | | |
| 164. | 24757 | *Ptilonorhynchus maculatus subsp. guttatus (Western Bowerbird)* | | | |
| 165. | 42323 | *Ptilotula keartlandi (Grey-headed Honeyeater)* | | | |
| 166. | 24278 | *Pyrrholaemus brunneus (Redthroat)* | | | |
| 167. | 48096 | *Rhipidura albiscapa (Grey Fantail)* | | | |
| 168. | 25614 | *Rhipidura leucophrys (Willie Wagtail)* | | | |
| 169. | 24454 | *Rhipidura leucophrys subsp. leucophrys (Willie Wagtail)* | | | |
| 170. | 24457 | *Rhipidura phasiana (Mangrove Grey Fantail)* | | | |
| 171. | 30948 | *Smicrornis brevirostris (Weebill)* | | | |
| 172. | 24521 | *Sterna bengalensis (Lesser Crested Tern)* | | | |
| 173. | 25640 | *Sterna dougallii (Roseate Tern)* | | IA | |
| 174. | 25642 | *Sterna hirundo (Common Tern)* | | IA | |
| 175. | 48593 | *Sternula albifrons (Little Tern)* | | IA | |
| 176. | 48594 | *Sternula nereis (Fairy Tern)* | | | |

| | Name ID | Species Name | Naturalised | Conservation Code | [1]Endemic To Query Area |
|---|---|---|---|---|---|
| 177. | 25656 | *Stipiturus ruficeps (Rufous-crowned Emu-wren)* | | | |
| 178. | 25590 | *Streptopelia senegalensis (Laughing Turtle-Dove)* | Y | | |
| 179. | 25705 | *Tachybaptus novaehollandiae (Australasian Grebe, Black-throated Grebe)* | | | |
| 180. | 30870 | *Taeniopygia guttata (Zebra Finch)* | | | |
| 181. | 34007 | *Thalassarche chlororhynchos (Atlantic Yellow-nosed Albatross)* | | T | |
| 182. | | *Thalasseus bengalensis* | | | |
| 183. | 48597 | *Thalasseus bergii (Crested Tern)* | | IA | |
| 184. | 24845 | *Threskiornis spinicollis (Straw-necked Ibis)* | | | |
| 185. | 24306 | *Todiramphus chloris subsp. pilbara (Pilbara Collared Kingfisher)* | | | |
| 186. | 42351 | *Todiramphus pyrrhopygius (Red-backed Kingfisher)* | | | |
| 187. | 25549 | *Todiramphus sanctus (Sacred Kingfisher)* | | | |
| 188. | 48141 | *Tribonyx ventralis (Black-tailed Native-hen)* | | | |
| 189. | 24803 | *Tringa brevipes (Grey-tailed Tattler)* | | P4 | |
| 190. | 24806 | *Tringa glareola (Wood Sandpiper)* | | IA | |
| 191. | 24808 | *Tringa nebularia (Common Greenshank, greenshank)* | | IA | |
| 192. | 24809 | *Tringa stagnatilis (Marsh Sandpiper, little greenshank)* | | IA | |
| 193. | 24851 | *Turnix velox (Little Button-quail)* | | | |
| 194. | 24386 | *Vanellus tricolor (Banded Lapwing)* | | | |
| 195. | 41351 | *Xenus cinereus (Terek Sandpiper)* | | IA | |
| 196. | 25765 | *Zosterops lateralis (Grey-breasted White-eye, Silvereye)* | | | |
| 197. | 24857 | *Zosterops luteus (Yellow White-eye)* | | | |
| 198. | | *Zosterops luteus subsp. balstoni* | | | |

## Fish

| | | | | | |
|---|---|---|---|---|---|
| 199. | | *? ?* | | | |
| 200. | | *Abudefduf bengalensis* | | | |
| 201. | | *Acanthocepola abbreviata* | | | |
| 202. | | *Acanthopagrus latus* | | | |
| 203. | | *Adventor elongatus* | | | |
| 204. | | *Albula forsteri* | | | |
| 205. | | *Alectis ciliaris* | | | |
| 206. | | *Alectis indica* | | | |
| 207. | | *Alepes apercna* | | | |
| 208. | | *Ambassis vachellii* | | | |
| 209. | | *Amblyeleotris wheeleri* | | | |
| 210. | | *Amblygobius phalaena* | | | |
| 211. | | *Anacanthus barbatus* | | | |
| 212. | | *Apistus carinatus* | | | |
| 213. | | *Apogon argyrogaster* | | | |
| 214. | | *Apogon brevicaudatus* | | | |
| 215. | | *Apogon fasciatus* | | | |
| 216. | | *Apogon nigripinnis* | | | |
| 217. | | *Apogon pallidofasciatus* | | | |
| 218. | | *Apogon poecilopterus* | | | |
| 219. | | *Apogon rueppellii* | | | |
| 220. | | *Apogon septemstriatus* | | | |
| 221. | | *Apogon sp.* | | | |
| 222. | | *Argyrosomus japonicus* | | | |
| 223. | | *Arius thalassinus* | | | |
| 224. | | *Arothron stellatus* | | | |
| 225. | | *Aseraggodes sp.* | | | |
| 226. | | *Aseraggodes whitleyi* | | | |
| 227. | | *Assiculus punctatus* | | | |
| 228. | | *Asterropteryx semipunctatus* | | | |
| 229. | | *Atelomycterus fasciatus* | | | |
| 230. | | *Atherinomorus vaigiensis* | | | |
| 231. | | *Bathygobius fuscus* | | | |
| 232. | | *Batrachomoeus sp.* | | | |
| 233. | | *Belone sp.* | | | |
| 234. | | *Bodianus bilunulatus* | | | |
| 235. | | *Brachysomophis cirrocheilos* | | | |
| 236. | | *Callionymus grossi* | | | |
| 237. | | *Callionymus sublaevis* | | | |
| 238. | | *Cantherhines pardalis* | | | |
| 239. | | *Canthigaster coronata* | | | |
| 240. | | *Carangoides caeruleopinnatus* | | | |
| 241. | | *Carangoides chrysophrys* | | | |
| 242. | | *Carangoides coeruleopinnatus* | | | |
| 243. | | *Carangoides hedlandensis* | | | |
| 244. | | *Carangoides humerosus* | | | |
| 245. | | *Carangoides malabaricus* | | | |

| | Name ID | Species Name | Naturalised | Conservation Code | [1]Endemic To Query Area |
|---|---|---|---|---|---|
| 246. | | *Carangoides talamparoides* | | | |
| 247. | | *Caranx bucculentus* | | | |
| 248. | | *Caranx sexfasciatus* | | | |
| 249. | | *Carcharhinus cautus* | | | |
| 250. | | *Carcharhinus sp.* | | | |
| 251. | 34031 | *Carcharodon carcharias (Great White Shark)* | | T | |
| 252. | | *Centriscus cristatus* | | | |
| 253. | | *Centriscus scutatus* | | | |
| 254. | | *Centrogenys vaigiensis* | | | |
| 255. | | *Centrolophus niger* | | | |
| 256. | | *Centropyge eibli* | | | |
| 257. | | *Cephalopholis boenak* | | | |
| 258. | | *Cephalopholis sonnerati* | | | |
| 259. | | *Chaetodermis penicilligera* | | | |
| 260. | | *Chaetodon adiergastos* | | | |
| 261. | | *Chaetodon assarius* | | | |
| 262. | | *Chaetodon punctatofasciatus* | | | |
| 263. | | *Chaetodon trifascialis* | | | |
| 264. | | *Chaetodontoplus duboulayi* | | | |
| 265. | | *Cheilinus chlorourus* | | | |
| 266. | | *Chelmon marginalis* | | | |
| 267. | | *Chelonodon patoca* | | | |
| 268. | | *Chirocentrus dorab* | | | |
| 269. | | *Choerodon cauteroma* | | | |
| 270. | | *Choerodon cephalotes* | | | |
| 271. | | *Choerodon sp.* | | | |
| 272. | | *Choerodon vitta* | | | |
| 273. | | *Cirrhitus pinnulatus* | | | |
| 274. | | *Conger cinereus* | | | |
| 275. | | *Congrogadus malayanus* | | | |
| 276. | | *Congrogadus spinifer* | | | |
| 277. | | *Coradion chrysozonus* | | | |
| 278. | | *Coryphaena hippurus* | | | |
| 279. | | *Craterocephalus mugiloides* | | | |
| 280. | | *Craterocephalus pauciradiatus* | | | |
| 281. | | *Ctenochaetus strigosus* | | | |
| 282. | | *Cymbacephalus nematophthalmus* | | | |
| 283. | | *Cynoglossus sp.* | | | |
| 284. | | *Dactyloptena orientalis* | | | |
| 285. | | *Dactyloptena papilio* | | | |
| 286. | | *Dactylopus dactylopus* | | | |
| 287. | | *Dasyatis kuhlii* | | | |
| 288. | | *Decapterus macrosoma* | | | |
| 289. | | *Decapterus russelli* | | | |
| 290. | | *Dendrochirus brachypterus* | | | |
| 291. | | *Dexillus muelleri* | | | |
| 292. | | *Diodon sp.* | | | |
| 293. | | *Echeneis naucrates* | | | |
| 294. | | *Elops hawaiensis* | | | |
| 295. | | *Engyprosopon sp.* | | | |
| 296. | | *Enneapterygius gracilis* | | | |
| 297. | | *Epinephelus bilobatus* | | | |
| 298. | | *Epinephelus coioides* | | | |
| 299. | | *Epinephelus rivulatus* | | | |
| 300. | | *Epinephelus sexfasciatus* | | | |
| 301. | | *Epinephelus sp.* | | | |
| 302. | | *Equulites moretoniensis* | | | |
| 303. | | *Eubalichthys caeruleoguttatus* | | | |
| 304. | | *Euristhmus nudiceps* | | | |
| 305. | | *Eviota sp.* | | | |
| 306. | | *Fistularia petimba* | | | |
| 307. | | *Foa sp.* | | | Y |
| 308. | | *Gambusia holbrooki* | | | |
| 309. | | *Gazza minuta* | | | |
| 310. | | *Gerres oblongus?* | | | Y |
| 311. | | *Gerres sp.* | | | |
| 312. | | *Gerres subfasciatus* | | | |
| 313. | | *Glaucosoma magnificum* | | | |
| 314. | | *Gnathanodon speciosus* | | | |
| 315. | | *Gobiodon axillaris* | | | |

| | Name ID | Species Name | Naturalised | Conservation Code | [1]Endemic To Query Area |
|---|---|---|---|---|---|
| 316. | | *Grammatobothus polyophthalmus* | | | |
| 317. | | *Gymnocranius griseus* | | | |
| 318. | | *Gymnothorax pseudothyrsoideus* | | | |
| 319. | | *Gymnothorax undulatus* | | | |
| 320. | | *Gymnura australis* | | | |
| 321. | | *Halicampus spinirostris* | | | Y |
| 322. | | *Halichoeres melanochir* | | | |
| 323. | | *Halophryne diemensis* | | | |
| 324. | | *Halophryne ocellatus* | | | |
| 325. | | *Hemigaleus sp.* | | | |
| 326. | | *Heniochus acuminatus* | | | |
| 327. | | *Herklotsichthys blackburni* | | | |
| 328. | | *Herklotsichthys koningsbergeri* | | | |
| 329. | | *Hologymnosus annulatus* | | | |
| 330. | | *Hypoatherina temminckii* | | | |
| 331. | | *Ichthyscopus insperatus* | | | |
| 332. | | *Inegocia japonica* | | | |
| 333. | | *Inimicus sinensis* | | | |
| 334. | | *Istiblennius edentulus* | | | |
| 335. | | *Istiblennius meleagris* | | | |
| 336. | | *Istiophorus platypterus* | | | |
| 337. | | *Lactoria cornuta* | | | |
| 338. | | *Lactoria fornasini* | | | |
| 339. | | *Lagocephalus sceleratus* | | | |
| 340. | | *Leiognathus bindus* | | | |
| 341. | | *Leiognathus leuciscus* | | | |
| 342. | | *Leiognathus sp.* | | | |
| 343. | | *Lepidotrigla sp.* | | | |
| 344. | | *Leptoscarus vaigiensis* | | | |
| 345. | | *Lethrinus genivittatus* | | | |
| 346. | | *Lethrinus laticaudis* | | | |
| 347. | | *Lethrinus miniatus* | | | |
| 348. | | *Lethrinus nebulosus* | | | |
| 349. | | *Lethrinus punctulatus* | | | |
| 350. | | *Lethrinus rubrioperculatus* | | | |
| 351. | | *Liachirus whitleyi* | | | Y |
| 352. | | *Liocranium praepositum* | | | |
| 353. | | *Liza alata* | | | |
| 354. | | *Liza sp.* | | | |
| 355. | | *Lophiocharon trisignatus* | | | |
| 356. | | *Lutjanus carponotatus* | | | |
| 357. | | *Lutjanus fulviflamma* | | | |
| 358. | | *Lutjanus malabaricus* | | | |
| 359. | | *Lutjanus vitta* | | | |
| 360. | | *Megalaspis cordyla* | | | |
| 361. | | *Mene maculata* | | | |
| 362. | | *Metavelifer multiradiatus* | | | |
| 363. | | *Microcanthus strigatus* | | | |
| 364. | 34025 | *Milyeringa veritas (Cave Gudgeon, Blind Gudgeon)* | | T | |
| 365. | | *Minous sp.* | | | |
| 366. | | *Minous versicolor* | | | |
| 367. | | *Monacanthus chinensis* | | | |
| 368. | | *Monocentris japonicus* | | | |
| 369. | | *Mugil cephalus* | | | |
| 370. | | *Narcine westraliensis* | | | |
| 371. | | *Nectamia savayensis* | | | |
| 372. | | *Nemipterus peronii* | | | |
| 373. | | *Notograptus guttatus* | | | |
| 374. | | *Omobranchus germaini* | | | |
| 375. | | *Omobranchus rotundiceps* | | | |
| 376. | | *Ophichthus celebicus?* | | | |
| 377. | 34038 | *Ophisternon candidum (Blind Cave Eel)* | | T | |
| 378. | | *Opistognathus darwiniensis* | | | |
| 379. | | *Opistognathus inornatus* | | | |
| 380. | | *Oplopomus sp.* | | | Y |
| 381. | | *Paracentropogon vespa* | | | |
| 382. | | *Parachaetodon ocellatus* | | | |
| 383. | | *Parachaeturichthys polynema* | | | |
| 384. | | *Paramonacanthus choirocephalus* | | | |
| 385. | | *Parapercis diplospilus* | | | |

| | Name ID | Species Name | Naturalised | Conservation Code | [1]Endemic To Query Area |
|---|---|---|---|---|---|
| 386. | | *Parapercis nebulosa* | | | |
| 387. | | *Paraplagusia bilineata* | | | |
| 388. | | *Paraplotosus albilabris* | | | |
| 389. | | *Parascolopsis sp.* | | | |
| 390. | | *Parascorpaena picta* | | | |
| 391. | | *Parastromateus niger* | | | |
| 392. | | *Parupeneus sp.* | | | |
| 393. | | *Parupeneus spilurus* | | | |
| 394. | | *Pataecus sp.* | | | |
| 395. | | *Pegasus volitans* | | | |
| 396. | | *Pelates quadrilineatus* | | | |
| 397. | | *Pellona ditchela* | | | |
| 398. | | *Pempheris ypsilychnus* | | | |
| 399. | | *Pentapodus emeryii* | | | |
| 400. | | *Pentapodus porosus* | | | |
| 401. | | *Pentapodus sp.* | | | |
| 402. | | *Pentapodus vitta* | | | |
| 403. | | *Periophthalmus argentilineatus* | | | |
| 404. | | *Peristrominous dolosus* | | | |
| 405. | | *Petroscirtes breviceps* | | | |
| 406. | | *Petroscirtes mitratus* | | | |
| 407. | | *Platax sp.* | | | |
| 408. | | *Platycephalus arenarius* | | | |
| 409. | | *Platycephalus endrachtensis* | | | |
| 410. | | *Plectorhinchus pictus* | | | |
| 411. | | *Plectorhinchus unicolor* | | | |
| 412. | | *Plectropomus maculatus* | | | |
| 413. | | *Plotosus lineatus* | | | |
| 414. | | *Poecilia reticulata* | | | |
| 415. | | *Polydactylus multiradiatus* | | | |
| 416. | | *Polydactylus plebius* | | | |
| 417. | | *Pomacentrus milleri* | | | |
| 418. | | *Pomacentrus moluccensis* | | | |
| 419. | | *Pomacentrus sp.* | | | |
| 420. | | *Pomacentrus vaiuli* | | | |
| 421. | | *Pomadasys argenteus* | | | |
| 422. | | *Pomadasys maculatus* | | | |
| 423. | | *Priacanthus hamrur* | | | |
| 424. | | *Priacanthus tayenus* | | | |
| 425. | | *Priolepis nuchifasciata* | | | |
| 426. | 34037 | *Pristis zijsron (Green Sawfish)* | | T | |
| 427. | | *Pristotis obtusirostris* | | | |
| 428. | | *Psammodiscus ocellatus* | | | |
| 429. | | *Psammoperca waigiensis* | | | |
| 430. | | *Psettodes erumei* | | | |
| 431. | | *Pseudocalliurichthys goodladi* | | | |
| 432. | | *Pseudocaranx dentex* | | | |
| 433. | | *Pseudochromis fuscus* | | | |
| 434. | | *Pseudomonacanthus peroni* | | | |
| 435. | | *Pseudorhombus arsius* | | | |
| 436. | | *Pseudorhombus jenynsii* | | | |
| 437. | | *Pseudorhombus sp.* | | | |
| 438. | | *Pteragogus enneacanthus* | | | |
| 439. | | *Pterapogon mirifica* | | | |
| 440. | | *Ptereleotris evides* | | | |
| 441. | | *Pterois antennata* | | | |
| 442. | | *Pterois russelli* | | | |
| 443. | | *Pterois volitans* | | | |
| 444. | | *Rachycentron canadum* | | | |
| 445. | | *Ranzania laevis* | | | |
| 446. | | *Rastrelliger kanagurta* | | | |
| 447. | 42358 | *Rhincodon typus (Whale Shark)* | | S | |
| 448. | | *Rhynchobatus djiddensis* | | | |
| 449. | | *Rhynchostracion nasus* | | | |
| 450. | | *Salarias fasciatus* | | | |
| 451. | | *Salarias sexfilum* | | | |
| 452. | | *Saurida argentea* | | | |
| 453. | | *Saurida nebulosa* | | | |
| 454. | | *Saurida undosquamis* | | | |
| 455. | | *Scaevius milii* | | | |

| | Name ID | Species Name | Naturalised | Conservation Code | [1]Endemic To Query Area |
|---|---|---|---|---|---|
| 456. | | *Scolopsis sp.* | | | |
| 457. | | *Scolopsis taenioptera* | | | |
| 458. | | *Scomberoides lysan* | | | |
| 459. | | *Scomberomorus queenslandicus* | | | |
| 460. | | *Secutor insidiator* | | | |
| 461. | | *Secutor interruptus* | | | |
| 462. | | *Selar sp.* | | | |
| 463. | | *Selaroides leptolepis* | | | |
| 464. | | *Selenotoca multifasciata* | | | |
| 465. | | *Seriolina nigrofasciata* | | | |
| 466. | | *Siganus fuscescens* | | | |
| 467. | | *Siganus sp.* | | | |
| 468. | | *Siganus spinus* | | | |
| 469. | | *Sillago analis* | | | |
| 470. | | *Sillago burrus* | | | |
| 471. | | *Sillago lutea* | | | |
| 472. | | *Sillago maculata* | | | |
| 473. | | *Sillago sp.* | | | |
| 474. | | *Sphyraena barracuda* | | | |
| 475. | | *Sphyraena obtusata* | | | |
| 476. | | *Stethojulis bandanensis* | | | |
| 477. | | *Stethojulis strigiventer* | | | |
| 478. | | *Suggrundus sp.* | | | |
| 479. | | *Synodus hoshinonis?* | | | Y |
| 480. | | *Synodus sp.* | | | |
| 481. | | *Synodus variegatus* | | | |
| 482. | | *Taenioides buchanani* | | | Y |
| 483. | | *Terapon jarbua* | | | |
| 484. | | *Terapon puta* | | | |
| 485. | | *Terapon theraps* | | | |
| 486. | | *Thryssa hamiltonii* | | | |
| 487. | | *Thryssa mystax?* | | | |
| 488. | | *Thryssa setirostris* | | | |
| 489. | | *Torquigener pallimaculatus* | | | |
| 490. | | *Torquigener tuberculiferus* | | | |
| 491. | | *Torquigener whitleyi* | | | |
| 492. | | *Trachinocephalus myops* | | | |
| 493. | | *Trachinotus blochii* | | | |
| 494. | | *Trachurus novaezelandiae* | | | |
| 495. | | *Tragulichthys jaculiferus* | | | |
| 496. | | *Tragulichthys sp.* | | | Y |
| 497. | | *Triacanthus biaculeatus* | | | |
| 498. | | *Triacanthus sp.* | | | |
| 499. | | *Trichiurus sp.* | | | |
| 500. | | *Upeneus sp.* | | | |
| 501. | | *Upeneus tragula* | | | |
| 502. | | *Upeneus vittatus* | | | |
| 503. | | *Uraspis secunda* | | | Y |
| 504. | | *Valamugil buchanani* | | | |
| 505. | | *Valenciennea muralis* | | | |
| 506. | | *Velifer hypselopterus* | | | |
| 507. | | *Xenojulis margaritaceous* | | | |
| 508. | | *Xiphasia setifer* | | | |
| 509. | | *Yongeichthys criniger* | | | |
| 510. | | *Yongeichthys nebulosus* | | | |
| 511. | | *Zabidius novemaculeatus* | | | |
| 512. | | *Zebrias cancellatus* | | | |
| 513. | | *Zebrias quagga* | | | |
| **Invertebrate** | | | | | |
| 514. | | *Amblyomma triguttatum* | | | |
| 515. | | *Anapistula troglobia* | | | |
| 516. | | *Antichiropus sp.* | | | |
| 517. | | *Argiope trifasciata* | | | |
| 518. | | *Asadipus cape* | | | |
| 519. | | *Australoschendyla capensis* | | | |
| 520. | | *Austrochthonius easti* | | | |
| 521. | | *Backobourkia collina* | | | |
| 522. | 33905 | *Bamazomus subsolanus (Eastern Cape Range Bamazomus)* | | T | |
| 523. | 33906 | *Bamazomus vespertinus (Western Cape Range Bamazomus)* | | T | Y |
| 524. | | *Bengalla bertmaini* | | | |

| | Name ID | Species Name | Naturalised | Conservation Code | [1]Endemic To Query Area |
|---|---|---|---|---|---|
| 525. | | *Boreohesperus capensis* | | | |
| 526. | | *Chthiononetes tenuis* | | | |
| 527. | | *Cormocephalus aurantiipes* | | | |
| 528. | | *Cormocephalus strigosus* | | | |
| 529. | | *Cosmophasis baehrae* | | | |
| 530. | | *Crossopriza lyoni* | | | |
| 531. | | *Cryptoerithus harveyi* | | | |
| 532. | | *Dampetrus isolatus* | | | Y |
| 533. | 33907 | *Draculoides brooksi (Northern Cape Range Draculoides)* | | T | Y |
| 534. | 33909 | *Draculoides julianneae (Western Cape Range Draculoides)* | | T | Y |
| 535. | 33915 | *Draculoides vinei (Cape Range Draculoides)* | | | |
| 536. | | *Dunedinia occidentalis* | | | Y |
| 537. | | *Ethmostigmus rubripes* | | | |
| 538. | | *Euasteron ursulae* | | | |
| 539. | | *Glennhuntia glennhunti* | | | Y |
| 540. | | *Heteropoda hermitis* | | | |
| 541. | | *Heurodes turritus* | | | |
| 542. | | *Hoggicosa snelli* | | | |
| 543. | | *Ideoblothrus woodi* | | | Y |
| 544. | 34145 | *Indohya damocles (Cameron's Cave Pseudoscorpion)* | | T | Y |
| 545. | | *Indohya humphreysi* | | | |
| 546. | | *Indolpium sp.* | | | |
| 547. | | *Isopedella tindalei* | | | |
| 548. | | *Jalmenus clementi* | | | Y |
| 549. | | *Lampona quinqueplagiata* | | | |
| 550. | | *Lamponina scutata* | | | |
| 551. | | *Latrodectus hasseltii* | | | |
| 552. | | *Leptasteron platyconductor* | | | |
| 553. | | *Masasteron sampeyae* | | | |
| 554. | | *Missulena occatoria* | | | |
| 555. | | *Nephila edulis* | | | |
| 556. | 33985 | *Nocticola flabella (Cape Range delicate cockroach, Cape Range Blind Cockroach)* | | P4 | Y |
| 557. | | *Nomindra leeuweni* | | | |
| 558. | | *Notsodipus bidgemia* | | | |
| 559. | | *Notsodipus capensis* | | | |
| 560. | | *Oreo capensis* | | | |
| 561. | | *Ornithodoros gurneyi* | | | |
| 562. | | *Prethopalpus alexanderi* | | | Y |
| 563. | | *Pseudolampona marun* | | | |
| 564. | | *Rhagada capensis* | | | |
| 565. | | *Scolopendra morsitans* | | | |
| 566. | | *Storena sinuosa* | | | |
| 567. | 33963 | *Stygiocaris lancifera (Lance-beaked Cave Shrimp)* | | T | |
| 568. | 33964 | *Stygiocaris stylifera (Spear-beaked Cave Shrimp)* | | P4 | |
| 569. | | *Stygiochiropus communis* | | | |
| 570. | 33967 | *Stygiochiropus isolatus (a stygiochiropus millipede (Cape Range), millipede)* | | T | Y |
| 571. | 33968 | *Stygiochiropus peculiaris (Cameron's Cave Millipede)* | | T | Y |
| 572. | 33969 | *Stygiochiropus sympatricus (a stygiochiropus millipede (Cape Range), millipede)* | | T | Y |
| 573. | | *Thereuopoda lesueurii* | | | |
| 574. | | *Trachyspina capensis* | | | |
| 575. | | *Trichocyclus nigropunctatus* | | | |
| 576. | | *Trichocyclus septentrionalis* | | | |
| 577. | | *Tyrannochthonius brooksi* | | | |
| 578. | | *Tyrannochthonius butleri* | | | |
| 579. | | *Wandella waldockae* | | | |
| 580. | | *Wesmaldra learmonth* | | | |
| 581. | | *Wydundra kennedy* | | | |
| 582. | | *Yardiella humphreysi* | | | |

## Mammal

| | | | | | |
|---|---|---|---|---|---|
| 583. | 24091 | *Dasykaluta rosamondae (Little Red Kaluta)* | | | |
| 584. | 24084 | *Dugong dugon (Dugong)* | | S | |
| 585. | 24043 | *Eubalaena australis (Southern Right Whale)* | | T | |
| 586. | 24218 | *Leporillus apicalis (Lesser Stick-nest Rat)* | | X | |
| 587. | 24135 | *Macropus robustus subsp. erubescens (Euro, Biggada)* | | | |
| 588. | 24136 | *Macropus rufus (Red Kangaroo, Marlu)* | | | |
| 589. | 24051 | *Megaptera novaeangliae (Humpback Whale)* | | S | |
| 590. | 24222 | *Mesembriomys macrurus (Golden-backed Tree-rat)* | | P4 | |
| 591. | 24213 | *Mirounga leonina (Southern Elephant Seal)* | | | |
| 592. | 24223 | *Mus musculus (House Mouse)* | Y | | |
| 593. | 24095 | *Ningaui timealeyi (Pilbara Ningaui)* | | | |

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|---|---|---|---|---|---|
| 594. | 24224 | *Notomys alexis (Spinifex Hopping-mouse)* | | | |
| 595. | 24142 | *Petrogale lateralis subsp. lateralis (Black-flanked Rock-wallaby, Black-footed Rock-wallaby)* | | T | |
| 596. | 24098 | *Phascogale calura (Red-tailed Phascogale, Kenngoor)* | | S | |
| 597. | 24105 | *Pseudantechinus roryi (Rory's Pseudantechinus)* | | | |
| 598. | 24236 | *Pseudomys fieldi (Shark Bay Mouse, Djoongari)* | | T | |
| 599. | 24237 | *Pseudomys hermannsburgensis (Sandy Inland Mouse)* | | | |
| 600. | 24245 | *Rattus rattus (Black Rat)* | Y | | |
| 601. | 43368 | *Rhinonicteris aurantia (Orange Leaf-nosed bat)* | | P4 | |
| 602. | 24115 | *Sminthopsis longicaudata (Long-tailed Dunnart)* | | P4 | |
| 603. | 24116 | *Sminthopsis macroura (Stripe-faced Dunnart)* | | | |
| 604. | 48107 | *Sousa sahulensis (Australian humpback dolphin)* | | P4 | |
| 605. | 24175 | *Taphozous georgianus (Common Sheath-tailed Bat)* | | | |
| 606. | 30954 | *Tursiops aduncus (Indo-Pacific Bottlenose Dolphin)* | | | |
| 607. | 24205 | *Vespadelus finlaysoni (Finlayson's Cave Bat)* | | | |
| 608. | 24249 | *Zyzomys pedunculatus (Central Rock-rat, Antina)* | | T | |
| **Reptile** | | | | | |
| 609. | 25332 | *Acanthophis wellsi (Pilbara Death Adder)* | | | |
| 610. | 25350 | *Aipysurus apraefrontalis (Short-nosed Seasnake)* | | T | |
| 611. | 25351 | *Aipysurus duboisii (Dubois' Seasnake)* | | | |
| 612. | 25355 | *Aipysurus laevis (Olive Seasnake)* | | | |
| 613. | 30831 | *Amphibolurus gilberti (Ta-ta, Gilbert's Dragon)* | | | |
| 614. | 30833 | *Amphibolurus longirostris (Long-nosed Dragon)* | | | |
| 615. | 44647 | *Anilios splendidus (splendid blind snake (North West Cape), blind snake (Milyering Well))* | | P2 | Y |
| 616. | 25318 | *Antaresia perthensis (Pygmy Python)* | | | |
| 617. | 25241 | *Antaresia stimsoni subsp. stimsoni (Stimson's Python)* | | | |
| 618. | 24992 | *Aprasia rostrata (Ningaloo worm-lizard, Monte Bello Worm-lizard)* | | P3 | |
| 619. | 25320 | *Aspidites melanocephalus (Black-headed Python)* | | | |
| 620. | 25015 | *Carlia munda (Shaded-litter Rainbow Skink)* | | | |
| 621. | 25336 | *Chelonia mydas (Green Turtle)* | | T | |
| 622. | 24919 | *Crenadactylus ocellatus subsp. horni (Clawless Gecko)* | | | |
| 623. | 25020 | *Cryptoblepharus plagiocephalus* | | | |
| 624. | 24872 | *Ctenophorus femoralis (Dune Dragon)* | | | |
| 625. | 24876 | *Ctenophorus isolepis subsp. isolepis (Crested Dragon, Military Dragon)* | | | |
| 626. | 24882 | *Ctenophorus nuchalis (Central Netted Dragon)* | | | |
| 627. | 30897 | *Ctenophorus parviceps (Western Heath Dragon, Northern Heath Dragon)* | | | |
| 628. | 24886 | *Ctenophorus reticulatus (Western Netted Dragon)* | | | |
| 629. | 25043 | *Ctenotus grandis subsp. titan* | | | |
| 630. | 25044 | *Ctenotus hanloni* | | | |
| 631. | 25046 | *Ctenotus iapetus* | | | |
| 632. | 25048 | *Ctenotus inornatus* | | | |
| 633. | 25463 | *Ctenotus pantherinus (Leopard Ctenotus)* | | | |
| 634. | 25064 | *Ctenotus pantherinus subsp. ocellifer (Leopard Ctenotus)* | | | |
| 635. | 25069 | *Ctenotus rufescens* | | | |
| 636. | 25073 | *Ctenotus saxatilis (Rock Ctenotus)* | | | |
| 637. | 25090 | *Cyclodomorphus melanops subsp. melanops (Slender Blue-tongue)* | | | |
| 638. | | *Cyclodomorphus sp.* | | | |
| 639. | 24995 | *Delma australis* | | | |
| 640. | 25001 | *Delma nasuta* | | | |
| 641. | 30829 | *Delma tealei* | | | |
| 642. | 25004 | *Delma tincta* | | | |
| 643. | 25292 | *Demansia calodera (Black-necked Whipsnake)* | | | |
| 644. | 25295 | *Demansia psammophis subsp. cupreiceps (Yellow-faced Whipsnake)* | | | |
| 645. | 34146 | *Diplodactylus capensis (Cape Range Stone Gecko)* | | P2 | |
| 646. | 24926 | *Diplodactylus conspicillatus (Fat-tailed Gecko)* | | | |
| 647. | 24938 | *Diplodactylus ornatus* | | | |
| 648. | 25362 | *Ephalophis greyae* | | | |
| 649. | 43381 | *Eremiascincus pallidus (Western Narrow-banded Skink, Narrow-banded Sand Swimmer)* | | | |
| 650. | 25109 | *Eremiascincus richardsonii (Broad-banded Sand Swimmer)* | | | |
| 651. | 25301 | *Furina ornata (Moon Snake)* | | | |
| 652. | 24956 | *Gehyra pilbara* | | | |
| 653. | 24959 | *Gehyra variegata* | | | |
| 654. | 24961 | *Heteronotia binoei (Bynoe's Gecko)* | | | |
| 655. | 44656 | *Hydrophis major (Olive-headed seasnake, greater seasnake)* | | | |
| 656. | 42410 | *Hydrophis ornatus (Ornate Reef Seasnake, Sea Snake)* | | | |
| 657. | 43385 | *Hydrophis stokesii (Stoke's Seasnake, Sea Snake)* | | | |
| 658. | 25120 | *Lerista allochira (Cape Range Slider)* | | P3 | |
| 659. | 25125 | *Lerista bipes* | | | |

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|---|---|---|---|---|---|
| 660. | 30928 | *Lerista clara* | | | |
| 661. | 25133 | *Lerista elegans* | | | |
| 662. | 25148 | *Lerista lineopunctulata* | | | |
| 663. | 25482 | *Lerista macropisthopus* | | | |
| 664. | 25151 | *Lerista macropisthopus subsp. fusciceps* | | | |
| 665. | 25163 | *Lerista planiventralis subsp. planiventralis* | | | |
| 666. | 25005 | *Lialis burtonis* | | | |
| 667. | 30933 | *Lucasium stenodactylum* | | | |
| 668. | 25184 | *Menetia greyii* | | | |
| 669. | 25491 | *Menetia surda* | | | |
| 670. | 25191 | *Morethia lineoocellata* | | | |
| 671. | 25193 | *Morethia ruficauda subsp. exquisita* | | | |
| 672. | 24968 | *Nephrurus levis subsp. occidentalis* | | | |
| 673. | 24907 | *Pogona minor subsp. minor (Dwarf Bearded Dragon)* | | | |
| 674. | 25261 | *Pseudechis australis (Mulga Snake)* | | | |
| 675. | 42416 | *Pseudonaja mengdeni (Western Brown Snake)* | | | |
| 676. | 25263 | *Pseudonaja modesta (Ringed Brown Snake)* | | | |
| 677. | 25009 | *Pygopus nigriceps* | | | |
| 678. | 25266 | *Simoselaps bertholdi (Jan's Banded Snake)* | | | |
| 679. | 25267 | *Simoselaps littoralis (West Coast Banded Snake)* | | | |
| 680. | 24924 | *Strophurus ciliaris subsp. aberrans* | | | |
| 681. | 24927 | *Strophurus elderi* | | | |
| 682. | 24941 | *Strophurus rankini* | | | |
| 683. | 24946 | *Strophurus strophurus* | | | |
| 684. | 25269 | *Suta fasciata (Rosen's Snake)* | | | |
| 685. | 25202 | *Tiliqua multifasciata (Central Blue-tongue)* | | | |
| 686. | 25207 | *Tiliqua rugosa subsp. rugosa* | | | |
| 687. | 25209 | *Varanus acanthurus (Spiny-tailed Monitor)* | | | |
| 688. | 25210 | *Varanus brevicauda (Short-tailed Pygmy Monitor)* | | | |
| 689. | 25216 | *Varanus giganteus (Perentie)* | | | |
| 690. | 25526 | *Varanus tristis (Racehorse Monitor)* | | | |

**Conservation Codes**
T - Rare or likely to become extinct
X - Presumed extinct
IA - Protected under international agreement
S - Other specially protected fauna
1 - Priority 1
2 - Priority 2
3 - Priority 3
4 - Priority 4
5 - Priority 5

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

# Appendix D

## Flora survey data

Flora inventory list

Quadrat and relevé data

Species matrix

Flora likelihood of occurrence

Threatened and Priority flora report forms

*Flora species list recorded within the survey area*

| Family | Taxon | Status |
|---|---|---|
| Acanthaceae | *Dipteracanthus australasicus* subsp. *australasicus* | |
| Amaranthaceae | *Aerva javanica* | * |
| Amaranthaceae | *Ptilotus exaltatus* | |
| Amaranthaceae | *Ptilotus obovatus* | |
| Amaranthaceae | *Ptilotus polystachyus* | |
| Amaranthaceae | *Ptilotus* sp. | |
| Apocynaceae | *Cynanchum viminale* subsp. *australe* | |
| Asparagaceae | *Acanthocarpus rupestris* | P2 |
| Asparagaceae | *Acanthocarpus verticillatus* | |
| Asteraceae | *Bidens bipinnata* | * |
| Asteraceae | *Pluchea* sp. | |
| Asteraceae | *Pterocaulon sphacelatum* | |
| Asteraceae | *Streptoglossa decurrens* | |
| Boraginaceae | *Euploca inexplicita* | |
| Boraginaceae | *Heliotropium crispatum* | |
| Boraginaceae | *Trichodesma zeylanicum* | |
| Capparaceae | *Capparis lasiantha* | |
| Chenopodiaceae | *Chenopodium gaudichaudianum* | |
| Chenopodiaceae | *Enchylaena tomentosa* var. *tomentosa* | |
| Chenopodiaceae | *Rhagodia eremaea* | |
| Chenopodiaceae | *Salsola australis* | |
| Cleomaceae | *Arivela viscosa* | |
| Commelinaceae | *Commelina ensifolia* | |
| Convolvulaceae | *Duperreya commixta* | |
| Convolvulaceae | *Evolvulus alsinoides* var. *villosicalyx* | |
| Convolvulaceae | *Ipomoea costata* | |
| Convolvulaceae | *Polymeria ambigua* | |
| Cucurbitaceae | *Cucumis variabilis* | |
| Cyperaceae | *Cyperus squarrosus* | |
| Cyperaceae | *Cyperus vaginatus* | |
| Cyperaceae | *Fimbristylis dichotoma* | RE |
| Euphorbiaceae | *Adriana tomentosa* subsp. *tomentosa* | |
| Euphorbiaceae | *Euphorbia australis* var. *australis* | |
| Euphorbiaceae | *Euphorbia biconvexa* | |
| Euphorbiaceae | *Euphorbia myrtoides* | |
| Euphorbiaceae | *Euphorbia tannensis* subsp. *eremophila* | |
| Euphorbiaceae | *Mallotus nesophilus* | |
| Fabaceae | *Acacia alexandri* | P3 |
| Fabaceae | *Acacia arida* | |
| Fabaceae | *Acacia bivenosa* | |

| Family | Taxon | Status |
|---|---|---|
| Fabaceae | *Acacia coriacea* subsp. *coriacea* | |
| Fabaceae | *Acacia gregorii* | |
| Fabaceae | *Acacia pyrifolia* | |
| Fabaceae | *Acacia synchronicia* | |
| Fabaceae | *Acacia tetragonophylla* | |
| Fabaceae | *Erythrina vespertilio* | |
| Fabaceae | *Glycine canescens* | |
| Fabaceae | *Indigofera linnaei* | |
| Fabaceae | *Indigofera monophylla* | |
| Fabaceae | *Isotropis atropurpurea* | |
| Fabaceae | *Leptosema macrocarpum* | |
| Fabaceae | *Rhynchosia minima* | |
| Fabaceae | *Senna artemisioides* subsp. *oligophylla* | |
| Fabaceae | *Senna glutinosa* subsp. *glutinosa* | |
| Fabaceae | *Senna glutinosa* subsp. *x luerssenii* | |
| Fabaceae | *Senna notabilis* | |
| Fabaceae | *Tephrosia supina* | |
| Fabaceae | *Vachellia farnesiana* | * |
| Fabaceae | *Vigna* sp. Hamersley Clay (A.A. Mitchell PRP 113) | |
| Gentianaceae | *Schenkia australis* | |
| Goodeniaceae | *Dampiera incana* var. *incana* | |
| Goodeniaceae | *Goodenia ?tenuiloba* | |
| Goodeniaceae | *Leschenaultia subcymosa* | |
| Goodeniaceae | *Scaevola spinescens* | |
| Goodeniaceae | *Scaevola tomentosa* | |
| Gyrostemonaceae | *Codonocarpus cotinifolius* | |
| Lamiaceae | *Clerodendrum tomentosum* var. *lanceolatum* | |
| Lauraceae | *Cassytha aurea* var. *aurea* | |
| Loranthaceae | *Amyema preissii* | |
| Malvaceae | *Abutilon cunninghamii* | |
| Malvaceae | *Abutilon fraseri* | |
| Malvaceae | *Abutilon lepidum* | |
| Malvaceae | *Abutilon* sp. | |
| Malvaceae | *Alyogyne pinoniana* | |
| Malvaceae | *Brachychiton obtusilobus* | P4 |
| Malvaceae | *Corchorus ?congener* | P3 (sterile) |
| Malvaceae | *Corchorus congener* | P3 |
| Malvaceae | *Corchorus crozophorifolius* | |
| Malvaceae | *Gossypium robinsonii* | |
| Malvaceae | *Hannafordia quadrivalvis* subsp. *recurva* | |

| Family | Taxon | Status |
|---|---|---|
| Malvaceae | *Hibiscus* sp. | |
| Malvaceae | *Hibiscus* sp. Gardneri (A.L. Payne PRP 1435) | |
| Malvaceae | *Hibiscus sturtii var. platychlamys* | |
| Malvaceae | *Melhania oblongifolia* | |
| Malvaceae | *Sida arenicola* | |
| Malvaceae | *Sida fibulifera* | |
| Malvaceae | *Triumfetta clementii* | |
| Malvaceae | *Waltheria indica* | |
| Menispermaceae | *Tinospora esiangkara* | P2 |
| Moraceae | *Ficus brachypoda* | |
| Myrtaceae | *Corymbia hamersleyana* | |
| Myrtaceae | *Eucalyptus xerothermica* | |
| Myrtaceae | *Melaleuca cardiophylla* | |
| Nyctaginaceae | *Boerhavia coccinea* | |
| Oleaceae | *Jasminum didymum* | |
| Passifloraceae | *Passiflora foetida* | * |
| Phyllanthaceae | *Lysiandra hamelinii* | |
| Phyllanthaceae | *Nellica maderaspatensis* | |
| Phyllanthaceae | *Phyllanthus tannensis subsp. eremophila* | |
| Pittosporaceae | *Pittosporum phillyreoides* | |
| Plantaginaceae | *Stemodia grossa* | |
| Poaceae | *Cenchrus ciliaris* | * |
| Poaceae | *Chrysopogon fallax* | |
| Poaceae | *Cymbopogon ambiguus* | |
| Poaceae | *Enneapogon caerulescens* | |
| Poaceae | *Eriachne helmsii* | |
| Poaceae | *Eriachne mucronata* | |
| Poaceae | *Eriachne obtusa* | |
| Poaceae | *Eulalia aurea* | |
| Poaceae | *Panicum decompositum* | |
| Poaceae | *Paspalidium clementii* | |
| Poaceae | *Themeda triandra* | |
| Poaceae | *Triodia basedowii* | |
| Poaceae | *Triodia epactia* | |
| Poaceae | *Triodia wiseana* | |
| Proteaceae | *Grevillea calcicola* | P3 |
| Proteaceae | *Hakea lorea* subsp. *lorea* | |
| Pteridaceae | *Cheilanthes austrotenuifolia* | |
| Rubiaceae | *Dolichocarpa crouchiana* | |
| Santalaceae | *Exocarpos aphyllus* | |
| Santalaceae | *Santalum lanceolatum* | |

| Family | Taxon | Status |
|---|---|---|
| Sapindaceae | *Alectryon oleifolius* subsp. *oleifolius* | |
| Sapindaceae | *Diplopeltis eriocarpa* | |
| Sapindaceae | *Dodonaea viscosa* subsp. *mucronata* | |
| Scrophulariaceae | *Eremophila forrestii ?*subsp. *capensis* | P3 |
| Scrophulariaceae | *Eremophila forrestii* subsp. *capensis* | P3 |
| Scrophulariaceae | *Eremophila forrestii* subsp. *forrestii* | |
| Scrophulariaceae | *Eremophila latrobei* subsp. *latrobei* | |
| Scrophulariaceae | *Eremophila longifolia* | |
| Scrophulariaceae | *Eremophila obovatus* | |
| Solanaceae | *Solanum cleistogamum* | |
| Solanaceae | *Solanum diversiflorum* | |
| Solanaceae | *Solanum horridum* | RE |
| Solanaceae | *Solanum lasiophyllum* | |
| Surianaceae | *Stylobasium spathulatum* | |
| Thymelaeaceae | *Pimelea microcephala* subsp. *microcephala* | |
| Violaceae | *Afrohybanthus aurantiacus* | |
| Zygophyllaceae | *Tribulus hirsutus* | |
| Zygophyllaceae | *Tribulus suberosus* | |

| Site ID | EXQ01 | VT: 01 |
|---|---|---|
| Type: | Quadrat | |
| Date: | 10/05/22 | |
| Co-ordinates: | E: 202831 | N: 7570518 |
| Landform and slope: | Rocky sandy plain | |
| Drainage: | Good | |
| Aspect: | Negligible | |
| Soil colour & type: | Orange/brown sandy/loam | |
| Vegetation condition: | Good | |
| Fire age & intensity: | 2-5 yr | |
| Disturbances: | Weeds, fire | |
| Leaf litter (%): | <2% | |
| Bare ground (%): | 30-70% | |

| Site | Taxon | Height (m) | Cover (%) |
|---|---|---|---|
| EXQ01 | *Triodia basedowii* | 0.8 | 35 |
| EXQ01 | *Scaevola spinescens* | 1 | 5 |
| EXQ01 | *Senna glutinosa subsp. x luerssenii* | 1.7 | <2 |
| EXQ01 | *Senna artemidioides subsp. oligophylla* | 0.6 | 3 |

| Site | Taxon | Height (m) | Cover (%) |
|---|---|---|---|
| EXQ01 | *Eremophila longifolia* | 1.4 | <2 |
| EXQ01 | *Acacia bivenosa* | 1.3 | 2-10 |
| EXQ01 | **Cenchrus ciliaris* | 0.4 | 10 |
| EXQ01 | *Evolvulus alsinoides var. villosicalyx* | 0.01 | <2 |
| EXQ01 | *Corchorus congener* | 0.6 | <2 |
| EXQ01 | *Tephrosia supina* | 0.01 | <2 |
| EXQ01 | *Triodia epactia* | 1.1 | 2 |
| EXQ01 | *Ptilotus obovatus* | 0.5 | <2 |
| EXQ01 | *Ptilotus exaltatus* | 0.5 | <2 |
| EXQ01 | *Sida fibulifera* | 0.1 | <2 |
| EXQ01 | *Euphorbia australis var. australis* | - | <2 |
| EXQ01 | *Gossypium robinsonii* | 1.6 | <2 |
| EXQ01 | *Indigofera monophylla* | 0.2 | <2 |
| EXQ01 | *Solanum lasiophyllum* | 0.4 | <2 |
| EXQ01 | *Senna glutinosa subsp. glutinosa* | 0.4 | <2 |
| EXQ01 | *Stylobasium spathulatum* | 1.5 | <2 |
| EXQ01 | *Solanum diversiflorum* | 0.2 | <2 |
| EXQ01 | *Hibiscus sturtii var. platychlamys* | 0.4 | <2 |
| EXQ01 | *Salsola australis* | 0.4 | <2 |
| EXQ01 | *Acacia synchronicia* | 1.3 | <2 |
| EXQ01 | *Scaevola tomentosa* | 0.6 | <2 |
| EXQ01 | *Hakea lorea subsp. lorea* | 2.3 | <2 |
| EXQ01 | *Chrysopogon fallax* | 1.3 | <2 |
| EXQ01 | *Euphorbia biconvexa* | 0.05 | <2 |
| EXQ01 | *Chenopodium gaudichaudianum* | 1 | <2 |
| EXQ01 | *Polymeria ambigua* | 0.05 | <2 |
| EXQ01 | *Melhania oblongifolia* | 0.2 | <2 |
| EXQ01 | *Abutilon fraseri* | 0.2 | <2 |
| EXQ01 | *Indigofera linnaei* | 0.3 | <2 |
| EXQ01 | *Sida arenicola* | 0.3 | <2 |

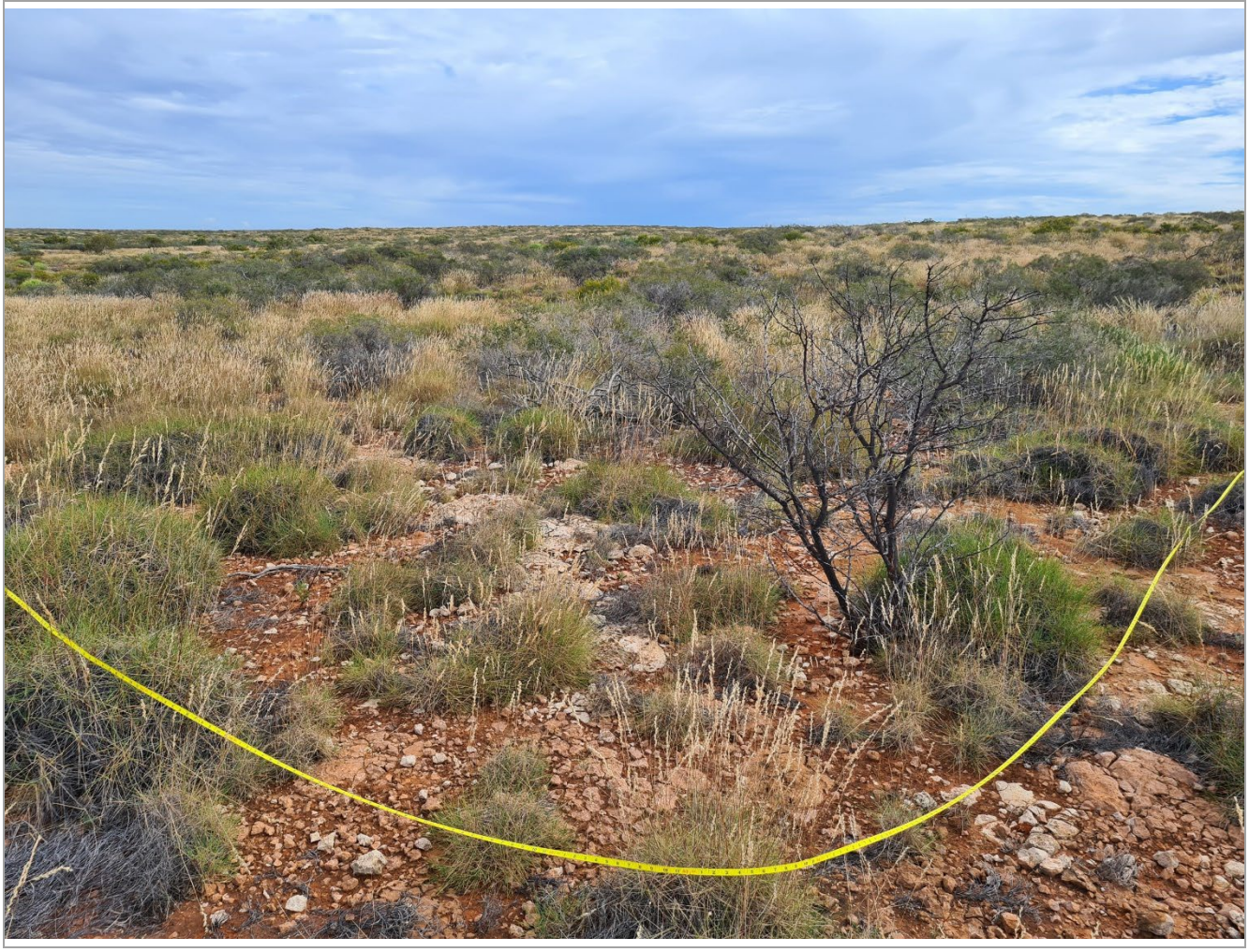
**Quadrat data**

| Site ID | EXQ02 | VT: 02 |
|---|---|---|
| Type: | Quadrat | |
| Date: | 10/05/22 | |
| Co-ordinates: | E: 202320 | N: 7570489 |
| Landform and slope: | Rocky low undulating hills, gentle | |
| Drainage: | Good | |
| Aspect: | East | |
| Soil colour & type: | Orange brown clay/loam, rocky outcropping | |
| Vegetation condition: | Excellent | |
| Fire age & intensity: | Old | |
| Disturbances: | Minimal | |
| Leaf litter (%): | <2% | |
| Bare ground (%): | 10-30% | |

| Site | Taxon | Height (m) | Cover (%) |
|---|---|---|---|
| EXQ02 | *Melaleuca cardiophylla* | 1.6 | 10 |
| EXQ02 | *Triodia basedowii* | 1.1 | 15 |
| EXQ02 | *Solanum diversiflorum* | 0.2 | <2 |

| Site | Taxon | Height (m) | Cover (%) |
|---|---|---|---|
| EXQ02 | *Indigofera monophylla* | 0.2 | <2 |
| EXQ02 | *Afrohybanthus aurantiacus* | 0.3 | <2 |
| EXQ02 | *Streptoglossa decurrens* | 0.4 | <2 |
| EXQ02 | *Eremophila forrestii* subsp. *forrestii* | 0.8 | <2 |
| EXQ02 | *Triumfetta clementii* | 0.2 | <2 |
| EXQ02 | *Leptosema macrocarpum* | 0.4 | 2-10 |
| EXQ02 | *Acacia bivenosa* | 1.7 | <2 |
| EXQ02 | *Eremophila longifolia* | 0.6 | <2 |
| EXQ02 | *Senna glutinosa* subsp. X *luerssenii* | 1.1 | <2 |
| EXQ02 | *Ptilotus polystachyus* | 0.2 | <2 |
| EXQ02 | *Goodenia ?tenuiloba* | 0.4 | <2 |
| EXQ02 | *Solanum sp.* | 0.1 | <2 |
| EXQ02 | *Triodia wiseana* | 1.4 | 25 |
| EXQ02 | *Senna glutinosa* subsp. *glutinosa* | 1.6 | <2 |
| EXQ02 | *Acacia tetragonophylla* | 1.1 | <2 |
| EXQ02 | *Exocarpos aphyllus* | 1.7 | <2 |
| EXQ02 | *Solanum lasiophyllum* | 0.4 | <2 |
| EXQ02 | *Pittosporum phillyreoides* | 1.8 | <2 |
| EXQ02 | *Jasminum didymum* | - | <2 |
| EXQ02 | *Euphorbia myrtoides* | 0.1 | <2 |
| EXQ02 | *Hibiscus* sp. Gardneri (A.L. Payne PRP 1435) | 0.2 | <2 |

| Site ID | EXQ03 | VT: 02 |
|---|---|---|
| Type: | Quadrat | |
| Date: | 10/05/22 | |
| Co-ordinates: | E: 202523 | N: 7570175 |
| Landform and slope: | Low undulating rocky hills | |
| Drainage: | Good | |
| Aspect: | NW | |
| Soil colour & type: | Orange brown clay/loam, >90% rock outcropping | |
| Vegetation condition: | Excellent | |
| Fire age & intensity: | >5 yr | |
| Disturbances: | Minimal | |
| Leaf litter (%): | <2% | |
| Bare ground (%): | 30-70% | |



| Site | Taxon | Height (m) | Cover (%) |
|---|---|---|---|
| EXQ03 | *Melaleuca cardiophylla* | 1.8 | 10-30 |
| EXQ03 | *Triodia basedowii* | 1.2 | 20 |
| EXQ03 | *Triodia wiseana* | 1.1 | 15 |
| EXQ03 | *Solanum diversiflorum* | 0.3 | <2 |

| Site | Taxon | Height (m) | Cover (%) |
|---|---|---|---|
| EXQ03 | *Ptilotus polystachyus* | 0.3 | <2 |
| EXQ03 | *Acacia arida* | 1.6 | 5 |
| EXQ03 | *Triodia epactia* | 1.3 | 10 |
| EXQ03 | *Indigofera monophylla* | 0.3 | <2 |
| EXQ03 | *Solanum lasiophyllum* | 0.4 | <2 |
| EXQ03 | *Lysiandra hamelinii* | 0.4 | <2 |
| EXQ03 | *Hibiscus* sp. Gardneri (A.L. Payne PRP 1435) | 0.3 | <2 |
| EXQ03 | *Eremophila forrestii* subsp. *forrestii* | 0.5 | <2 |
| EXQ03 | *Leptosema macrocarpum* | 0.5 | <2 |
| EXQ03 | *Afrohybanthus aurantiacus* | 0.3 | <2 |
| EXQ03 | *Streptoglossa decurrens* | 0.3 | <2 |
| EXQ03 | *Eremophila longifolia* | 1.5 | <2 |
| EXQ03 | *Senna glutinosa* subsp. *glutinosa* | 1.4 | <2 |
| EXQ03 | *Acacia bivenosa* | 1.4 | <2 |
| EXQ03 | *Cynanchum viminale* subsp. *australe* | 1.4 | <2 |
| EXQ03 | *Panicum decompositum* | 0.3 | <2 |
| EXQ03 | *Acacia tetragonophylla* | 1.8 | <2 |
| EXQ03 | *Pimelea microcephala* subsp. *microcephala* | 1.6 | <2 |
| EXQ03 | *Hibiscus sturtii* var. *platychlamys* | 0.4 | <2 |
| EXQ03 | *Euploca inexplicita* | 0.2 | <2 |
| EXQ03 | *Euphorbia myrtoides* | 0.05 | <2 |

| Site ID | EXQ04 | VT: 04 |
|---|---|---|
| Type: | Quadrat | |
| Date: | 11/05/11 | |
| Co-ordinates: | E: 202479 | N: 7569548 |
| Landform and slope: | Claypan/depression | |
| Drainage: | Poor | |
| Aspect: | Flat | |
| Soil colour & type: | Cracking clay, orange/brown | |
| Vegetation condition: | Good | |
| Fire age & intensity: | Old (>5 yr) | |
| Disturbances: | Weeds | |
| Leaf litter (%): | 2-10% | |
| Bare ground (%): | 30-70% | |

| Site | Taxon | Height (m) | Cover (%) |
|---|---|---|---|
| EXQ04 | *Acacia tetragonophylla* | 2 | 2-10 |
| EXQ04 | *Gossypium robinsonii* | 1.9 | <2 |
| EXQ04 | *Acacia pyrifolia* | 2 | <2 |

| Site | Taxon | Height (m) | Cover (%) |
|---|---|---|---|
| EXQ04 | *Acacia bivenosa* | 1.6 | <2 |
| EXQ04 | *Triodia epactia* | 1 | 25 |
| EXQ04 | *Isotropis atropurpurea* | 0.4 | <2 |
| EXQ04 | *Afrohybanthus aurantiacus* | 0.4 | <2 |
| EXQ04 | *Triumfetta clementii* | 0.3 | <2 |
| EXQ04 | *Pluchea sp.* | 0.3 | <2 |
| EXQ04 | *Vigna sp. Hamersley Clay (A.A. Mitchell PRP 113)* | 0.3 | 2-10 |
| EXQ04 | *Streptoglossa decurrens* | 1.2 | 15 |
| EXQ04 | *Solanum diversiflorum* | 0.4 | <2 |
| EXQ04 | *Sida fibulifera* | 0.2 | 10-30 |
| EXQ04 | *Solanum lasiophyllum* | 0.3 | <2 |
| EXQ04 | *Evolvulus alsinoides var. villosicalyx* | 0.2 | <2 |
| EXQ04 | **Cenchrus ciliaris* | 1 | 2-10 |
| EXQ04 | *Cucumis variabilis* | - | <2 |
| EXQ04 | *Waltheria indica* | 0.6 | <2 |
| EXQ04 | *Senna artemidioides subsp. oligophylla* | 0.5 | <2 |
| EXQ04 | *Corchorus ?congener* | 0.4 | <2 |
| EXQ04 | *Trichodesma zeylanicum* | 1.8 | <2 |
| EXQ04 | *Lysiandra hamelinii* | 0.3 | <2 |
| EXQ04 | *Acacia arida* | 1.9 | <2 |
| EXQ04 | *Goodenia ?tenuiloba* | 0.5 | <2 |
| EXQ04 | *Euphorbia myrtoides* | 0.1 | <2 |
| EXQ04 | *Acacia synchronicea* | 1.4 | <2 |
| EXQ04 | *Ptilotus obovatus* | 1 | <2 |
| EXQ04 | *Eremophila forrestii subsp. forrestii* | 1 | <2 |
| EXQ04 | *Ptilotus polystachyus* | 0.6 | <2 |
| EXQ04 | *Triodia wiseana* | 1.2 | <2 |
| EXQ04 | *Melaleuca cardiophylla* | 1.2 | <2 |
| EXQ04 | *Leptosema macrocarpum* | 0.5 | <2 |
| EXQ04 | *Melhania oblongifolia* | 0.4 | <2 |
| EXQ04 | *Panicum decompositum* | 0.6 | <2 |
| EXQ04 | *Enchylaena tomentosa var. tomentosa* | 1 | <2 |
| EXQ04 | *Scaevola spinescens* | 1.8 | <2 |
| EXQ04 | *Hibiscus sturtii var. platychlamys* | 0.3 | <2 |
| EXQ04 | *Polymeria ambigua* | 0.3 | <2 |
| EXQ04 | *Tephrosia supina* | 0.3 | <2 |

| Site ID | EXQ05 | VT: 01 |
|---|---|---|
| Type: | Quadrat | |
| Date: | 11/05/22 | |
| Co-ordinates: | E: 202890 | N: 7569687 |
| Landform and slope: | Plain / floodplain | |
| Drainage: | Good-poor | |
| Aspect: | Flat | |
| Soil colour & type: | Clay/sand/loam, orange/brown | |
| Vegetation condition: | Poor | |
| Fire age & intensity: | 2-5 yr | |
| Disturbances: | Weed invasion, fire | |
| Leaf litter (%): | 2-10% | |
| Bare ground (%): | 10-30% | |

| Site | Taxon | Height (m) | Cover (%) |
|---|---|---|---|
| EXQ05 | *Corymbia hamersleyana* | 3 | 2-10 |
| EXQ05 | *Acacia bivenosa* | 1.5 | 2-10 |
| EXQ05 | *Senna artemidioides subsp. oligophylla* | 1.2 | <2 |
| EXQ05 | *Solanum lasiophyllum* | 0.7 | <2 |

| Site | Taxon | Height (m) | Cover (%) |
|---|---|---|---|
| EXQ05 | **Cenchrus ciliaris* | 1 | 30-70 |
| EXQ05 | *Ptilotus polystachyus* | 0.5 | <2 |
| EXQ05 | *Ptilotus obovatus* | 1 | <2 |
| EXQ05 | *Triodia epactia* | 1.1 | 2-10 |
| EXQ05 | *Indigofera linnaei* | 0.1 | <2 |
| EXQ05 | *Melhania oblongifolia* | 0.4 | <2 |
| EXQ05 | *Euphorbia biconvexa* | 0.1 | <2 |
| EXQ05 | *Vigna* sp. Hamersley Clay (A.A. Mitchell PRP 113) | 0.3 | <2 |
| EXQ05 | *Acacia synchronicea* | 0.7 | <2 |
| EXQ05 | *Hibiscus sturtii* var. *platychlamys* | 0.5 | <2 |
| EXQ05 | *Trichodesma zeylanicum* | 1.8 | <2 |
| EXQ05 | *Rhagodia eremaea* | 1.6 | <2 |
| EXQ05 | *Rhynchosia minima* | - | <2 |
| EXQ05 | *Glycine canescens* | - | <2 |
| EXQ05 | *Eremophila longifolia* | 1.6 | <2 |
| EXQ05 | *Acacia tetragonophylla* | 1.2 | <2 |
| EXQ05 | *Acacia coriacea* subsp. *coriacea* | 1.9 | <2 |
| EXQ05 | *Lysiandra hamelinii* | 0.6 | <2 |
| EXQ05 | *Isotropis atropurpurea* | 0.7 | <2 |
| EXQ05 | *Acacia pyrifolia* | 1.6 | <2 |
| EXQ05 | *Abutilon fraseri* | 0.5 | <2 |
| EXQ05 | *Triodia wiseana* | 0.9 | <2 |
| EXQ05 | *Afrohybanthus aurantiacus* | 0.4 | <2 |
| EXQ05 | *Chrysopogon fallax* | 1.3 | <2 |
| EXQ05 | *Waltheria indica* | 1.2 | <2 |
| EXQ05 | *Evolvulus alsinoides* var. *villosicalyx* | 0.2 | <2 |
| EXQ05 | *Indigofera monophylla* | 0.2 | <2 |
| EXQ05 | *Fimbristylis dichotoma* | 0.1 | <2 |
| EXQ05 | *Arivela viscosa* | 0.1 | <2 |
| EXQ05 | *Cyperus squarrosus* | 0.2 | <2 |
| EXQ05 | *Adriana tomentosa* subsp. *tomentosa* | 1.1 | <2 |
| EXQ05 | *Acanthocarpus verticillatus* | 1 | <2 |

| Site ID | EXQ06 | VT: 02 |
|---|---|---|
| Type: | Quadrat | |
| Date: | 11/05/22 | |
| Co-ordinates: | E: 202498 | N: 7569720 |
| Landform and slope: | Low rocky undulating hills | |
| Drainage: | Good | |
| Aspect: | East | |
| Soil colour & type: | Orange/brown, 80% rocky, outcropping | |
| Vegetation condition: | Excellent | |
| Fire age & intensity: | Old >5 yr | |
| Disturbances: | Minimal | |
| Leaf litter (%): | <2% | |
| Bare ground (%): | 30-70% | |

| Site | Taxon | Height (m) | Cover (%) |
|---|---|---|---|
| EXQ06 | *Melaleuca cardiophylla* | 1.6 | 2-10 |
| EXQ06 | *Triodia epactia* | 0.9 | <2 |
| EXQ06 | *Solanum diversiflorum* | 0.4 | <2 |
| EXQ06 | *Indigofera monophylla* | 0.1 | <2 |

| Site | Taxon | Height (m) | Cover (%) |
|---|---|---|---|
| EXQ06 | *Abutilon* sp. | 0.2 | <2 |
| EXQ06 | *Ptilotus polystachyus* | 0.6 | <2 |
| EXQ06 | *Streptoglossa decurrens* | 0.9 | <2 |
| EXQ06 | *Eremophila longifolia* | 0.3 | <2 |
| EXQ06 | *Triodia wiseana* | 1 | 30 |
| EXQ06 | *Acacia bivenosa* | 1.5 | <2 |
| EXQ06 | *Leptosema macrocarpum* | 0.6 | <2 |
| EXQ06 | *Exocarpos aphyllus* | 1.2 | <2 |
| EXQ06 | *Goodenia ?tenuiloba* | 0.9 | <2 |
| EXQ06 | *Senna glutinosa* subsp. *x luerssenii* | 1 | <2 |
| EXQ06 | *Afrohybanthus aurantiacus* | 0.2 | <2 |
| EXQ06 | *Senna glutinosa* subsp. *glutinosa* | 1.4 | <2 |
| EXQ06 | *Eremophila forrestii* subsp. *forrestii* | 0.2 | <2 |
| EXQ06 | *Senna artemidioides* subsp. *oligophylla* | 0.4 | <2 |
| EXQ06 | *Abutilon lepidum* | 0.4 | <2 |
| EXQ06 | *Solanum lasiophyllum* | 0.2 | <2 |
| EXQ06 | *Leschenaultia subcymosa* | 0.2 | <2 |
| EXQ06 | *Hibiscus* sp. Gardneri (A.L. Payne PRP 1435) | 0.1 | <2 |
| EXQ06 | *Phyllanthus tannensis* subsp. *eremophila* | 0.5 | <2 |

| Site ID | EXQ07 | VT: 01 |
|---|---|---|
| Type: | Quadrat | |
| Date: | 11/05/22 | |
| Co-ordinates: | E: 202928 | N: 7569961 |
| Landform and slope: | Rocky plain, some calcrete outcropping | |
| Drainage: | Good | |
| Aspect: | Flat | |
| Soil colour & type: | Orange/brown, Sandy clay/loam | |
| Vegetation condition: | Good | |
| Fire age & intensity: | 2-5yr | |
| Disturbances: | Weeds, fire | |
| Leaf litter (%): | 2-10% | |
| Bare ground (%): | 30-70% | |

| Site | Taxon | Hight (m) | Cover (%) |
|---|---|---|---|
| EXQ07 | *Hakea lorea* subsp. *lorea* | 3 | <2 |
| EXQ07 | *Acacia bivenosa* | 1.6 | 2-10 |
| EXQ07 | *Triodia epactia* | 1.1 | 30 |
| EXQ07 | *Indigofera monophylla* | 0.4 | 10-30 |

| Site | Taxon | Hight (m) | Cover (%) |
|---|---|---|---|
| EXQ07 | *Salsola australis* | 0.6 | 5 |
| EXQ07 | **Cenchrus ciliaris* | 0.6 | 10 |
| EXQ07 | *Ptilotus* sp. | 0.6 | 2-10 |
| EXQ07 | *Corchorus ?congener* | 0.3 | 2 |
| EXQ07 | **Aerva javanica* | 0.8 | <2 |
| EXQ07 | *Lysiandra hamelinii* | 0.8 | <2 |
| EXQ07 | *Acacia tetragonophylla* | 1 | <2 |
| EXQ07 | *Solanum diversiflorum* | 0.3 | <2 |
| EXQ07 | *Afrohybanthus aurantiacus* | 0.3 | <2 |
| EXQ07 | *Acacia pyrifolia* | 1.8 | <2 |
| EXQ07 | *Diplopeltis eriocarpa* | 0.4 | <2 |
| EXQ07 | *Solanum lasiophyllum* | 0.6 | <2 |
| EXQ07 | *Senna glutinosa* subsp. *glutinosa* | 1.4 | <2 |
| EXQ07 | *Ptilotus obovatus* | 0.8 | 2-10 |
| EXQ07 | *Acanthocarpus verticillatus* | 0.8 | <2 |
| EXQ07 | *Hibiscus* sp. Gardneri (A.L. Payne PRP 1435) | 0.6 | <2 |
| EXQ07 | *Leptosema macrocarpum* | 0.5 | <2 |
| EXQ07 | *Ptilotus exaltatus* | 1 | <2 |
| EXQ07 | *Melhania oblongifolia* | 0.4 | <2 |
| EXQ07 | *Enchylaena tomentosa var. tomentosa* | 0.5 | <2 |
| EXQ07 | *Solanum diversiflorum* | 0.6 | <2 |
| EXQ07 | *Acacia coriacea* subsp. *coriacea* | 1.3 | <2 |
| EXQ07 | *Trichodesma zeylanicum* | 1.8 | <2 |
| EXQ07 | *Alyogyne pinoniana* | 0.5 | <2 |
| EXQ07 | *Corymbia hamersleyana* | 2.1 | 3 |
| EXQ07 | *Adriana tomentosa* subsp. *tomentosa* | 0.6 | <2 |
| EXQ07 | *Tinospora esiangkara* | - | <2 |
| EXQ07 | *Eremophila longifolia* | 1.9 | <2 |
| EXQ07 | *Leschenaultia subcymosa* | 0.4 | <2 |
| EXQ07 | *Scaevola tomentosa* | 0.4 | <2 |
| EXQ07 | *Eremophila latrobei* subsp. *latrobei* | 0.6 | <2 |
| EXQ07 | *Rhagodia eremaea* | 1.5 | <2 |

| Site ID | EXQ08 | VT: 02 |
|---|---|---|
| Type: | Quadrat | |
| Date: | 12/05/22 | |
| Co-ordinates: | E: 200299 | N: 7569824 |
| Landform and slope: | Rocky hill top / rocky slopes | |
| Drainage: | Good | |
| Aspect: | Flat | |
| Soil colour & type: | Orange | |
| Vegetation condition: | Excellent | |
| Fire age & intensity: | Old >5 yr | |
| Disturbances: | Minimal | |
| Leaf litter (%): | <2% | |
| Bare ground (%): | 30-70% | |

| Site | Taxon | Height (m) | Cover (%) |
|---|---|---|---|
| EXQ08 | *Melaleuca cardiophylla* | 1.2 | 2-10 |

| Site | Taxon | Height (m) | Cover (%) |
|---|---|---|---|
| EXQ08 | *Triodia wiseana* | 1.1 | 30-70 |
| EXQ08 | *Dampiera incana* var. *incana* | 0.6 | <2 |
| EXQ08 | *Acacia gregorii* | 0.3 | <2 |
| EXQ08 | *Solanum diversiflorum* | 0.2 | <2 |
| EXQ08 | *Acacia bivenosa* | 1.4 | <2 |
| EXQ08 | *Leptosema macrocarpum* | 0.3 | <2 |
| EXQ08 | *Goodenia ?tenuiloba* | 0.3 | <2 |
| EXQ08 | *Acacia arida* | 1.3 | <2 |
| EXQ08 | *Triodia epactia* | 1 | <2 |
| EXQ08 | *Indigofera monophylla* | 0.1 | <2 |

| Site ID | EXQ09 | VT: 02 |
|---|---|---|
| Type: | Quadrat | |
| Date: | 12/05/22 | |
| Co-ordinates: | E: 200206 | N: 7570121 |
| Landform and slope: | Rocky hillslope, moderate | |
| Drainage: | Good | |
| Aspect: | East | |
| Soil colour & type: | Skeletal orange/brown sand/loam | |
| Vegetation condition: | Excellent | |
| Fire age & intensity: | Old >5 yr | |
| Disturbances: | Minimal | |
| Leaf litter (%): | <2% | |
| Bare ground (%): | 30-70% | |

| Site | Taxon | Height (m) | Cover (%) |
|---|---|---|---|
| EXQ09 | *Corymbia hamersleyana* | 2.6 | 2-10 |
| EXQ09 | *Triodia epactia* | 1 | 10-30 |
| EXQ09 | *Ipomoea costata* | 1.1 | <2 |
| EXQ09 | *Acacia tetragonophylla* | 1.2 | <2 |

| Site | Taxon | Height (m) | Cover (%) |
|---|---|---|---|
| EXQ09 | *Indigofera monophylla* | 0.4 | <2 |
| EXQ09 | *Eremophila forrestii subsp. forrestii* | 0.4 | <2 |
| EXQ09 | *Goodenia ?tenuiloba* | 0.5 | <2 |
| EXQ09 | *Jasminum didymum* | - | <2 |
| EXQ09 | *Acacia arida* | 1.5 | 2-10 |
| EXQ09 | *Senna artemidioides subsp. oligophylla* | 1.5 | <2 |
| EXQ09 | *Solanum lasiophyllum* | 0.6 | <2 |
| EXQ09 | *Melaleuca cardiophylla* | 1.5 | <2 |
| EXQ09 | *Leptosema macrocarpum* | 0.4 | <2 |
| EXQ09 | *Afrohybanthus aurantiacus* | 0.2 | <2 |
| EXQ09 | *Brachychiton obtusilobus* | 0.4 | <2 |
| EXQ09 | *Cymbopogon ambiguus* | 1 | <2 |
| EXQ09 | **Bidens bipinnata* | 0.05 | <2 |
| EXQ09 | *Tinospora esiangkara* | - | <2 |
| EXQ09 | *Corchorus crozophorifolius* | 0.4 | <2 |
| EXQ09 | *Acacia alexandri* | 1.7 | <2 |
| EXQ09 | *Gossypium robinsonii* | 2 | <2 |
| EXQ09 | *Eremophila longifolia* | 0.6 | <2 |

| Site ID | EXQ010 | VT: 02 |
|---|---|---|
| Type: | Quadrat | |
| Date: | 12/05/22 | |
| Co-ordinates: | E: 200234 | N: 7570385 |
| Landform and slope: | Rocky limestone hilltop | |
| Drainage: | Good | |
| Aspect: | - | |
| Soil colour & type: | Skeletal, orange/brown, rock >70% | |
| Vegetation condition: | Excellent | |
| Fire age & intensity: | Old >5 yr | |
| Disturbances: | Minimal | |
| Leaf litter (%): | 2-10% | |
| Bare ground (%): | 30-70% | |

No photo

| Site | Taxon | Height (m) | Cover (%) |
|---|---|---|---|
| EXQ10 | *Acacia arida* | 1.3 | 10-30 |
| EXQ10 | *Triodia wiseana* | 1.1 | 10-30 |
| EXQ10 | *Indigofera monophylla* | 0.3 | <2 |
| EXQ10 | *Triodia epactia* | 1.1 | 2-10 |
| EXQ10 | *Goodenia ?tenuiloba* | 0.6 | 2-10 |
| EXQ10 | *Solanum lasiophyllum* | 0.5 | <2 |
| EXQ10 | *Tribulus suberosus* | 1.1 | <2 |
| EXQ10 | *Corymbia hamersleyana* | 1.8 | <2 |
| EXQ10 | *Solanum diversiflorum* | 0.2 | <2 |
| EXQ10 | *Streptoglossa decurrens* | 0.3 | <2 |

| Site | Taxon | Height (m) | Cover (%) |
|---|---|---|---|
| EXQ10 | *Melaleuca cardiophylla* | 1.3 | 2-10 |
| EXQ10 | *Acacia bivenosa* | 2 | <2 |
| EXQ10 | *Acacia tetragonophylla* | 1.4 | <2 |
| EXQ10 | *Leptosema macrocarpum* | 0.5 | <2 |
| EXQ10 | *Senna artemidioides* subsp. *oligophylla* | 1.6 | <2 |
| EXQ10 | *Cucumis variabilis* | - | <2 |
| EXQ10 | *Eremophila forrestii* subsp. *capensis* | 1.8 | <2 |
| EXQ10 | *Trichodesma zeylanicum* | 0.5 | <2 |
| EXQ10 | *Eremophila longifolia* | 0.6 | <2 |
| EXQ10 | *Jasminum didymum* | - | <2 |
| EXQ10 | *Afrohybanthus aurantiacus* | 0.2 | <2 |
| EXQ10 | **Bidens bipinnata* | 0.05 | <2 |
| EXQ10 | *Nellica maderaspatensis* | 0.2 | <2 |
| EXQ10 | *Acacia pyrifolia* | 1.2 | <2 |
| EXQ10 | *Ipomoea costata* | - | <2 |
| EXQ10 | *Tinospora esiangkara* | - | <2 |
| EXQ10 | *Hibiscus* sp. Gardneri (A.L. Payne PRP 1435) | 0.1 | <2 |

| Site ID | EXR01 | VT: 03 |
|---|---|---|
| Type: | Releve | |
| Date: | 10/05/22 | |
| Co-ordinates: | E: 202651 | N: 7570386 |
| Landform and slope: | Drainage line | |
| Drainage: | Good | |
| Aspect: | East | |
| Soil colour & type: | Skeletal, sandy/clay/loam | |
| Vegetation condition: | Very Good | |
| Fire age & intensity: | Old >5 yr | |
| Disturbances: | Weeds | |
| Leaf litter (%): | 2-10% | |
| Bare ground (%): | 30-70% | |

| Site | Taxon | Height (m) | Cover (%) |
|---|---|---|---|
| EXR01 | *Corymbia hamersleyana* | 4 | <2 |

| Site | Taxon | Height (m) | Cover (%) |
|---|---|---|---|
| EXR01 | *Acacia arida* | 1.8 | 10-30 |
| EXR01 | *Trichodesma zeylanicum* | 1.7 | <2 |
| EXR01 | *Triodia epactia* | 1.2 | 10-30 |
| EXR01 | *Heliotropium crispatum* | 0.2 | <2 |
| EXR01 | **Cenchrus ciliaris* | 0.7 | 30 |
| EXR01 | *Vigna* sp. Hamersley Clay (A.A. Mitchell PRP 113) | 0.2 | <2 |
| EXR01 | *Indigofera monophylla* | 0.8 | <2 |
| EXR01 | *Cynanchum viminale* subsp. *australe* | 1.8 | <2 |
| EXR01 | *Gossypium robinsonii* | 1.8 | <2 |
| EXR01 | *Senna notabilis* | 0.4 | <2 |
| EXR01 | *Evolvulus alsinoides* var. *villosicalyx* | 0.1 | <2 |
| EXR01 | *Solanum diversiflorum* | 0.5 | <2 |
| EXR01 | *Ptilotus sp.* | 1 | <2 |
| EXR01 | **Bidens bipinnata* | 0.05 | <2 |
| EXR01 | *Acacia tetragonophylla* | 2 | <2 |
| EXR01 | *Corchorus congener* | 0.3 | <2 |
| EXR01 | *Eremophila forrestii* subsp. *forrestii* | 0.4 | <2 |
| EXR01 | *Jasminum didymum* | - | <2 |
| EXR01 | *Acacia bivenosa* | 1.9 | <2 |
| EXR01 | *Solanum lasiophyllum* | 0.4 | <2 |
| EXR01 | *Sida fibulifera* | 0.4 | 2-10 |
| EXR01 | *Streptoglossa decurrens* | 1 | <2 |
| EXR01 | *Ptilotus polystachyus* | 0.6 | <2 |
| EXR01 | *Eremophila longifolia* | 1.8 | <2 |
| EXR01 | *Senna artemidioides* subsp. *oligophylla* | 1.9 | <2 |
| EXR01 | *Senna glutinosa* subsp. *glutinosa* | 1.5 | <2 |
| EXR01 | *Waltheria indica* | 1 | <2 |
| EXR01 | *Ptilotus exaltatus* | 1 | <2 |
| EXR01 | *Abutilon cunninghamii* | 1.7 | <2 |
| EXR01 | *Glycine canescens* | - | <2 |
| EXR01 | *Melaleuca cardiophylla* | 1.8 | 2-10 |
| EXR01 | *Chrysopogon fallax* | 1.6 | <2 |
| EXR01 | *Cymbopogon ambiguus* | 1 | <2 |
| EXR01 | *Melhania oblongifolia* | 0.4 | <2 |
| EXR01 | *Afrohybanthus aurantiacus* | 0.3 | <2 |
| EXR01 | *Nellica maderaspatensis* | 0.3 | <2 |
| EXR01 | *Enchylaena tomentosa* var. *tomentosa* | 0.4 | <2 |
| EXR01 | *Cassytha aurea* var. *aurea* | - | <2 |
| EXR01 | *Acanthocarpus verticillatus* | 1.3 | <2 |
| EXR01 | *Eulalia aurea* | 1.3 | <2 |
| EXR01 | *Eriachne mucronata* | 0.7 | <2 |

| Site ID | EXR02 | VT: 03 |
|---|---|---|
| Type: | Releve | |
| Date: | 10/05/22 | |
| Co-ordinates: | E: 202155 | N: 7569929 |
| Landform and slope: | Drainage line | |
| Drainage: | Good | |
| Aspect: | East | |
| Soil colour & type: | Rocky sandy/clay/loam | |
| Vegetation condition: | Very Good | |
| Fire age & intensity: | Old >5 yr | |
| Disturbances: | Weeds | |
| Leaf litter (%): | 10-30% | |
| Bare ground (%): | 30-70% | |

| Site | Taxon | Height (m) | Cover (%) |
|---|---|---|---|
| EXR02 | *Corymbia hamersleyana* | 4 | 10-30 |
| EXR02 | *Acacia arida* | 1.6 | 10-30 |
| EXR02 | *Triodia epactia* | 1.1 | 10-30 |

| Site | Taxon | Height (m) | Cover (%) |
|---|---|---|---|
| EXR02 | *Acacia coriacea* subsp. *coriacea* | 1.8 | <2 |
| EXR02 | *Acacia pyrifolia* | 2.3 | <2 |
| EXR02 | *Acacia tetragonophylla* | 1.9 | <2 |
| EXR02 | **Bidens bipinnata* | 0.1 | <2 |
| EXR02 | *Glycine canescens* | - | <2 |
| EXR02 | *Indigofera monophylla* | 0.4 | 2-10 |
| EXR02 | *Eulalia aurea* | 1 | <2 |
| EXR02 | **Cenchrus ciliaris* | 0.5 | 2-10 |
| EXR02 | *Tinospora esiangkara* | - | <2 |
| EXR02 | *Corchorus crozophorifolius* | 1.5 | <2 |
| EXR02 | *Cymbopogon ambiguus* | 1.3 | <2 |
| EXR02 | *Pimelea microcephala* subsp. *microcephala* | 1.5 | <2 |
| EXR02 | *Eremophila longifolia* | 2 | <2 |
| EXR02 | *Duperreya commixta* | - | <2 |
| EXR02 | *Melaleuca cardiophylla* | 1.7 | <2 |
| EXR02 | *Senna artemidioides* subsp. *oligophylla* | 1.5 | 2-10 |
| EXR02 | *Themeda triandra* | 1.6 | 2-10 |
| EXR02 | *Dipteracanthus australasicus* subsp. *australasicus* | 0.3 | <2 |
| EXR02 | *Afrohybanthus aurantiacus* | 0.3 | <2 |
| EXR02 | *Acacia gregorii* | 0.5 | <2 |
| EXR02 | *Solanum diversiflorum* | 0.3 | <2 |
| EXR02 | *Streptoglossa decurrens* | 0.4 | <2 |
| EXR02 | *Gossypium robinsonii* | 1.7 | <2 |
| EXR02 | *Enneapogon caerulescens* | 0.5 | <2 |
| EXR02 | *Triodia wiseana* | 1 | 2-10 |
| EXR02 | *Ptilotus polystachyus* | 0.5 | <2 |
| EXR02 | *Corchorus crozophorifolius* | 1 | <2 |
| EXR02 | *Chrysopogon fallax* | 1.3 | <2 |
| EXR02 | *Acanthocarpus verticillatus* | 1 | <2 |
| EXR02 | *Acacia bivenosa* | 2 | <2 |
| EXR02 | *Eremophila forrestii* subsp. *forrestii* | 0.6 | <2 |
| EXR02 | *Evolvulus alsinoides* var. *villosicalyx* | 0.1 | <2 |
| EXR02 | *Triumfetta clementii* | 0.3 | <2 |
| EXR02 | *Goodenia ?tenuiloba* | 0.6 | <2 |
| EXR02 | *Solanum lasiophyllum* | 0.1 | <2 |
| EXR02 | *Hibiscus* sp. | 0.3 | <2 |
| EXR02 | *Corchorus congener* | 0.3 | <2 |
| EXR02 | *Eriachne obtusa* | 0.4 | <2 |

| Site ID | EXR03 | VT: 03 |
|---|---|---|
| Type: | Releve | |
| Date: | 12/05/22 | |
| Co-ordinates: | E: 200316 | N: 7569747 |
| Landform and slope: | Gully / Drainage | |
| Drainage: | Good | |
| Aspect: | NE | |
| Soil colour & type: | Skeletal, orange/brown sandy loam | |
| Vegetation condition: | Excellent | |
| Fire age & intensity: | Old >5 yr | |
| Disturbances: | Minimal | |
| Leaf litter (%): | 10-30% | |
| Bare ground (%): | 10-30% | |

| Site | Taxon | Height (m) | Cover (%) |
|---|---|---|---|
| EXR03 | *Corymbia hamersleyana* | 4 | 2-10 |
| EXR03 | *Acacia tetragonophylla* | 1.7 | <2 |
| EXR03 | *Senna artemidioides* subsp. *oligophylla* | 1 | 2-10 |
| EXR03 | *Eremophila forrestii* subsp. *capensis* | 1 | <2 |

| Site | Taxon | Height (m) | Cover (%) |
|---|---|---|---|
| EXR03 | *Acacia bivenosa* | 1 | <2 |
| EXR03 | *Solanum lasiophyllum* | 0.5 | <2 |
| EXR03 | *Jasminum didymum* | - | <2 |
| EXR03 | *Acacia gregorii* | 0.4 | <2 |
| EXR03 | *Afrohybanthus aurantiacus* | 0.4 | <2 |
| EXR03 | *Exocarpos aphyllus* | 2.3 | <2 |
| EXR03 | *Gossypium robinsonii* | 1.4 | <2 |
| EXR03 | *Melaleuca cardiophylla* | 1.5 | 2-10 |
| EXR03 | *Triodia wiseana* | 1 | <2 |
| EXR03 | *Tribulus suberosus* | 0.6 | <2 |
| EXR03 | *Indigofera monophylla* | 0.4 | <2 |
| EXR03 | *Goodenia ?tenuiloba* | 0.4 | <2 |
| EXR03 | *Trichodesma zeylanicum* | 1 | <2 |
| EXR03 | *Solanum diversiflorum* | 0.5 | <2 |
| EXR03 | *Acacia arida* | 1.9 | 2-10 |
| EXR03 | *Corchorus crozophorifolius* | 1.4 | <2 |
| EXR03 | *Amyema preissii* | - | <2 |
| EXR03 | *Senna glutinosa* subsp. *glutinosa* | 0.4 | <2 |
| EXR03 | *Acacia pyrifolia* | 1.1 | <2 |
| EXR03 | *Tinospora esiangkara* | - | <2 |

| Site ID | EXR04 | VT: 03 |
|---|---|---|
| Type: | Releve | |
| Date: | 12/05/22 | |
| Co-ordinates: | E: 200123 | N: 7569904 |
| Landform and slope: | Rocky Gully / Drainage | |
| Drainage: | Good | |
| Aspect: | East | |
| Soil colour & type: | Skeletal orange/brown sandy loam | |
| Vegetation condition: | Excellent | |
| Fire age & intensity: | Old >5 yr | |
| Disturbances: | Weeds | |
| Leaf litter (%): | 10-30% | |
| Bare ground (%): | 30-70% | |

| Site | Taxon | Height (m) | Cover (%) |
|---|---|---|---|
| EXR04 | *Ficus brachypoda* | 3 | <2 |
| EXR04 | *Dodonaea viscosa* subsp. *mucronata* | 2 | 2-10 |
| EXR04 | *Acacia arida* | 1.8 | 10-30 |

| Site | Taxon | Height (m) | Cover (%) |
|---|---|---|---|
| EXR04 | *Triodia epactia* | 1.1 | 2-10 |
| EXR04 | *Solanum lasiophyllum* | 0.5 | <2 |
| EXR04 | *Indigofera monophylla* | 0.4 | <2 |
| EXR04 | *Rhynchosia minima* | - | <2 |
| EXR04 | *Acacia alexandri* | 2 | 2-10 |
| EXR04 | *Acanthocarpus verticillatus* | 0.8 | <2 |
| EXR04 | *Acacia tetragonophylla* | 2 | <2 |
| EXR04 | *Gossypium robinsonii* | 1.9 | <2 |
| EXR04 | *Trichodesma zeylanicum* | 1.5 | <2 |
| EXR04 | **Bidens bipinnata* | 0.05 | <2 |
| EXR04 | *Senna artemidioides* subsp. *oligophylla* | 2.1 | 2-10 |
| EXR04 | *Jasminum didymum* | - | <2 |
| EXR04 | *Acacia coriacea* subsp. *coriacea* | 2 | 2-10 |
| EXR04 | *Enneapogon caerulescens* | 0.1 | <2 |
| EXR04 | *Corymbia hamersleyana* | 2.8 | <2 |
| EXR04 | *Ipomoea costata* | 1.8 | <2 |
| EXR04 | *Melaleuca cardiophylla* | 1 | <2 |
| EXR04 | *Eremophila forrestii* subsp. *capensis* | 0.4 | <2 |
| EXR04 | *Acacia bivenosa* | 2 | <2 |
| EXR04 | *Afrohybanthus aurantiacus* | 0.3 | <2 |
| EXR04 | *Triodia wiseana* | 1.1 | <2 |
| EXR04 | *Paspalidium clementii* | 0.6 | <2 |
| EXR04 | *Corchorus crozophorifolius* | 0.6 | <2 |
| EXR04 | *Goodenia ?tenuiloba* | 0.5 | <2 |
| EXR04 | *Grevillea calcicola* | 3 | <2 |
| EXR04 | *Waltheria indica* | 0.4 | <2 |
| EXR04 | *Eremophila longifolia* | 1.8 | <2 |
| EXR04 | *Abutilon cunninghamii* | 0.4 | <2 |
| EXR04 | *Melhania oblongifolia* | 0.4 | <2 |
| EXR04 | *Cucumis variabilis* | - | <2 |
| EXR04 | *Tribulus suberosus* | 1.6 | <2 |
| EXR04 | *Brachychiton obtusilobus* | 4 | <2 |
| EXR04 | *Dipteracanthus australasicus* subsp. *australasicus* | 0.1 | <2 |
| EXR04 | *Cymbopogon ambiguus* | 1.2 | <2 |
| EXR04 | *Ptilotus obovatus* | 1 | <2 |
| EXR04 | *Themeda triandra* | 1 | <2 |
| EXR04 | *Exocarpos aphyllus* | 2.5 | <2 |
| EXR04 | *Solanum horridum* | 0.3 | <2 |

| Site ID | EXR05 | VT: 03 |
|---|---|---|
| Type: | Releve | |
| Date: | 12/05/22 | |
| Co-ordinates: | E: 200271 | N: 7570197 |
| Landform and slope: | Rocky drainage line | |
| Drainage: | Good | |
| Aspect: | East | |
| Soil colour & type: | Skeletal, orange/brown sand | |
| Vegetation condition: | Very Good | |
| Fire age & intensity: | Old >5 yr | |
| Disturbances: | Weeds | |
| Leaf litter (%): | 10-30% | |
| Bare ground (%): | 30-70% | |

| Site | Taxon | Height (m) | Cover (%) |
|---|---|---|---|
| EXR05 | *Corymbia hamersleyana* | 4 | 2-10 |
| EXR05 | *Acacia bivenosa* | 2 | <2 |
| EXR05 | *Acacia pyrifolia* | 1.8 | <2 |
| EXR05 | *Acacia alexandri* | 2.8 | <2 |

| Site | Taxon | Height (m) | Cover (%) |
|---|---|---|---|
| EXR05 | *Cymbopogon ambiguus* | 1.2 | <2 |
| EXR05 | *Cassytha aurea* var. *aurea* | - | <2 |
| EXR05 | *Sida fibulifera* | 0.4 | <2 |
| EXR05 | *Indigofera monophylla* | 0.5 | <2 |
| EXR05 | *Jasminum didymum* | - | <2 |
| EXR05 | *Corchorus crozophorifolius* | 0.5 | <2 |
| EXR05 | *Gossypium robinsonii* | 2.5 | <2 |
| EXR05 | *Triodia epactia* | 1.2 | 10-30 |
| EXR05 | *Dodonaea viscosa* subsp. *mucronata* | 3 | 2-10 |
| EXR05 | *Senna artemidioides* subsp. *oligophylla* | 2 | 2-10 |
| EXR05 | *Acacia tetragonophylla* | 1.8 | <2 |
| EXR05 | *Acanthocarpus verticillatus* | 1 | <2 |
| EXR05 | *Acacia arida* | 2 | 10-30 |
| EXR05 | **Bidens bipinnata* | 0.05 | <2 |
| EXR05 | *Afrohybanthus aurantiacus* | 0.3 | <2 |
| EXR05 | *Melhania oblongifolia* | 0.3 | <2 |
| EXR05 | *Melaleuca cardiophylla* | 1.5 | <2 |
| EXR05 | *Eremophila forrestii* subsp. *capensis* | 1.8 | <2 |
| EXR05 | *Eucalyptus xerothermica* | 5 | 2-10 |
| EXR05 | *Ipomoea costata* | 1.3 | <2 |
| EXR05 | *Dipteracanthus australasicus* subsp. *australasicus* | 0.2 | <2 |
| EXR05 | *Tribulus suberosus* | 1.2 | <2 |
| EXR05 | *Eremophila longifolia* | 0.8 | <2 |
| EXR05 | *Goodenia ?tenuiloba* | 0.6 | <2 |
| EXR05 | *Solanum lasiophyllum* | 0.5 | <2 |
| EXR05 | *Ptilotus obovatus* | 1 | <2 |

| Site ID | EXR06 | VT: 03 |
|---|---|---|
| Type: | Releve | |
| Date: | 13/05/22 | |
| Co-ordinates: | E: 200089 | N: 7570507 |
| Landform and slope: | Rocky drainage line | |
| Drainage: | Good | |
| Aspect: | East | |
| Soil colour & type: | Skeletal orange/brown sand | |
| Vegetation condition: | Very Good | |
| Fire age & intensity: | Old >5 yr | |
| Disturbances: | Weeds | |
| Leaf litter (%): | 2-10% | |
| Bare ground (%): | 30-70% | |

| Site | Taxon | Height (m) | Cover (%) |
|---|---|---|---|
| EXR06 | *Ficus brachypoda* | 2.6 | <2 |
| EXR06 | *Senna artemidioides* subsp. *oligophylla* | 2 | 2-10 |
| EXR06 | *Gossypium robinsonii* | 1.6 | <2 |

| Site | Taxon | Height (m) | Cover (%) |
|---|---|---|---|
| EXR06 | *Melhania oblongifolia* | 0.4 | 2-10 |
| EXR06 | *Cymbopogon ambiguus* | 1.4 | <2 |
| EXR06 | *Triodia epactia* | 1 | 2-10 |
| EXR06 | **Bidens bipinnata* | 0.05 | 2-10 |
| EXR06 | *Acacia pyrifolia* | 2.2 | <2 |
| EXR06 | *Capparis lasiantha* | 3 | <2 |
| EXR06 | *Acacia coriacea* subsp. *coriacea* | 2 | 2-10 |
| EXR06 | *Rhynchosia minima* | 2 | 2-10 |
| EXR06 | *Dodonaea viscosa* subsp. *mucronata* | 1.9 | <2 |
| EXR06 | *Indigofera monophylla* | 0.3 | <2 |
| EXR06 | *Eremophila longifolia* | 2.2 | <2 |
| EXR06 | *Arivela viscosa* | 0.2 | <2 |
| EXR06 | *Acacia pyrifolia* | 2.1 | <2 |
| EXR06 | *Trichodesma zeylanicum* | 1.3 | <2 |
| EXR06 | *Ipomoea costata* | - | <2 |
| EXR06 | *Grevillea calcicola* | 2 | <2 |
| EXR06 | *Cucumis variabilis* | - | <2 |
| EXR06 | *Eremophila obovatus* | 1 | <2 |
| EXR06 | *Tribulus suberosus* | 1.7 | <2 |
| EXR06 | *Acacia arida* | 1.5 | <2 |
| EXR06 | *Waltheria indica* | 0.4 | <2 |
| EXR06 | *Jasminum didymum* | - | <2 |
| EXR06 | *Nellica maderaspatensis* | 0.2 | <2 |
| EXR06 | *Dipteracanthus australasicus subsp. australasicus* | 0.1 | <2 |
| EXR06 | *Corchorus crozophorifolius* | 0.6 | <2 |
| EXR06 | *Acacia tetragonophylla* | 1.9 | <2 |
| EXR06 | *Acacia alexandri* | 2.6 | <2 |

*Flora species matrix*

| Taxon | EXQ 01 | EXQ 02 | EXQ 03 | EXQ 04 | EXQ0 5 | EXQ0 6 | EXQ0 7 | EXQ0 8 | EXQ0 9 | EXQ1 0 | EXR0 1 | EXR0 2 | EXR0 3 | EXR0 4 | EXR0 5 | EXR0 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Aerva javanica* | | | | | | | 1 | | | | | | | | | |
| **Bidens bipinnata* | | | | | | | | | 1 | 1 | 1 | 1 | | 1 | 1 | 1 |
| **Cenchrus ciliaris* | 1 | | | 1 | 1 | | 1 | | | | 1 | 1 | | | | |
| *Abutilon cunninghamii* | | | | | | | | | | | 1 | | | 1 | | |
| *Abutilon fraseri* | 1 | | | | 1 | | | | | | | | | | | |
| *Abutilon lepidum* | | | | | | 1 | | | | | | | | | | |
| *Abutilon* sp. | | | | | | 1 | | | | | | | | | | |
| *Acacia alexandri* | | | | | | | | | 1 | | | | | 1 | 1 | 1 |
| *Acacia arida* | | | 1 | 1 | | | | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| *Acacia bivenosa* | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | | 1 | 1 | 1 | 1 | 1 | 1 | |
| *Acacia coriacea subsp. coriacea* | | | | | 1 | | 1 | | | | | 1 | | 1 | | 1 |
| *Acacia gregorii* | | | | | | | | 1 | | | | 1 | 1 | | | |
| *Acacia pyrifolia* | | | | 1 | 1 | | 1 | | | 1 | | 1 | 1 | | 1 | 1 |
| *Acacia synchronicia* | 1 | | | 1 | 1 | | | | | | | | | | | |
| *Acacia tetragonophylla* | | 1 | 1 | 1 | 1 | | 1 | | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| *Acanthocarpus verticillatus* | | | | | 1 | | 1 | | | | 1 | 1 | | 1 | 1 | |
| *Adriana tomentosa* subsp. *tomentosa* | | | | | 1 | | 1 | | | | | | | | | |
| *Afrohybanthus aurantiacus* | | 1 | 1 | 1 | 1 | 1 | 1 | | 1 | 1 | 1 | 1 | 1 | 1 | 1 | |
| *Alyogyne pinoniana* | | | | | | | 1 | | | | | | | | | |
| *Amyema preissii* | | | | | | | | | | | | | 1 | | | |
| *Arivela viscosa* | | | | | 1 | | | | | | | | | | | 1 |
| *Brachychiton obtusilobus* | | | | | | | | | 1 | | | | | 1 | | |
| *Capparis lasiantha* | | | | | | | | | | | | | | | | 1 |
| *Cassytha aurea* var. *aurea* | | | | | | | | | | | 1 | | | | 1 | |

| Taxon | EXQ 01 | EXQ 02 | EXQ 03 | EXQ 04 | EXQ0 5 | EXQ0 6 | EXQ0 7 | EXQ0 8 | EXQ0 9 | EXQ1 0 | EXR0 1 | EXR0 2 | EXR0 3 | EXR0 4 | EXR0 5 | EXR0 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *Chenopodium gaudichaudianum* | 1 | | | | | | | | | | | | | | | |
| *Chrysopogon fallax* | 1 | | | | 1 | | | | | | 1 | 1 | | | | |
| *Corchorus ?congener* | | | | 1 | | | 1 | | | | | | | | | |
| *Corchorus congener* | 1 | | | | | | | | | | 1 | 1 | | | | |
| *Corchorus crozophorifolius* | | | | | | | | | 1 | | | 1 | 1 | 1 | 1 | 1 |
| *Corymbia hamersleyana* | | | | | 1 | | 1 | | 1 | 1 | 1 | 1 | 1 | 1 | 1 | |
| *Cucumis variabilis* | | | | 1 | | | | | | 1 | | | | 1 | | 1 |
| *Cymbopogon ambiguus* | | | | | | | | | 1 | | 1 | 1 | | 1 | 1 | 1 |
| *Cynanchum viminale* subsp. *australe* | | | 1 | | | | | | | | 1 | | | | | |
| *Cyperus squarrosus* | | | | | 1 | | | | | | | | | | | |
| *Dampiera incana* var. *incana* | | | | | | | | 1 | | | | | | | | |
| *Diplopeltis eriocarpa* | | | | | | | 1 | | | | | | | | | |
| *Dipteracanthus australasicus* subsp. *australasicus* | | | | | | | | | | | | 1 | | 1 | 1 | 1 |
| *Dodonaea viscosa subsp. mucronata* | | | | | | | | | | | | | | 1 | 1 | 1 |
| *Duperreya commixta* | | | | | | | | | | | | 1 | | | | |
| *Enchylaena tomentosa* var. *tomentosa* | | | | 1 | | | 1 | | | | 1 | | | | | |
| *Enneapogon caerulescens* | | | | | | | | | | | | 1 | | 1 | | |
| *Eremophila forrestii* subsp. *capensis* | | | | | | | | | | 1 | | | 1 | 1 | 1 | |
| *Eremophila forrestii* subsp. *forrestii* | | 1 | 1 | 1 | | 1 | | | 1 | | 1 | 1 | | | | |
| *Eremophila latrobei* subsp. *latrobei* | | | | | | | 1 | | | | | | | | | |
| *Eremophila longifolia* | 1 | 1 | 1 | | 1 | 1 | 1 | | 1 | 1 | 1 | 1 | | 1 | 1 | 1 |
| *Eremophila obovatus* | | | | | | | | | | | | | | | | 1 |

| Taxon | EXQ 01 | EXQ 02 | EXQ 03 | EXQ 04 | EXQ0 5 | EXQ0 6 | EXQ0 7 | EXQ0 8 | EXQ0 9 | EXQ1 0 | EXR0 1 | EXR0 2 | EXR0 3 | EXR0 4 | EXR0 5 | EXR0 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *Eriachne mucronata* | | | | | | | | | | | 1 | | | | | |
| *Eriachne obtusa* | | | | | | | | | | | | 1 | | | | |
| *Eucalyptus xerothermica* | | | | | | | | | | | | | | | 1 | |
| *Eulalia aurea* | | | | | | | | | | | 1 | 1 | | | | |
| *Euphorbia australis* var. *australis* | 1 | | | | | | | | | | | | | | | |
| *Euphorbia biconvexa* | 1 | | | | 1 | | | | | | | | | | | |
| *Euphorbia myrtoides* | | 1 | 1 | 1 | | | | | | | | | | | | |
| *Euploca inexplicita* | | | 1 | | | | | | | | | | | | | |
| *Evolvulus alsinoides* var. *villosicalyx* | 1 | | | 1 | 1 | | | | | | 1 | 1 | | | | |
| *Exocarpos aphyllus* | | 1 | | | | 1 | | | | | | | 1 | 1 | | |
| *Ficus brachypoda* | | | | | | | | | | | | | | 1 | | 1 |
| *Fimbristylis dichotoma* | | | | | 1 | | | | | | | | | | | |
| *Glycine canescens* | | | | | 1 | | | | | | 1 | 1 | | | | |
| *Goodenia ?tenuiloba* | | 1 | | 1 | | 1 | | 1 | 1 | 1 | | 1 | 1 | 1 | 1 | |
| *Gossypium robinsonii* | 1 | | | 1 | | | | | 1 | | 1 | 1 | 1 | 1 | 1 | 1 |
| *Grevillea calcicola* | | | | | | | | | | | | | | 1 | | 1 |
| *Hakea lorea* subsp. *lorea* | 1 | | | | | | 1 | | | | | | | | | |
| *Heliotropium crispatum* | | | | | | | | | | | 1 | | | | | |
| *Hibiscus* sp. | | | | | | | | | | | | 1 | | | | |
| *Hibiscus* sp. Gardneri (A.L. Payne PRP 1435) | | 1 | 1 | | | 1 | 1 | | | 1 | | | | | | |
| *Hibiscus sturtii* var. *platychlamys* | 1 | | 1 | 1 | 1 | | | | | | | | | | | |
| *Indigofera linnaei* | 1 | | | | 1 | | | | | | | | | | | |
| *Indigofera monophylla* | 1 | 1 | 1 | | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| *Ipomoea costata* | | | | | | | | | 1 | 1 | | | | 1 | 1 | 1 |
| *Isotropis atropurpurea* | | | | 1 | 1 | | | | | | | | | | | |

| Taxon | EXQ 01 | EXQ 02 | EXQ 03 | EXQ 04 | EXQ0 5 | EXQ0 6 | EXQ0 7 | EXQ0 8 | EXQ0 9 | EXQ1 0 | EXR0 1 | EXR0 2 | EXR0 3 | EXR0 4 | EXR0 5 | EXR0 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *Jasminum didymum* | | 1 | | | | | | | 1 | 1 | 1 | | 1 | 1 | 1 | 1 |
| *Leptosema macrocarpum* | | 1 | 1 | 1 | | 1 | 1 | 1 | 1 | 1 | | | | | | |
| *Leschenaultia subcymosa* | | | | | | 1 | 1 | | | | | | | | | |
| *Lysiandra hamelinii* | | | 1 | 1 | 1 | | 1 | | | | | | | | | |
| *Melaleuca cardiophylla* | | 1 | 1 | 1 | | 1 | | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | |
| *Melhania oblongifolia* | 1 | | | 1 | 1 | | 1 | | | | 1 | | | 1 | 1 | 1 |
| *Nellica maderaspatensis* | | | | | | | | | | 1 | 1 | | | | | 1 |
| *Panicum decompositum* | | | 1 | 1 | | | | | | | | | | | | |
| *Paspalidium clementii* | | | | | | | | | | | | | | 1 | | |
| *Phyllanthus tannensis* subsp. *eremophila* | | | | | | 1 | | | | | | | | | | |
| *Pimelea microcephala* subsp. *microcephala* | | | 1 | | | | | | | | | 1 | | | | |
| *Pittosporum phillyreoides* | | 1 | | | | | | | | | | | | | | |
| *Pluchea* sp. | | | | 1 | | | | | | | | | | | | |
| *Polymeria ambigua* | 1 | | | 1 | | | | | | | | | | | | |
| *Ptilotus exaltatus* | 1 | | | | | | 1 | | | | 1 | | | | | |
| *Ptilotus obovatus* | 1 | | | 1 | 1 | | 1 | | | | | | | 1 | 1 | |
| *Ptilotus polystachyus* | | 1 | 1 | 1 | 1 | 1 | | | | | 1 | 1 | | | | |
| *Ptilotus* sp. | | | | | | | 1 | | | | 1 | | | | | |
| *Rhagodia eremaea* | | | | | 1 | | 1 | | | | | | | | | |
| *Rhynchosia minima* | | | | | 1 | | | | | | | | | | | 1 |
| *Rhynchosia minima* | | | | | | | | | | | | | | 1 | | |
| *Salsola australis* | 1 | | | | | | 1 | | | | | | | | | |
| *Scaevola spinescens* | 1 | | | 1 | | | | | | | | | | | | |
| *Scaevola tomentosa* | 1 | | | | | | 1 | | | | | | | | | |
| *Senna artemisioides* subsp. *oligophylla* | 1 | | | 1 | 1 | 1 | | | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |

| Taxon | EXQ 01 | EXQ 02 | EXQ 03 | EXQ 04 | EXQ0 5 | EXQ0 6 | EXQ0 7 | EXQ0 8 | EXQ0 9 | EXQ1 0 | EXR0 1 | EXR0 2 | EXR0 3 | EXR0 4 | EXR0 5 | EXR0 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *Senna glutinosa* subsp. *glutinosa* | 1 | 1 | 1 | | | 1 | 1 | | | | 1 | | 1 | | | |
| *Senna glutinosa* subsp. *x luerssenii* | 1 | 1 | | | | 1 | | | | | | | | | | |
| *Senna notabilis* | | | | | | | | | | | 1 | | | | | |
| *Sida arenicola* | 1 | | | | | | | | | | | | | | | |
| *Sida fibulifera* | 1 | | | 1 | | | | | | | 1 | | | | 1 | |
| *Solanum diversiflorum* | 1 | 1 | 1 | 1 | | 1 | 1 | 1 | | 1 | 1 | 1 | 1 | | | |
| *Solanum horridum* | | | | | | | | | | | | | | 1 | | |
| *Solanum lasiophyllum* | 1 | 1 | 1 | 1 | 1 | 1 | 1 | | 1 | 1 | 1 | 1 | 1 | 1 | 1 | |
| *Solanum* sp. | | 1 | | | | | | | | | | | | | | |
| *Streptoglossa decurrens* | | 1 | 1 | 1 | | 1 | | | | 1 | 1 | 1 | | | | |
| *Stylobasium spathulatum* | 1 | | | | | | | | | | | | | | | |
| *Tephrosia supina* | 1 | | | 1 | | | | | | | | | | | | |
| *Themeda triandra* | | | | | | | | | | | | 1 | | 1 | | |
| *Tinospora esiangkara* | | | | | | | 1 | | 1 | 1 | | 1 | 1 | | | |
| *Tribulus suberosus* | | | | | | | | | | 1 | | | 1 | 1 | 1 | 1 |
| *Trichodesma zeylanicum* | | | | 1 | 1 | | 1 | | | 1 | 1 | | 1 | 1 | | 1 |
| *Triodia basedowii* | 1 | 1 | 1 | | | | | | | | | | | | | |
| *Triodia epactia* | 1 | | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | | 1 | 1 | 1 |
| *Triodia wiseana* | | 1 | 1 | 1 | 1 | 1 | | 1 | | 1 | | | 1 | 1 | | |
| *Triumfetta clementii* | | 1 | | 1 | | | | | | | | 1 | | | | |
| *Vigna* sp. Hamersley Clay (A.A. Mitchell PRP 113) | | | | 1 | 1 | | | | | | 1 | | | | | |
| *Waltheria indica* | | | | 1 | 1 | | | | | | 1 | | | 1 | | 1 |
| ***Total*** | **34** | **24** | **25** | **39** | **36** | **23** | **36** | **11** | **22** | **27** | **42** | **41** | **24** | **41** | **30** | **30** |

***Flora likelihood of occurrence assessment guidelines***

| Likelihood of occurrence | Guideline |
|---|---|
| Likely | Species previously recorded within the study area and large areas of suitable habitat occur in the survey area. |
| Possible | Species previously recorded within the study area and areas of suitable habitat occur/may occur in the survey area. |
| Unlikely | Species previously recorded within the study area, but suitable habitat does not occur in the survey area, however, suitable search effort did not record the species. |
| Highly unlikely | Species not previously recorded within the study area, suitable habitat does not occur in the survey area and/or the survey area is outside the natural distribution of the species. |
| Other considerations | Intensity of survey, availability of access, growth form type, recorded flowering times, cryptic nature of species |

**Source information - desktop searches**

PMST – DCCEEW Protected Matters Search Tool (PMST) to identify flora listed under the EPBC Act potentially occurring within the study area

TPFL and WAHERB – records of threatened flora from TPFL and WAHERB database searches within the study area

NM – DBCA *NatureMap* (accessed August 2021)

**Flora likelihood of occurrence assessment of conservation significant flora identified in the desktop assessment as potentially occurring within the study area**

| Family | Taxon | Status | | Description (if available) (WA Herbarium 1998–) | Likelihood of occurrence |
|---|---|---|---|---|---|
| | | EPBC Act | BC Act /DBCA | | |
| Acanthaceae | *Harnieria kempeana* subsp. *rhadinophylla* | - | P2 | Erect or sprawling, spreading, straggly shrub, to 1 m high. Flowers pink/red-purple, May to September. Calcareous loam. Amongst limestone rocks, creek banks. | Unlikely<br>Potential suitable habitat occurs in the survey area however suitable search effort did not record the species. This species should have been flowering at the time of survey. |
| Apocynaceae | *Gymnanthera cunninghamii* | - | P3 | Erect shrub, 1-2 m high. Flowers cream yellow-green, January to December. Sandy soils. | Unlikely<br>Limited suitable habitat available within the survey area. Suitable search effort did not record the species. |
| Asparagaceae | *Acanthocarpus rupestris* | - | P2 | Rhizomatous, tufted perennial, herb, to 0.5 m high. Flowers white, May to June. Red sand, limestone. | Present<br>Recorded during the current survey. |

| Family | Taxon | Status | | Description (if available) (WA Herbarium 1998–) | Likelihood of occurrence |
|---|---|---|---|---|---|
| | | EPBC Act | BC Act /DBCA | | |
| Celastraceae | *Stackhousia umbellata* | - | P3 | Spreading perennial, herb, to 0.7 m high. Flowers yellow, May to August. Sandy soils on limestone and red sandy loam. | Unlikely<br>Potential suitable habitat occurs in the survey area however suitable search effort did not record the species. |
| Cucurbitaceae | *Cucumis* sp. Barrow Island (D.W. Goodall 1264) | - | P2 | Herbaceous perennial vine, growing up to 2 m tall. Hummock grassland of *Triodia pungens* and a tall shrub overstorey of *Acacia sclerosperma*. | Unlikely<br>Potential suitable habitat occurs in the survey area however suitable search effort did not record the species. |
| Fabaceae | *Acacia alexandri* | - | P3 | Open or moderately dense, sometimes wispy shrub, 1.5-3 m high. Flowers cream, June or August to September. Limestone. Stony creeks, steep rocky slopes. | Present<br>Recorded during the current survey. |
| Fabaceae | *Acacia ryaniana* | - | P2 | Prostrate, straggly or domed, spinescent shrub, 0.1-0.4 m high. Flowers yellow, June to November. White or red sand. Coastal sand dunes. | Unlikely.<br>No suitable habitat within the survey area. |
| Fabaceae | *Acacia startii* | - | P3 | Dense, rounded, much-branched shrub, 1-2 m high, to 3 m wide. Flowers green-yellow, July to August. Calcareous loam with limestone pebbles. Stony hills & watercourses. | Unlikely<br>Potential suitable habitat occurs in the survey area however suitable search effort did not record the species. |
| Fabaceae | *Tephrosia* sp. North West Cape (G. Marsh 81) | - | P2 | Low perennial shrub growing to approximately 0.3 m high. It has previously been recorded from red brown / orange soils over limestone on plains. | Unlikely<br>Potential suitable habitat occurs in the survey area however suitable search effort did not record the species. |
| Malvaceae | *Brachychiton obtusilobus* | - | P4 | Tree, 3.5-6 m high. Flowers cream, August to September. Skeletal soils. Rocky limestone ranges, gorges, occasionally sandplains. | Recorded during the current survey |
| Menispermaceae | *Tinospora esiangkara* | - | P2 | Climber, to 2 m high, large stems with brown, flaky bark. Flowers green, July. Pebbly orange-brown calcareous loam. Limestone outcrops or ridges, near creek bank. | Recorded during the current survey |
| Montiaceae | *Calandrinia* sp. Cape Range (F. Obbens FO 10/18) | - | P2 | A scrambling perennial herb, up to 0.4 cm high. Occurs on lower slopes of ranges on skeletal limestone soil | Unlikely |

| Family | Taxon | Status | | Description (if available) (WA Herbarium 1998–) | Likelihood of occurrence |
|---|---|---|---|---|---|
| | | EPBC Act | BC Act /DBCA | | |
| | | | | and creeklines. Red brown sandy clay loam in cracks between rock over limestone. | Potential suitable habitat occurs in the survey area however suitable search effort did not record the species. |
| Myrtaceae | *Verticordia serotina* | - | P2 | Shrub, 0.5-1.5 m high. Fl. pink, Aug to Sep. Red sand. Sand dunes. | Unlikely.<br>No suitable habitat occurs in the survey area. |
| Ophioglossaceae | *Helminthostachys zeylanica* | - | P3 | Rhizomatous, perennial, herb or (fern), 0.4-0.6 m high, sterile frond palmately divided; fertile blade spikelike; vernation not circinnate. Flowers May. Black peat. Shady sites in gallery forest, margins of creeks. | Unlikely<br>No suitable habitat present. Suitable search effort did not record the species. |
| Phyllanthaceae | *Phyllanthus fuernrohrii* | P3 | | Shrub to 60 cm. Red soil over limestone. | Unlikely<br>Potential suitable habitat occurs in the survey area however suitable search effort did not record the species. |
| Proteaceae | *Grevillea calcicola* | P3 | | Small straggly tree or shrub (several stemmed), to 4 m high. Fl. Cream white, May or Jul to Aug. Limestone hilltops. | Recorded during the current survey. |
| Scrophulariaceae | *Eremophila forrestii* subsp. *capensis* | P3 | | Sparsely to much-branched shrub, to 1.4 m high. Brown rocky soils, limestone. Ridges. 12 km west | Present<br>Recorded during the current survey. |
| Scrophulariaceae | *Eremophila occidens* | P2 | | Shrub, to 1.5 m high. Flowers purple-violet, August to September. Orange/brown sand. Limestone ranges, dunes. | Unlikely<br>Potential suitable habitat occurs in the survey area however suitable search effort did not record the species. |
| Scrophulariaceae | *Eremophila youngii* subsp. *lepidota* | P4 | | Dense, spreading shrub, (0.2-) 1-3 m high. Flowers purple-red-pink, January or March or June or August to September. Stony red sandy loam. Flats plains, floodplains, sometimes semi-saline, clay flats. | Unlikely<br>Potential suitable habitat occurs in the survey area however suitable search effort did not record the species. |

# Appendix E

## Fauna survey data

Fauna species recorded

Fauna likelihood of occurrence

Fauna Species recorded from desktop, previous surveys and the current survey.

| Family | Scientific Name | Common name | Listing | NM | PMST | DBCA | GHD 2016 | GHD 2019 | 360 2021 | This survey |
|---|---|---|---|---|---|---|---|---|---|---|
| **Mammals** | | | | | | | | | | |
| Bovidae | *Bos primigenius taurus* | European Cattle | Intro. | | | | X | | | |
| Bovidae | *Capra aegagrus hircus* | Goat | Intro. | | X | | | | | |
| Bovidae | *Ovis aries* | Sheep | Intro. | X | | | X | | | |
| Canidae | *Canis familiaris familiaris* | Dog | Intro. | | X | | | | | prints |
| Canidae | *Vulpes vulpes* | Red Fox | Intro. | | X | | X | | | |
| Dasyuridae | *Dasyurus hallucatus* | Northern Quoll | En, En | | X | | | | | |
| Dasyuridae | *Dasykaluta rosamondae* | Kaluta | | | | | | | | camera |
| Dasyuridae | *Pseudantechinus roryi* | Rory Cooper's false antechinus | | X | | | | | | |
| Dasyuridae | *Sminthopsis longicaudata* | Long-tailed Dunnart | P4 | X | | | | | | |
| Dasyuridae | *Sminthopsis macroura* | Stripe-faced Dunnart | | X | | | X | | | 1, camera |
| Emballonuridae | *Taphozous georgianus* | Common Sheath-tailed Bat | | X | | | | | | detector |
| Equidae | *Equus ferus caballus* | Horse | Intro. | | X | | | | X | |
| Felidae | *Felis catus* | Cat | Intro. | X | X | | X | | | prints |
| Leporidae | *Oryctolagus cuniculus* | Rabbit | Intro. | X | X | | X | | | 5, camera |
| Macropodidae | *Osphranter robustus* | Euro | | X | | | X | | X | 12, camera |
| Macropodidae | *Osphranter rufus* | Red Kangaroo | | X | | | X | | X | |
| Macropodidae | *Petrogale lateralis lateralis* | Black-footed Rock-wallaby | Vu | X | X | X | | | | |
| Mollossidae | *Austronomus australis* | White-striped Freetail-Bat | | | | | | | | 1 |
| Muridae | *Mus musculus* | House Mouse | Intro. | X | X | | X | | | 1 |
| Muridae | *Notomys alexis* | Spinifex Hopping-mouse | | X | | | X | | | burrow, camera |
| Muridae | *Pseudomys chapmani* | Western Pebble-mound Mouse | P4 | | | | | | | mounds, camera |
| Muridae | *Pseudomys fieldi (gouldi)* | Shark Bay Mouse | Vu, Vu | X | | | | | | |
| Muridae | *Pseudomys hermannsburgensis* | Sandy Inland Mouse | | X | | | | | | 1 |
| Muridae | *Rattus rattus* | Black Rat | Intro. | X | X | | | | | camera |
| Muridae | *Zyzomys pedunculatus* | Central Rock Rat | Cr, Ce | X | | | | | | |
| Rhinonycteridae | *Rhinonicteris aurantia* | Orange Leaf-nosed Bat | Vu, Vu | | X | X | | | | |
| Tachyglossidae | *Tachyglossus aculeatus* | Short-beaked Echidna | | X | | | X | | | 1 |

| Family | Scientific Name | Common name | Listing | NM | PMST | DBCA | GHD 2016 | GHD 2019 | 360 2021 | This survey |
|---|---|---|---|---|---|---|---|---|---|---|
| Vespertilionidae | *Chalinolobus gouldii* | Gould's Wattled Bat | | X | | | | | | detector |
| Vespertilionidae | *Vespadelus finlaysoni* | Finlayson's Cave Bat | | X | | | | | | detector |
| **Reptiles** | | | | | | | | | | |
| Agamidae | *Ctenophorus femoralis* | Dune Dragon | | X | | | X | | | |
| Agamidae | *Ctenophorus isolepis isolepis* | Central Military Dragon | | X | | | X | | | |
| Agamidae | *Ctenophorus nuchalis* | Central Netted Dragon | | X | | | | | | 2 |
| Agamidae | *Ctenophorus parviceps* | Northern Heath Dragon | | X | | | | | | |
| Agamidae | *Ctenophorus reticulatus* | Western Netted Dragon | | X | | | | | | 5 |
| Agamidae | *Diporiphora adductus* | Carnarvon Dragon | | X | | | | | | |
| Agamidae | *Gowidon longirostris* | Long-nosed Dragon | | X | | | X | | | 3 |
| Agamidae | *Pogona minor minor* | Western Bearded Dragon | | X | | | X | | | 7 |
| Carphodactylidae | *Nephrurus levis occidentalis* | Smooth Knob-tailed Gecko | | X | | | X | | | |
| Diplodactylidae | *Crenadactylus tuberculatus* | Cape Range Clawless Gecko | | X | | | | | | 3 |
| Diplodactylidae | *Diplodactylus capensis* | Cape Range Stone Gecko | P2 | X | | | | | | |
| Diplodactylidae | *Diplodactylus bilybara* | Western Fat-tailed Gecko | | X | | | | | | |
| Diplodactylidae | *Diplodactylus ornatus* | Ornate Gecko | | X | | | | | | |
| Diplodactylidae | *Lucasium woodwardi* | Pilbara ground gecko | | X | | | X | | | |
| Diplodactylidae | *Strophurus ciliaris aberrans* | Northern Spiny-tailed Gecko | | X | | | | | | |
| Diplodactylidae | *Strophurus jeanae* | South Phasmid Gecko | | X | | | | | | |
| Diplodactylidae | *Strophurus rankini* | Exmouth Spiny-tailed Gecko | | X | | | | | | |
| Diplodactylidae | *Strophurus strophurus* | Western Spiny-tailed Gecko | | X | | | | | | 1 |
| Elapidae | *Acanthophis wellsi* | Pilbara Death Adder | | X | | | | | | |
| Elapidae | *Brachyurophis approximans* | Northern Shovel-nosed Snake | | X | | | | | | |
| Elapidae | *Demansia calodera* | Little Whipsnake | | X | | | | | | |
| Elapidae | *Demansia psammophis cupreiceps* | Yellow-faced Whipsnake | | X | | | X | | | 1 |
| Elapidae | *Ephalophis greyae* | Mangrove Sea Snake | Ma | X | | | | | | |
| Elapidae | *Furina ornata* | Moon Snake | | X | | | | | | |
| Elapidae | *Pseudechis australis* | Mulga Snake | | X | | | | | | |
| Elapidae | *Pseudonaja mengdeni* | Western Brown Snake | | X | | | | | | 1 |

| Family | Scientific Name | Common name | Listing | NM | PMST | DBCA | GHD 2016 | GHD 2019 | 360 2021 | This survey |
|---|---|---|---|---|---|---|---|---|---|---|
| Elapidae | *Pseudonaja modesta* | Ringed Brown Snake | | X | | | | | | |
| Elapidae | *Suta fasciata* | Rosen's Snake | | X | | | | | | |
| Elapidae | *Simoselaps bertholdi* | Jan's Banded Snake | | X | | | | | | |
| Elapidae | *Simoselaps littoralis* | West Coast Banded Snake | | X | | | | | | |
| Gekkonidae | *Gehyra australis* | Northern Dtella | Intro. (Nat.) | X | | | | | | |
| Gekkonidae | *Gehyra capensis* | Northwest Cape Gehyra | | | | | | | | 11 |
| Gekkonidae | *Gehyra pilbara* | Pilbara Dtella | | X | | | | | | |
| Gekkonidae | *Gehyra variegata* | Variegated Dtella | | X | | | | | | 9 |
| Gekkonidae | *Hemidactylus frenatus* | Asian House Gecko | Intro. | | X | | | | | calling |
| Gekkonidae | *Heteronotia binoei* | Bynoe's Gecko | | X | | | X | | | 1 |
| Pygopodidae | *Aprasia rostrata* | Ningaloo Worm Lizard | P3 | X | | X | | | | |
| Pygopodidae | *Delma butleri* | Butler's legless lizard | | X | | | | | | |
| Pygopodidae | *Delma nasuta* | Sharp-snouted Delma | | X | | | | | | 1 |
| Pygopodidae | *Delma tealei* | North West Cape Delma | | X | | | | | | |
| Pygopodidae | *Delma tincta* | Black-necked Delma | | X | | | | | | |
| Pygopodidae | *Lialis burtonis* | Burton's Legless Lizard | | X | | | | | | |
| Pygopodidae | *Pygopus nigriceps* | Hooded Scalyfoot | | X | | | | | | |
| Pythonidae | *Antaresia childreni* | Children's python | | X | | | | | | |
| Pythonidae | *Antaresia perthensis* | Pygmy Python | | X | | | | | | |
| Pythonidae | *Aspidites melanocephalus* | Black headed Python | | X | | | | | | |
| Scincidae | *Carlia munda* | Striped Rainbow Skink | | X | | | | | | 4 |
| Scincidae | *Cryptoblepharus plagiocephalus* | Peron's Snake-eyed skink | | X | | | | | | |
| Scincidae | *Ctenotus grandis titan* | Giant Desert Ctenotus | | X | | | | | | |
| Scincidae | *Ctenotus hanloni* | Nimble Ctenotus | | X | | | | | | |
| Scincidae | *Ctenotus iapetus* | North West Cape Ctenotus | | X | | | | | | 1 |
| Scincidae | *Ctenotus inornatus* | Plain Ctenotus | | X | | | | | | |
| Scincidae | *Ctenotus pantherinus ocellifer* | Leopard Skink | | X | | | | | | 2 |
| Scincidae | *Ctenotus rufescens* | Rufous Fine-snout Ctenotus | | X | | | | | | |
| Scincidae | *Ctenotus saxatilis* | Rock Ctenotus | | X | | | X | | | 6, camera |

| Family | Scientific Name | Common name | Listing | NM | PMST | DBCA | GHD 2016 | GHD 2019 | 360 2021 | This survey |
|---|---|---|---|---|---|---|---|---|---|---|
| Scincidae | *Ctenotus uber uber* | Western Spotted Ctenotus | | | | | X | | | |
| Scincidae | *Cyclodomorphus melanops* | Slender Blue-tongue | | X | | | X | | | 3 |
| Scincidae | *Egernia depressa* | Pygmy Spiny-tailed Skink | | X | | | X | | | |
| Scincidae | *Eremiascincus pallidus* | Western Narrow-banded Skink | | X | | | | | | |
| Scincidae | *Eremiascincus richardsonii* | Broad-banded Sand Swimmer | | X | | | | | | |
| Scincidae | *Lerista allochira* | Cape Range Slider | P3 | X | | X | | | | |
| Scincidae | *Lerista bipes* | Western Two-toed Slider | | X | | | X | | | 1 |
| Scincidae | *Lerista clara* | Sharp-blazed three-toed slider | | X | | | | | | |
| Scincidae | *Lerista elegans* | Elegant Slider | | X | | | | | | |
| Scincidae | *Lerista macropisthopus fusciceps* | Unpatterned Robust Slider | | X | | | | | | 7 |
| Scincidae | *Lerista miopus* | Northern Spotted Slider | | X | | | | | | 1 |
| Scincidae | *Lerista planiventralis planiventralis* | Keeled Slider | | X | | | X | | | |
| Scincidae | *Menetia greyii* | Common Dwarf Skink | | X | | | | | | 2 |
| Scincidae | *Menetia surda* | Western Dwarf Skink | | X | | | | | | |
| Scincidae | *Morethia lineoocellata* | Pale-flecked Snake-eyed Skink | | X | | | | | | |
| Scincidae | *Morethia ruficauda exquisita* | Fire-tailed Skink | | X | | | | | | 2 |
| Scincidae | *Notoscincus ornatus ornatus* | Ornate Snake-eyed Skink | | X | | | | | | |
| Scincidae | *Tiliqua multifasciata* | Central Blue-tongue | | X | | | | | | |
| Scincidae | *Tiliqua rugosa rugosa* | Bobtail | | X | | | | | | |
| Typhlopidae | *Anilios splendidus* | Splendid Blindsnake | P2 | | | X | | | | |
| Varanidae | *Varanus acanthurus* | Spiny-tailed Goanna | | X | | | | | | |
| Varanidae | *Varanus brevicauda* | Short-tailed Pygmy Goanna | | X | | | | | | |
| Varanidae | *Varanus eremius* | Desert Pygmy Monitor | | X | | | | | | |
| Varanidae | *Varanus giganteus* | Perentie | | X | | | | | X | 1 |
| Varanidae | *Varanus gouldii* | Goulds Monitor | | X | | | X | | | burrows |
| Varanidae | *Varanus tristis* | Racehorse Goanna | | X | | | | | | |
| **Amphibian** | | | | | | | | | | |
| Pelodryadidae | *Cyclorana maini* | Giant Frog | | X | | | | | | 1 |
| Limnodynastidae | *Neobatrachus aquilonius* | Northern Burrowing Frog | | X | | | | | | |

| Family | Scientific Name | Common name | Listing | NM | PMST | DBCA | GHD 2016 | GHD 2019 | 360 2021 | This survey |
|---|---|---|---|---|---|---|---|---|---|---|
| Limnodynastidae | *Neobatrachus fulvus* | Tawny Trilling Frog | | X | | | | | | 3 |
| Myobatrachidae | *Pseudophryne douglasi* | Gorge Toadlet | | X | | | | | | |
| **Birds** | | | | | | | | | | |
| Acanthizidae | *Calamanthus campestris* | Rufous fieldwren | | X | | | X | | | |
| Acanthizidae | *Gerygone tenebrosa* | Dusky Gerygone | | X | | | | | | |
| Acanthizidae | *Gerygone fusca* | Western Gerygone | | X | | | | | | |
| Acanthizidae | *Pyrrholaemus brunneus* | Redthroat | | X | | | | | | |
| Acanthizidae | *Smicrornis brevirostris* | Weebill | | X | | | | | | |
| Accipitridae | *Accipiter cirrocephalus* | Collared Sparrowhawk | | X | | | | | | 1 |
| Accipitridae | *Accipiter fasciatus* | Brown Goshawk | Ma | X | | | | | | |
| Accipitridae | *Aquila audax* | Wedge tailed Eagle | | X | | | X | | | |
| Accipitridae | *Circus approximans* | Swamp Harrier | Ma | X | | | | | | |
| Accipitridae | *Circus assimilis* | Spotted Harrier | | X | | | | | | 1 |
| Accipitridae | *Elanus axillaris* | Black-shouldered Kite | | X | | | X | X | | 2 |
| Accipitridae | *Haliaeetus leucogaster* | White-bellied Sea-Eagle | Ma | X | | | | | | |
| Accipitridae | *Haliastur indus* | Brahminy Kite | Ma | X | | | | | | |
| Accipitridae | *Haliastur sphenurus* | Whistling Kite | Ma | X | | | X | X | X | 1 |
| Accipitridae | *Hamirostra isura* | Square-tailed Kite | | | | | | X | | |
| Accipitridae | *Hamirostra melanosternon* | Black-breasted Buzzard | | X | | | | | | |
| Accipitridae | *Hieraaetus morphnoides* | Little Eagle | | X | | | X | | | |
| Accipitridae | *Milvus migrans* | Black Kite | | X | | | X | | | 1 |
| Accipitridae | *Pandion haliaetus cristatus* | Osprey | Mi, IA | X | X | X | X | X | | |
| Aegothelidae | *Aegotheles cristatus* | Owlet Nightjar | | X | | | | | | 2, camera |
| Alaudidae | *Mirafra javanica* | Horsfield's Bushlark | | X | | | | | | |
| Alcedinidae | *Dacelo leachii* | Blue-winged Kookaburra | | X | | | | | | |
| Alcedinidae | *Todiramphus pyrrhopygius* | Red-backed Kingfisher | | X | | | | | | |
| Alcedinidae | *Todiramphus sanctus* | Sacred Kingfisher | | X | | | X | X | | 1 |
| Alcedinidae | *Todiramphus sordidus pilbara* | Pilbara Collared Kingfisher | | X | | | | | | |
| Apodidae | *Apus pacificus* | Fork-tailed Swift | Ma, Mi, IA | | X | | | | | |

| Family | Scientific Name | Common name | Listing | NM | PMST | DBCA | GHD 2016 | GHD 2019 | 360 2021 | This survey |
|---|---|---|---|---|---|---|---|---|---|---|
| Anatidae | *Anas gracilis* | Grey Teal | | X | | | | | | |
| Anatidae | *Anas platyrhynchos* | Mallard | Intro. | X | | | | | | |
| Anatidae | *Anas superciliosa* | Pacific Black Duck | | X | | | | | | 2 |
| Anatidae | *Aythya australis* | Hardhead | | X | | | | | | |
| Anatidae | *Chenonetta jubata* | Australian Wood Duck | | X | | | | | | |
| Anatidae | *Cygnus atratus* | Black Swan | | X | | | | | | |
| Anatidae | *Dendrocygna arcuata* | Wandering Whistling Duck | | X | | | | | | |
| Anhingidae | *Anhinga novaehollandiae* | Australasian Darter | | X | | | | | | |
| Ardeidae | *Ardea modesta* | Great Egret | | X | | | | | | |
| Ardeidae | *Ardea intermedia* | Intermediate Egret | Ma | X | | | | | | |
| Ardeidae | *Bubulcus coromandus* | Cattle Egret | | X | | | | | | |
| Ardeidae | *Butorides striata* | Striated Heron | | X | | | | | | |
| Ardeidae | *Egretta garzetta* | Little Egret | Ma | X | | | | | | |
| Ardeidae | *Egretta novaehollandiae* | White-faced Heron | | X | | | | | | |
| Ardeidae | *Egretta sacra* | Reef Heron | | X | | | | | | |
| Ardeidae | *Nycticorax caledonicus* | Nankeen Night Heron | Ma | X | | | | | | |
| Artamidae | *Artamus cinereus* | Black faced Wood Swallow | | X | | | | X | | 7 |
| Artamidae | *Artamus leucorynchus* | White-breasted Woodswallow | | X | | | | | | |
| Artamidae | *Artamus minor* | Little Woodswallow | | X | | | | | | |
| Artamidae | *Artamus personatus* | Masked Woodswallow | | X | | | | | | |
| Artamidae | *Cracticus nigrogularis* | Pied Butcherbird | | X | | | X | X | X | 3 |
| Artamidae | *Cracticus torquatus* | Grey Butcherbird | | X | | | | | | |
| Artamidae | *Cracticus tibicen* | Australian Magpie | | X | | | | | X | 2 |
| Burhinidae | *Burhinus grallarius* | Bush Stone-curlew | | X | | | | | | |
| Burhinidae | *Esacus magnirostris* | Beach Stone-curlew | Ma | X | | | | | | |
| Cacatuidae | *Cacatua sanguinea* | Little Corella | | X | | | X | X | X | 100 |
| Cacatuidae | *Eolophus roseicapilla* | Galah | | X | | | X | X | X | 32 |
| Cacatuidae | *Nymphicus hollandicus* | Cockatiel | | X | | | X | | | 5 |
| Cuculidae | *Cacomantis pallidus* | Pallid Cuckoo | | X | | | | | | 1 |

| Family | Scientific Name | Common name | Listing | NM | PMST | DBCA | GHD 2016 | GHD 2019 | 360 2021 | This survey |
|---|---|---|---|---|---|---|---|---|---|---|
| Cuculidae | *Chrysococcyx basalis* | Horsfield's Bronze Cuckoo | | X | | | X | | X | 3 |
| Campephagidae | *Coracina novaehollandiae* | Black faced Cuckoo shrike | Ma | X | | | X | X | | 4 |
| Campephagidae | *Lalage tricolor* | White-winged Triller | | X | | | | | | 3 |
| Campephagidae | *Oreoica gutturalis* | Crested Bellbird | | X | | | X | X | X | 2, camera |
| Caprimulgidae | *Eurostopodus argus* | Spotted Nightjar | | | | | | | | 2 |
| Casuariidae | *Dromaius novaehollandiae* | Emu | | X | | | X | X | | 1 |
| Charadriidae | *Charadrius leschenaultii* | Greater Sand Plover | Vu, Vu, IA | X | | X | | | | |
| Charadriidae | *Charadrius mongolus* | Lesser Sand Plover | En, En, IA | X | | X | | | | |
| Charadriidae | *Charadrius ruficapillus* | Red-capped Plover | | X | | | | | | |
| Charadriidae | *Charadrius veredus* | Oriental Plover | Ma, Mi, IA | | X | X | | | | |
| Charadriidae | *Elseyornis melanops* | Black-fronted Dotterel | | X | | | | | | |
| Charadriidae | *Erythrogonys cinctus* | Red-kneed Dotterel | | X | | | | | | |
| Charadriidae | *Pluvialis fulva* | Pacific Golden Plover | Ma, Mi, IA | | | X | | | | |
| Charadriidae | *Pluvialis squatarola* | Grey Plover | Ma, Mi, IA | X | | X | | | | |
| Charadriidae | *Vanellus tricolor* | Banded Lapwing | | X | | | | | | |
| Ciconiidae | *Ephippiorhynchus asiaticus* | Black-necked Stork | | X | | | | | | |
| Columbidae | *Columba livia* | Domestic Pigeon | Intro. | X | X | | | | | |
| Columbidae | *Geopelia cuneata* | Diamond Dove | | X | | | X | | | |
| Columbidae | *Geopelia humeralis* | Bar-shouldered Dove | | X | | | | | | |
| Columbidae | *Geopelia striata* | Peaceful Dove | | X | | | | | | 3 |
| Columbidae | *Geophaps plumifera* | Spinifex Pigeon | | X | | | | | | 19, camera |
| Columbidae | *Ocyphaps lophotes* | Crested Pigeon | | X | | | | X | X | 18, camera |
| Columbidae | *Phaps chalcoptera* | Common Bronzewing | | X | | | | | | |
| Corvidae | *Corvus bennetti* | Little Crow | | X | | | X | | | |
| Corvidae | *Corvus orru* | Toresian Crow | | X | | | X | X | | 2, camera |
| Cuculidae | *Centropus phasianinus* | Pheasant Coucal | | X | | | | | | |
| Cuculidae | *Chalcites basalis* | Horsfield's Bronze Cuckoo | | X | | | | | | 2 |
| Cuculidae | *Chrysococcyx osculans* | Black eared Cuckoo | Ma | X | | | X | X | | |
| Cuculidae | *Heteroscenes pallidus* | Pallid Cuckoo | Ma | X | | | | | | 1 |

| Family | Scientific Name | Common name | Listing | NM | PMST | DBCA | GHD 2016 | GHD 2019 | 360 2021 | This survey |
|---|---|---|---|---|---|---|---|---|---|---|
| Dicaeidae | *Dicaeum hirundinaceum* | Mistletoebird | | X | | | | | | 1 |
| Diomedeidae | *Thalassarche chlororhynchos* | Yellow-nosed Albatross | Vu, Vu, IA | X | | X | | | | |
| Estrildidae | *Emblema pictum* | Painted Finch | | X | | | | | | 12 |
| Estrildidae | *Neochmia ruficauda* | Star Finch | | X | | | | | | |
| Estrildidae | *Taeniopygia guttata* | Zebra Finch | | X | | | X | X | X | 12 |
| Falconidae | *Falco berigora* | Brown Falcon | | X | | | X | X | | 1 |
| Falconidae | *Falco cenchroides* | Nankeen Kestrel | Ma | X | | | X | X | | 5 |
| Falconidae | *Falco hypoleucos* | Grey Falcon | Vu, Vu | | X | | | | | |
| Falconidae | *Falco longipennis* | Hobby Falcon | | X | | | X | | | 1 |
| Falconidae | *Falco peregrinus* | Peregrine Falcon | OS | X | | X | | X | | 1 |
| Fregatidae | *Fregata ariel* | Lesser Frigatebird | Ma, Mi, IA | | X | | | | | |
| Glareolidae | *Glareola maldivarum* | Oriental Pratincole | Ma, Mi, IA | X | X | X | | | | |
| Haematopodidae | *Haematopus fuliginosus* | Sooty Oystercatcher | | X | | | | | | |
| Haematopodidae | *Haematopus longirostris* | Pied Oystercatcher | | X | | | | | | |
| Hirundinidae | *Cheramoeca leucosterna* | White-backed Swallow | | | | | X | | | |
| Hirundinidae | *Hirundo neoxena* | Welcome Swallow | Ma | X | | | | | | 18 |
| Hirundinidae | *Hirundo rustica* | Barn Swallow | Ma, Mi, IA | | X | | | | | |
| Hirundinidae | *Petrochelidon ariel* | Fairy Martin | | X | | | | | | |
| Hirundinidae | *Petrochelidon nigricans* | Tree Martin | | X | | | X | | | 14 |
| Laridae | *Anous stolidus* | Common Noddy | Ma, Mi, IA | | X | X | | | | |
| Laridae | *Chlidonias leucopterus* | White-winged Black Tern | Ma, Mi, IA | X | | X | | | | |
| Laridae | *Gelochelidon nilotica* | Gull-billed Tern | Ma, Mi, IA | X | | X | | | | |
| Laridae | *Hydroprogne caspia* | Caspian Tern | Ma, Mi, IA | X | | X | | | | |
| Laridae | *Larus novaehollandiae* | Silver Gull | Ma | X | | | | | | |
| Laridae | *Onychoprion anaethetus* | Bridled Tern | Ma, Mi, IA | X | | | | | | |
| Laridae | *Sterna dougallii* | Roseate Tern | Ma, Mi, IA | X | | X | | | | |
| Laridae | *Sterna hirundo* | Common Tern | Ma, Mi, IA | X | | X | | | | |
| Laridae | *Sternula albifrons* | White-shafted Little Tern | Ma, Mi, IA | X | | X | | | | |
| Laridae | *Sternula nereis nereis* | Fairy Tern | Vu, Vu, IA | X | X | | | | | |

| Family | Scientific Name | Common name | Listing | NM | PMST | DBCA | GHD 2016 | GHD 2019 | 360 2021 | This survey |
|---|---|---|---|---|---|---|---|---|---|---|
| Laridae | *Thalasseus bengalensis* | Lesser Crested Tern | Ma | X | | | | | | |
| Laridae | *Thalasseus bergii* | Crested Tern | Ma, Mi, IA | X | | X | | | | |
| Locustellidae | *Megalurus cruralis* | Brown Songlark | | | | | X | | | |
| Locustellidae | *Cincloramphus mathewsi* | Rufous Songlark | | | | | | X | | |
| Locustellidae | *Poodytes carteri* | Spinifexbird | | X | | | | X | | 5 |
| Maluridae | *Amytornis whitei* | Rufous Grasswren | | | | | X | | | |
| Maluridae | *Malurus lamberti* | Variegated Fairy Wren | | X | | | | | | 9 |
| Maluridae | *Malurus leucopterus* | White winged Fairy Wren | | X | | | X | | | 6 |
| Maluridae | *Stipiturus ruficeps* | Rufous-crowned Emu-wren | | X | | | | | | |
| Meliphagidae | *Acanthagenys rufogularis* | Spiny-cheeked Honeyeater | | X | | | X | | | |
| Meliphagidae | *Certhionyx variegatus* | Pied Honeyeater | | X | | | | | | |
| Meliphagidae | *Epthianura albifrons* | White-fronted Chat | | X | | | | | | |
| Meliphagidae | *Lichenostomus virescens* | Singing Honeyeater | | X | | | X | X | X | 12 |
| Meliphagidae | *Lichmera indistincta* | Brown Honeyeater | | X | | | | | | 5 |
| Meliphagidae | *Manorina flavigula* | Yellow throated Miner | | X | | | X | X | X | 26 |
| Meliphagidae | *Ptilotula keartlandi* | Grey-headed Honeyeater | | X | | | | X | | 34, camera |
| Meliphagidae | *Ptilotula ornata* | Yellow-plumed Honeyeater | | | | | | X | | |
| Meliphagidae | *Ptilotula penicillata* | White-plumed Honeyeater | | | | | X | | | 4 |
| Meliphagidae | *Sugomel niger* | Black Honeyeater | | | | | | X | | |
| Meropidae | *Merops ornatus* | Rainbow Bee eater | Ma | X | | | X | X | | 4 |
| Monarchidae | *Grallina cyanoleuca* | Magpie Lark | Ma | X | | | X | X | X | 3 |
| Motacillidae | *Anthus australis* | Australian Pipit | Ma | | | | | X | | 1 |
| Motacillidae | *Motacilla cinerea* | Grey Wagtail | Ma, Mi, IA | | X | | | | | |
| Motacillidae | *Motacilla tschutschensis* | Yellow Wagtail | Ma, Mi, IA | | X | | | | | |
| Oceanitidae | *Oceanites oceanicus* | Wilson's Storm Petrel | Ma, Mi, IA | X | | X | | | | |
| Otididae | *Ardeotis australis* | Australian Bustard | | X | | | X | X | | |
| Pachycephalidae | *Colluricincla harmonica* | Grey Shrike Thrush | | X | | | | | | 4 |
| Pachycephalidae | *Pachycephala lanioides* | White-breasted Whistler | | X | | | | | | |
| Pachycephalidae | *Pachycephala melanura* | Mangrove Golden Whistler | | X | | | | | | |

| Family | Scientific Name | Common name | Listing | NM | PMST | DBCA | GHD 2016 | GHD 2019 | 360 2021 | This survey |
|---|---|---|---|---|---|---|---|---|---|---|
| Pachycephalidae | *Pachycephala rufiventris* | Rufous Whistler | | X | | | X | | | |
| Pardalotidae | *Pardalotus rubricatus* | Red-browed Pardalote | | X | | | | | X | 1 |
| Pardalotidae | *Pardalotus striatus* | Striated Pardalote | | X | | | | | | |
| Pelecanidae | *Pelecanus conspicillatus* | Australian Pelican | Ma | X | | | | | | |
| Petroicidae | *Melanodryas cucullata* | Hooded Robin | | | | | | X | | |
| Petroicidae | *Peneothello pulverulenta* | Mangrove Robin | | X | | | | | | |
| Petroicidae | *Petroica goodenovii* | Red-capped Robin | | X | | | | | | |
| Phaethontidae | *Phaethon lepturus* | White-tailed Tropicbird | Ma, Mi, IA | X | | X | | | | |
| Phaethontidae | *Phaethon rubricauda* | Red-tailed Tropicbird | P4, Ma, Mi, IA | X | | X | | | | |
| Phalacrocoracidae | *Phalacrocorax sulcirostris* | Little Black Cormorant | | X | | | | | | |
| Phalacrocoracidae | *Phalacrocorax varius* | Pied Cormorant | | X | | | | | | |
| Phasianidae | *Coturnix ypsilophora* | Brown Quail | | X | | | | | X | 6 |
| Podargidae | *Podargus strigoides* | Tawny Frogmouth | | X | | | | | | |
| Podicipedidae | *Poliocephalus poliocephalus* | Hoary-headed Grebe | | X | | | | | | |
| Podicipedidae | *Tachybaptus novaehollandiae* | Australasian Grebe | | X | | | | | | |
| Pomatostomidae | *Pomatostomus superciliosus* | White-browed Babbler | | | | | | | X | |
| Pomatostomidae | *Pomatostomus temporalis* | Grey-crowned Babbler | | X | | | | | | |
| Procellariidae | *Ardenna carneipes* | Flesh-footed Shearwater | Vu, Mi, Ma, IA | | X | | | | | |
| Procellariidae | *Ardenna pacifica* | Wedge-tailed Shearwater | Mi, Ma, IA | X | | X | | | | |
| Procellariidae | *Calonectris leucomelas* | Streaked Shearwater | Mi, Ma, IA | X | | | | | | |
| Procellariidae | *Macronectes giganteus* | Southern Giant Petrel | En, Mi, Ma, IA | X | | | | | | |
| Procellariidae | *Pterodroma mollis* | Soft-plumaged Petrel | Vu, Mi, Ma, IA | X | | | | | | |
| Procellariidae | *Puffinus huttoni* | Hutton's Shearwater | En, Mi, Ma, IA | X | | X | | | | |
| Psittacidae | *Barnardius zonarius zonarius* | Port Lincoln Parrot | | X | | | X | | X | 2 |
| Psittacidae | *Melopsittacus undulatus* | Budgerigar | | X | | | X | X | | 35 |
| Psittacidae | *Pezoporus occidentalis* | Night Parrot | Cr, En | | X | | | | | |
| Psophodidae | *Psophodes occidentalis* | Chiming Wedgebill | | | | | X | | | |
| Ptilonorhynchidae | *Chlamydera guttata* | Western Bowerbird | | X | | | | | | 3 |
| Rallidae | *Fulica atra* | Eurasian Coot | | X | | | | | | |

| Family | Scientific Name | Common name | Listing | NM | PMST | DBCA | GHD 2016 | GHD 2019 | 360 2021 | This survey |
|---|---|---|---|---|---|---|---|---|---|---|
| Rallidae | *Hypotaenidia philippensis* | Buff-banded Rail | Ma | X | | | | | | |
| Rallidae | *Porzana fluminea* | Australian Spotted Crake | | X | | | | | | |
| Rallidae | *Tribonyx ventralis* | Black-tailed Native-hen | | X | | | | | | |
| Recurvirostridae | *Himantopus himantopus* | Black-winged Stilt | Ma | X | | | | | | |
| Rhipiduridae | *Rhipidura albiscapa* | Grey Fantail | | X | | | | | | |
| Rhipiduridae | *Rhipidura leucophyrs* | Willie Wagtail | | X | | | | | | 3 |
| Rhipiduridae | *Rhipidura phasiana* | Mangrove Grey Fantail | | X | | | | | | |
| Rostratulidae | *Rostratula australis* | Australian Painted Snipe | En, En, Ma | | X | | | | | |
| Scolopacidae | *Actitis hypoleucos* | Common Sandpiper | Mi, Ma, IA | X | X | X | | | | |
| Scolopacidae | *Arenaria interpres* | Ruddy Turnstone | Mi, Ma, IA | X | | X | | | | |
| Scolopacidae | *Calidris acuminata* | Sharp-tailed Sandpiper | Mi, Ma, IA | X | X | X | | | | |
| Scolopacidae | *Calidris alba* | Sanderling | Mi, Ma, IA | X | | X | | | | |
| Scolopacidae | *Calidris canutus* | Red Knot | En, En, IA | | X | X | | | | |
| Scolopacidae | *Calidris falcinellus* | Broad-billed Sandpiper | Mi, Ma, IA | | | X | | | | |
| Scolopacidae | *Calidris ferruginea* | Curlew Sandpiper | Cr, Ce, IA | | X | X | | | | |
| Scolopacidae | *Calidris melanotos* | Pectoral Sandpiper | Mi, Ma, IA | | X | | | | | |
| Scolopacidae | *Calidris ruficollis* | Red-necked Stint | Mi, Ma, IA | X | | X | | | | |
| Scolopacidae | *Calidris subminuta* | Long-toed Stint | Mi, Ma, IA | X | | X | | | | |
| Scolopacidae | *Calidris tenuirostris* | Great Knot | Cr, Ce, IA | X | | | | | | |
| Scolopacidae | *Gallinago stenura* | Pin-tailed Snipe | Mi, Ma, IA | X | X | X | | | | |
| Scolopacidae | *Limosa lapponica* | Bar-tailed Godwit | Mi, Ma, IA | X | X | | | | | |
| Scolopacidae | *Limosa limosa* | Black-tailed Godwit | Cr, Ce, IA | | | X | | | | |
| Scolopacidae | *Numenius madagascariensis* | Eastern Curlew | Cr, Ce, IA | X | X | X | | | | |
| Scolopacidae | *Numenius minutus* | Little Curlew | Mi, Ma, IA | X | | X | | | | |
| Scolopacidae | *Numenius phaeopus* | Whimbrel | Mi, Ma, IA | X | | X | | | | |
| Scolopacidae | *Tringa brevipes* | Grey-tailed Tattler | P4, Mi, Ma, IA | X | | X | | | | |
| Scolopacidae | *Tringa glareola* | Wood Sandpiper | Mi, Ma, IA | X | | X | | | | |
| Scolopacidae | *Tringa nebularia* | Common Greenshank | Mi, Ma, IA | X | X | X | | | | |
| Scolopacidae | *Tringa stagnatilis* | Marsh Sandpiper | Mi, Ma, IA | X | | X | | | | |

| Family | Scientific Name | Common name | Listing | NM | PMST | DBCA | GHD 2016 | GHD 2019 | 360 2021 | This survey |
|---|---|---|---|---|---|---|---|---|---|---|
| Scolopacidae | *Xenus cinereus* | Terek Sandpiper | Mi, Ma, IA | X | | X | | | | |
| Strigidae | *Ninox connivens* | Barking Owl | | X | | | | | | |
| Strigidae | *Tyto javanica* | Barn Owl | | | | | | | | 1 |
| Threskiornithidae | *Platalea regia* | Royal Spoonbill | | X | | | | | | |
| Threskiornithidae | *Plegadis falcinellus* | Glossy Ibis | Ma | | | X | | | | |
| Threskiornithidae | *Threskiornis spinicollis* | Straw-necked Ibis | Ma | X | | | | | | |
| Turnicidae | *Turnix velox* | Little Button Quail | | X | | | X | | | 6, camera |
| Zosteropidae | *Zosterops luteus* | Yellow White-eye | | X | | | | | | |

Into (Nat). Refers to an Australian species that has extended its range due to human activities.

## Fauna likelihood of occurrence assessment guidelines

| Assessment outcome | Description |
|---|---|
| Present | Species recorded during the field survey or from recent, reliable records from within or close proximity to the survey area. |
| Likely | Species are likely to occur in the survey area where there is suitable habitat within the survey area and there are recent records of occurrence of the species in close proximity to the survey area.<br>OR<br>Species known distribution overlaps with the survey area and there is suitable habitat within the survey area. |
| Unlikely | Species assessed as unlikely include those species previously recorded within 10 km of the survey area however:<br>There is limited (i.e. the type, quality and quantity of the habitat is generally poor or restricted) habitat in the survey area.<br>The suitable habitat within the survey area is isolated from other areas of suitable habitat and the species has no capacity to migrate into the survey area.<br>OR<br>Those species that have a known distribution overlapping with the survey area however:<br>There is limited habitat in the survey area (i.e. the type, quality and quantity of the habitat is generally poor or restricted).<br>The suitable habitat within the survey area is isolated from other areas of suitable habitat and the species has no capacity to migrate into the survey area. |
| Highly unlikely | Species that are considered highly unlikely to occur in the survey area include:<br>Those species that have no suitable habitat within the survey area.<br>Those species that have become locally extinct, or are not known to have ever been present in the region of the survey area. |

## Definitions

| Term | Description |
|---|---|
| study area | a 20 km buffer around the survey area |
| survey area | the area subject to the current survey |
| locality | the area within an approximate 20 km radius of the survey area |

Likelihood of occurrence table

| Common Name | Status BC Act/ DBCA | Status EPBC Act | Description and habitat requirements | LOO within survey area (pre-survey) | LOO within survey area (post-survey) | Comment |
|---|---|---|---|---|---|---|
| Mammals | | | | | | |
| Brush-tailed mulgara (*Dasycercus blythi*) | P4 | | The Brush-tailed Mulgara is primarily nocturnal, shelters in burrows and feeds on insects, other arthropods, and small vertebrates. This species inhabits spinifex grasslands and, in central Australia, lives in burrows that it digs on the flats between low sand dunes (Van Dyck and Strahan 2008). The Mulgara is a solitary species exhibiting high site fidelity and a low propensity for dispersal once a home range has been established (Masters and Crowther 2003). Males and females maintain home ranges of 1.4 to 14 hectares (Masters and Crowther 2003) which on average, overlap by less than 20% (Masters and Crowther 2003). | Unlikely | Highly unlikely<br>No suitable habitat for this species | |
| Northern quoll (*Dasyurus hallicatus*) | EN | EN | The Northern Quoll once occurred across the majority of northern Australia, but its range has significantly contracted. It occurs in the Pilbara region but in disjunct populations. The Northern Quoll inhabits a range of vegetation associations but is especially abundant on dissected rocky escarpment and eucalypt woodland within 200 km of the coast. It is known to den in rock crevices and rock piles and favors rocky areas. They are predominantly nocturnal but are occasionally active during the day, particularly during the mating season and are known to have a large home range (Van Dyck and Strahan 2008). | Unlikely. This species is presumed locally extinct in Cape Range. | Unlikely. This species is presumed locally extinct in Cape Range. | Presumed locally extinct |
| Black-footed Rock-wallaby (*Petrogale lateralis lateralis)* | EN | EN | The habitat of Black-flanked Rock-wallaby varies between colonies but always involves grassland feeding habitat for feeding in close proximity to cliff, rock-pile, talus or escarpment refuge habitat. Rock cliffs or other steep substrates with adequate shelter and refuge are essential for breeding. Examples of habitat include limestone outcrops and coastal cliffs on Barrow Island, the gorge of the Murchison River in Kalbarri National Park, granite outcrops in the wheatbelt, and granite outcrops, sandstone cliffs and gabbro rock piles on Depuch Island (Maxwell et al. 1996; Pearson & Kinnear 1997). | Likely. Although the survey area possesses rocky habitat comprised of small rocky gullies, it is considered these habitats are not large enough to accommodate a permanent population. It is speculated these areas may be used by the species on an opportunistic basis. | Likely. Although the survey area possesses rocky habitat comprised of small rocky gully's, it is considered these habitats are not large enough to accommodate a permanent population. It is speculated these areas may be used by the species on an opportunistic basis. | |

| Common Name | Status BC Act/ DBCA | Status EPBC Act | Description and habitat requirements | LOO within survey area (pre-survey) | LOO within survey area (post-survey) | Comment |
|---|---|---|---|---|---|---|
| Shark Bay Mouse (*Pseudomys fieldi*) | Vu | Vu | This species is extinct on the mainland and now restricted toBernier Island, in Shark Bay. | Highly unlikely<br>The survey area is outside of the known distribution for this species. | Highly unlikely<br>The survey area is outside of the known distribution for this species. | Extinct in the mainland |
| Long-tailed Dunnart (*Sminthopsis longicaudata*) | P4 | | The Long-tailed Dunnart occurs throughout the Gibson Desert, Murchison, southern Carnarvon Basin and the Pilbara regions of Western Australia. Its habitat includes rugged, rocky areas with hummock grasses, shrubs and tall open shrublands and woodlands. In the Young Range in the Gibson Desert, the Long-tailed Dunnart has been found to be associated with plateaus, composed of boulders and stones, with some fine red soils, and sparsely vegetated Mulga (*Acacia aneura*) and Minniritchi (*A. grasbyi*) shrubs over spinifex (Van Dyck and Strahan 2008). | Highly unlikely<br>Species not known fromthe region. | Highly unlikely<br>Species not known fromthe region. | Habitat present but no records in the region |
| Central Rock-rat (*Zyzomys pedunculatus*) | Cr | Ce | The central rock-rat was rediscovered in 1996, the central rock-ratis restricted to the West MacDonnell Ranges of central Australia. | Highly unlikely<br>The survey area is outside the current known distribution for this species. | Highly unlikely<br>The survey area is outside the current known distribution for this species. | Extinct in Cape Range |
| Western pebble-mound mouse<br>(*Pseudomys chapmani)* | P4 | | The Western Pebble-mound Mouse is restricted to the Pilbara region where it is recognized as an endemic species. Habitat for the Western Pebble-mound Mouse can be found on stony hillsides with hummocky grasslands and little or no soil. It constructs large mounds of pebbles on stony slopes which cover an area of 0.5-9.0 square metres. 'Active' mounds are characterized by volcano-like cones capped by 'craters' that mark occluded entrances to subterranean burrow systems in which the mice live, often gregariously (Van Dyck and Strahan 2008). | Unlikely. Prior to GHD'S recent survey within the study area, this species was presumed locally extinct. | Present. During recent efforts in the survey area, active pebble mounds were identified which confirms the species presence. | |

| Common Name | Status BC Act/ DBCA | Status EPBC Act | Description and habitat requirements | LOO within survey area (pre-survey) | LOO within survey area (post-survey) | Comment |
|---|---|---|---|---|---|---|
| Pilbara Leaf-nosed Bat (*Rhinonicteris aurantia)* (Pilbara form) | VU | VU | The Pilbara Leaf-nosed Bat roosts in deep caves or mines in the wet season and forages nearby. This species occurs in the Pilbara region where its populations are scattered and localized. There are a few known populations of this species in the western Pilbara, roosting in caves formed in gorges that dissect massive siliceous sedimentary geology. It is most often observed in flight over waterholes in gorges (Van Dyck and Strahan 2008). Optimal roosts are thought to occur in caves that form between ascending rock layers, where humidity is maintained from seeping groundwater (Van Dyck and Strahan 2008). Roosts are commonly located over pools of water, or areas deep within the mine or cave structure which provides elevated temperature and humidity. Foraging habitat includes: Triodia hummock grasslands covering low rolling hills and shallow gullies, with *Eucalyptus camaldulensis* along the creeks; over small watercourses throughout granite boulder terrain; over pools and low shrubs in ironstone gorges; and in and around vegetated gravelly watercourses. | Unlikely. There are no known records of the species utilizing caves for roosting or areas within the Cape Range. | Highly Unlikely. There are no known records of the species utilizing caves for roosting or areas within the Cape Range and no caves we found in the survey area. | |
| Reptiles | | | | | | |
| Cape Range Stone Gecko (*Diplodactylus capensis*) | P2 | | The Cape Range Stone gecko is restricted to the rocky northern end of Northwest Cape (Wilson and Swan 2017). | Likely. Areas of stony habitat within the survey area provide suitable habitat, making the species presence highly likely. | Likely. Areas of stony habitat within the survey area provide suitable habitat, also specimens located in surrounding area. | |
| Ningaloo Worm Lizard (*Aprasia rostrata*) | P3 | | The Ningaloo worm-lizard occupies a variety of sandy habitats including white coastal dunes and red dunes vegetated with Triodia from Northwest Cape to Yardie Creek and Learmonth and inland to Bullara Station (Wilson and Swan 2017). | Unlikely. A small portion of sandplain is present but has been historically disturbed. | Unlikely. A small portion of sandplain is present but has been historically disturbed. | |
| Cape Range Slider (*Lerista allochura*) | P3 | | The Cape Range Slider is restricted to dissected limestone gorges and plateaus on Northwest Cape (Wilson and Swan 2017). | Likely. Habitat present in gullies in Lot 550. | Present. One animal recorded from beneath a *Ficus* sp. in thick litter. | |

| Common Name | Status BC Act/ DBCA | Status EPBC Act | Description and habitat requirements | LOO within survey area (pre-survey) | LOO within survey area (post-survey) | Comment |
|---|---|---|---|---|---|---|
| Splendid Blindsnake (*Anilios splendidus*) | P2 | | This fossorial species occurs only at the Northwest Cape in the Gascoyne region of Western Australia. The type locality is Milyering Well in the Cape Range National Park (Aplin, 1998). This species is only known from two specimens and is considered one of the largest in the Blindsnake group. | Unlikely. This species is known from two records from the western side of the Cape Range. It was recorded in shrubland on coral limestone with a thin veneer of sand. This habitat is not present within the survey area. | Unlikely. This species is known from two records from the western side of the Cape Range. It was recorded in shrubland on coral limestone with a thin veneer of sand. This habitat is not present within the survey area. | |
| Birds | | | | | | |
| Common Sandpiper (*Actitis hypoleucos*) | IA | MI, Ma | The species utilizes a wide range of coastal wetlands and some inland wetlands, with varying levels of salinity, and is mostly found around muddy margins or rocky shores and rarely on mudflats. The Common Sandpiper has been recorded in estuaries and deltas of streams, as well as on banks farther upstream; around lakes, pools, billabongs, reservoirs, dams and claypans, and occasionally piers and jetties. The muddy margins utilized by the species are often narrow and may be steep. The species is often associated with mangroves, and sometimes found in areas of mud littered with rocks or snags (Geering et al. 2007; Higgins & Davies 1996). Generally the species forages in shallow water and on bare soft mud at the edges of wetlands; often where obstacles project from substrate, e.g. rocks or mangrove roots. Birds sometimes venture into grassy areas adjoining wetlands (Higgins & Davies 1996). | Unlikely. Suitable foraging habitat was not identified within the survey area. | Unlikely. Suitable foraging habitat was not identified within the survey area. | |
| Common Noddy (*Anous stolidus)* | IA | MI, MA | In Australia, the Common Noddy occurs mainly in ocean off the Queensland coast, but the species also occurs off the north-west and central Western Australia coast. During the breeding season, the Common Noddy usually occurs on or near islands, on rocky islets and stacks with precipitous cliffs, or on shoals or cays of coral or sand. During the non-breeding period, the species occurs in groups throughout the pelagic zone (open ocean) (Higgins & Davies 1996). | Unlikely. Suitable foraging habitat was not identified within the survey area. | Unlikely. Suitable foraging habitat was not identified within the survey area. | |

| Common Name | Status BC Act/ DBCA | Status EPBC Act | Description and habitat requirements | LOO within survey area (pre-survey) | LOO within survey area (post-survey) | Comment |
|---|---|---|---|---|---|---|
| White-winged Black Tern (*Chlidonias leucopterus*) | IA | MI, MA | A small marsh tern. Habitat includes marine and freshwater coastal wetland, including river pools, billabongs and inundated floodplains. Tidal habitats are typically estuaries, lagoons and harbours. They do not breed in Australia (Morcombe 2011). | Unlikely. No habitat is present for this species | Unlikely. No habitat is present for this species | |
| Gull-billed Tern (*Gelochelidon nilotica*) | IA | MI, MA | Occurs across every continent as an inland species, only rarely over the ocean. Unusual in nesting on inland waters, fresh or saline. Often uses temporal water on mudflats or claypans, saltpans, salt marsh, open floodplains in arid regions where heavy rain have caused extensive shallow flooding. Out of the breeding season seems to prefer lagoons and salt marshes near the coast. Breeds in colonies on small islands of shallow inland waters (Morcombe 2011). | Unlikely. No habitat is present for this species | Unlikely. No habitat is present for this species | |
| Caspian Tern (*Hydroprogne caspia*) | IA | MI, MA | The Caspian Tern is mostly found in sheltered coastal embayment's (harbours, lagoons, inlets, bays, estuaries, and river deltas) and those with sandy or muddy margins are preferred. They also occur on near-coastal or inland terrestrial wetlands that are either fresh or saline, especially lakes (including ephemeral lakes), waterholes, reservoirs, rivers, and creeks. They also use artificial wetlands, including reservoirs, sewage ponds and saltworks. In offshore areas the species prefers sheltered situations, particularly near islands, and is rarely seen beyond reefs (Higgins & Davis 1996). Large numbers may shelter along the coast, behind coastal sand-dunes or coastal lakes during rough weather and have been recorded inland after storms (Higgins & Davies 1996). | Unlikely. Suitable foraging habitat was not identified within the survey area. | Unlikely. Suitable foraging habitat was not identified within the survey area. | |
| Bridled Tern (*Onychoprion anaethetus*) | IA | MI, MA | This bird is migratory and dispersive, wintering more widely through the tropical oceans. It has markedly marine habits compared to most terns. The Atlantic subspecies melanopterus breeds in Mexico, the Caribbean and west Africa; other races occur around the Arabian Peninsula and in Southeast Asia and Australasia | Highly unlikely. No habitat available | Highly unlikely. No habitat available | |
| Roseate Tern (*Sterna dougallii*) | IA | MI, MA | As with other Sterna terns, roseate tern feeds by plunge-diving for fish, almost invariably from the sea. The long-billed and short-winged S. d. gracilis breeds in Australia and New Caledonia (Gochfeld, 1996). | Unlikely. The species occurs at scattered sites in the north-west, sporadic visitors in the Pilbara and Kimberley regions. | Unlikely. The species occurs at scattered sites in the north-west, sporadic visitors in the Pilbara and Kimberley regions. | |

| Common Name | Status BC Act/ DBCA | Status EPBC Act | Description and habitat requirements | LOO within survey area (pre-survey) | LOO within survey area (post-survey) | Comment |
|---|---|---|---|---|---|---|
| Common Tern (*Sterna hirundo*) | IA | MI, MA | This bird has a circumpolar distribution, its four subspecies breeding in temperate and subarctic regions of Europe, Asia, and North America. As long-distance migrants, common terns sometimes occur well outside their normal range. Stray birds have been found inland in Africa (Zambia and Malawi), and on the Maldives and Comoros islands and Australia (Darby, 2011). | Highly unlikely. In Western Australia, the species is rarely recorded south of approximately 30° S, with only scattered records north of there to the Kimberley Division. | Highly unlikely. In Western Australia, the species is rarely recorded south of approximately 30° S, with only scattered records north of there to the Kimberley Division. | |
| White-shafted Little Tern (*Sternula albifrons*) | IA | MI, MA | This bird breeds on the coasts and inland waterways of temperate and tropical Europe and Asia. It is strongly migratory, wintering in the subtropical and tropical oceans as far south as South Africa and Australia (Higgins 1996). | Unlikely. In Western Australia, the species is only seen on a sporadic basis outside of the Kimberley region. | Unlikely. In Western Australia, the species is only seen on a sporadic basis outside of the Kimberley region. | |
| Australian Fairy Tern (*Sternula nereis nereis*) | VU | VU | The Australian fairy tern mainly feeds on fish which it catches by hovering over the sea before plunging beak first into the water to grab its prey. It seldom goes far out to sea but is often to be seen where predatory fish are feeding on shoals of small fish. It also consumes crustaceans, molluscs and some plant material. Australian fairy tern, *Sternula nereis nereis* is only known to breed in Australia (Tasmania PWS, 2013). | Unlikely. Sporadically seen in Exmouth region but no habitat present for this species | Unlikely. Sporadically seen in Exmouth region but no habitat present for this species | |
| Crested Tern *(Thalasseus bergii)* | IA | MI, MA | Habitat includes exposed ocean beaches, offshore islands, and out over deeper pelagic waters, inshore on estuaries, bays, harbors, coastal lagoons, inland on major rivers, occasionally on saline lakes, salt ponds near coast. Often roosts on boats and jetties. Breeds on islands on sand or shingle among low vegetation behind the beaches (Morcombe 2011). | Unlikely. This species will use inland waters but no habitat present in the survey area | Unlikely. This species will use inland waters but no habitat present in the survey area | |
| Grey Falcon (*Falco hypoleucos)* | VU | | The Grey Falcon inhabits lightly timbered country, especially stony plains and lightly timbered Acacia scrub. This species is considered scarce to rare and is usually found singularly or sometimes in pairs (Morcombe, 2004). | Likely. The survey area, and immediate adjacent areas of Cape Range provide good habitat for the species. | Likely. The survey area, and immediate adjacent areas of Cape Range provide good habitat for the species. | |

| Common Name | Status BC Act/ DBCA | Status EPBC Act | Description and habitat requirements | LOO within survey area (pre-survey) | LOO within survey area (post-survey) | Comment |
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| Peregrine Falcon (*Falco peregrinus*) | OS | | The Peregrine Falcon is uncommon but wide-ranging across Australia. Habitat is extremely diverse, from rainforest to arid scrub, from coastal heath to alpine. The Peregrine Falcon nests primarily on ledges of cliffs, shallow tree hollows, and ledges of building in cities (Morcombe, 2004). | Likely. No breeding habitat present but species could use area for foraging | Present. One adult male recorded in the survey area, foraging only. | |
| Night parrot (*Pezoporus occidentalis)* | CR | EN | The Night Parrot inhabits arid and semi-arid areas that are characterized by having dense, low vegetation. Based on accepted records, the habitat of the Night Parrot consists of *Triodia* grasslands in stony or sandy environments and of samphire and chenopod shrublands, including genera such as Atriplex, Bassia and Maireana, on floodplains and claypans, and on the margins of saltlakes, creeks or other sources of water (Parker, 1980). It has also been observed to enter dense Muehlenbeckia growth when flushed from a more typical habitat (Boles et al. 1994). | Highly unlikely. Some patches of habitat throughout the survey area but no animals recorded. | Highly unlikely. Some patches of habitat throughout the survey area but no animals recorded. | Outside of DBCA modelled distribution for the species |
| Eastern Curlew (*Numenius madagascariensis)* | CR | CR | The Eastern Curlew is a large non-breeding migratory shorebird, found commonly along the north coast of Western Australia, but rarely south of Shark Bay. The species is found along the coastline from Barrow Island and Dampier Archipelago, through the Kimberley in WA to the NT. It is found in estuaries, bays, harbors, inlets, and coastal lagoons, saltworks and sewerage farms, areas (e.g., intertidal mudflats or sandflats fringed by mangroves) often with beds of seagrass and occasionally on ocean beaches, coral reefs, rock platforms and rocky islets. The Eastern Curlew forages on soft, sheltered, intertidal sand or mudflats, often near mangroves, on saltflats, saltmarshes, rockpools, coastal reefs and ocean beaches near the tideline. (Morcombe 2004). | Unlikely. Suitable foraging habitat was not identified within the survey area. | Unlikely. Suitable foraging habitat was not identified within the survey area. | |

| Common Name | Status BC Act/ DBCA | Status EPBC Act | Description and habitat requirements | LOO within survey area (pre-survey) | LOO within survey area (post-survey) | Comment |
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| Wood Sandpiper (*Tringa glareola)* | IA | MI, MA | The Wood Sandpiper uses well-vegetated, shallow, freshwater wetlands, such as swamps, billabongs, lakes, pools and waterholes. They are typically associated with emergent, aquatic plants or grass, and dominated by taller fringing vegetation, such as dense stands of rushes or reeds, shrubs, or dead or live trees, especially Melaleuca and River Red Gums (*Eucalyptus camaldulensis)* and often with fallen timber. They also frequent inundated grasslands, short herbage or wooded floodplains, where floodwaters are temporary or receding, and irrigated crops. They are rarely found using brackish wetlands, or dry stunted saltmarsh. Typically, they do not use coastal flats, but are occasionally recorded in stony wetlands. This species uses artificial wetlands, including open sewage ponds, reservoirs, large farm dams, and bore drains (Higgins & Davies 1996). | Unlikely. Suitable foraging habitat was not identified within the survey area. | Unlikely. Suitable foraging habitat was not identified within the survey area. | |
| Common Greenshank (*Tringa nebularia)* | IA | MI, MA | This is a subarctic bird, breeding from northern Scotland eastwards across northern Europe and east across the Palearctic. It is a migratory species, wintering in Africa, the Indian subcontinent, and Australasia, usually on fresh water. It breeds on dry ground near marshy areas, laying about four eggs in a ground scrape. The Common Greenshank does not breed in Australia; however, the species occurs in all types of wetlands and has the widest distribution of any shorebird in Australia (Higgins & Davies 1996). | Unlikely. Suitable foraging habitat was not identified within the survey area. | Unlikely. Suitable foraging habitat was not identified within the survey area. | |

| Common Name | Status BC Act/ DBCA | Status EPBC Act | Description and habitat requirements | LOO within survey area (pre-survey) | LOO within survey area (post-survey) | Comment |
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| Marsh Sandpiper (*Tringa stagnatilis)* | IA | MI, MA | The Marsh Sandpiper breeds in the Palearctic. It is a migratory species, with a majority of birds wintering in Africa and India, and some migrating to Southeast Asia and Australia. They prefer to winter on freshwater wetlands such as swamps and lakes and are usually seen singly or in small groups. The Marsh Sandpiper is found on coastal and inland wetlands throughout Australia. The species is widespread in coastal Queensland, but few records exist north of Cooktown. It is recorded in all regions of NSW but especially the central and south coasts and (inland) on the western slopes of Great Divide and western plains. In Victoria, most are found in Port Phillip Bay, but also Gippsland, Westernport Bay and the Western Districts. There are scattered records in Western Australia and the Northern Territory. In Western Australia they are mainly found around the coast. (Higgins & Davies 1996). | Highly unlikely. In Western Australia, the species is mainly confined to coastal waters of the northern Pilbara and Broome regions, | Highly unlikely. In Western Australia, the species is mainly confined to coastal waters of the northern Pilbara and Broome regions, | |
| Sharp-tailed Sandpiper (*Calidris acumimata)* | IA | MI, MA | In Australasia, the Sharp-tailed Sandpiper prefers muddy edges of shallow fresh or brackish wetlands, with inundated or emergent sedges, grass, saltmarsh or other low vegetation. This includes lagoons, swamps, lakes and pools near the coast, and dams, waterholes, soaks, bore drains and bore swamps, saltpans and hypersaline saltlakes inland. They also occur in saltworks and sewage farms. They use flooded paddocks, sedgelands and other ephemeral wetlands, but leave when they dry. They use intertidal mudflats in sheltered bays, inlets, estuaries or seashores, and also swamps and creeks lined with mangroves. They tend to occupy coastal mudflats mainly after ephemeral terrestrial wetlands have dried out, moving back during the wet season. They may be attracted to mats of algae and water weed either floating or washed up around terrestrial wetlands, and coastal areas with much beachcast seaweed. Sometimes they occur on rocky shores and rarely on exposed reefs (Higgins & Davies 1996). | Unlikely. Suitable foraging habitat was not identified within the survey area. | Unlikely. Suitable foraging habitat was not identified within the survey area. | |

| Common Name | Status BC Act/ DBCA | Status EPBC Act | Description and habitat requirements | LOO within survey area (pre-survey) | LOO within survey area (post-survey) | Comment |
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| Long-toed Stint (*Calidris subminuta)* | IA | MI, MA | The Long-toed Stint is a regular summer visitor to Australia, but uncommon in the east. The species was first recorded in 1886 near Lukins Crossing on the lower Fitzroy River. In Western Australia the species is found mainly along the coast, with a few scattered inland records. On the south coast the Long-toed Stint is found from Esperance to Albany and inland lakes. The species has occasionally been recorded in the Gascoyne Region, around Lake Wooleen, Meeberrie Station and McNeill Claypan. It is widespread around the Pilbara region and the Kimberley Division between Karratha and Wyndham-Kununurra. Inland records include Lake Brown, Hannan Lake, Lake Biolet, Newman Sewage Farm and Lake Gregory. In the Northern Territory the species has been recorded at Harrison Dam, Daly Waters, Alice Springs Sewage Farm, Lake Sylvester and around Darwin (Higgins & Davies 1996). | Highly unlikely. A widespread species when migrated to Australia however no habitat is present for the species within the survey area | Highly unlikely. A widespread species when migrated to Australia however no habitat is present for the species within the survey area | |
| Pin-tailed Snipe (*Gallinago stenura)* | IA | MI, MA | The species distribution within Australia is not well understood. There are confirmed records from NSW, south-west Western Australia, Pilbara, and the Top End. In NSW, a single banded bird was reported near West Wyalong. In Western Australia, the species was reported at Pilbara, Port Headland, Myaree Pool, Maitland River and near Karratha. In Pilbara the distribution is believed to be bound by Pardoo (Banningarra Spring) and the lower Maitland River and Shay Gap. The Pin-tailed Snipe has also been reported on the Cocos-Keeling Islands as well as Christmas Island (Higgins & Davies 1996). | Highly unlikely. A rare vagrant, no habitat present | Highly unlikely. A rare vagrant no habitat present | The closest records are from Pilbara, Port Headland, Myaree Pool, Maitland River and near Karratha. |

| Common Name | Status BC Act/ DBCA | Status EPBC Act | Description and habitat requirements | LOO within survey area (pre-survey) | LOO within survey area (post-survey) | Comment |
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| Bar-tailed Godwit (*Limosa lapponica)* | CR, IA | CR, MI, MA | The Bar-tailed Godwit has been recorded in the coastal areas of all Australian states. It is widespread in the Torres Strait and along the east and south-east coasts of Queensland, NSW, and Victoria, including the offshore islands. It is found south from Cooktown to Port Phillip Bay but is less common west of the Bellarine Peninsula. There are a few inland records from NSW and Victoria. The species is occasionally recorded at King Island and the Furneaux Group, with scattered records on the north and east coasts of Tasmania. The Bar-tailed Godwit is most abundant in south-east Tasmania between Orford and Southport Lagoon. There are a few records from the west coast of Tasmania and inland at Oatlands. In South Australia it is rarely recorded in the south-east and mostly recorded around coasts from Lake Alexandrina to Denial Bay. In Western Australia it is widespread around the coast, from Eyre to Derby, with a few scattered records elsewhere in the Kimberley Division (Higgins & Davies 1996). | Unlikely The species is known from the Northwest Cape region however there is no habitat present in the survey area | Unlikely. The species is known from the Northwest Cape region however there is no habitat present in the survey area | |

| Common Name | Status BC Act/ DBCA | Status EPBC Act | Description and habitat requirements | LOO within survey area (pre-survey) | LOO within survey area (post-survey) | Comment |
|---|---|---|---|---|---|---|
| Curlew Sandpiper (*Calidris ferruginea)* | CR | CR | Curlew Sandpipers mainly occur on intertidal mudflats in sheltered coastal areas, such as estuaries, bays, inlets and lagoons, and also around non-tidal swamps, lakes and lagoons near the coast, and ponds in saltworks and sewage farms. They are also recorded inland, though less often, including around ephemeral and permanent lakes, dams, waterholes and bore drains, usually with bare edges of mud or sand. They occur in both fresh and brackish waters. Occasionally they are recorded around floodwaters (Higgins & Davies 1996). Curlew Sandpipers forage on mudflats and nearby shallow water. In non-tidal wetlands, they usually wade, mostly in water 15–30 mm, but up to 60 mm, deep. They forage at the edges of shallow pools and drains of intertidal mudflats and sandy shores. At high tide, they forage among low sparse emergent vegetation, such as saltmarsh, and sometimes forage in flooded paddocks or inundated saltflats. Occasionally they forage on wet mats of algae or waterweed, or on banks of beachcast seagrass or seaweed. They rarely forage on exposed reefs (Higgins & Davies 1996). Curlew Sandpipers generally roost on bare dry shingle, shell or sand beaches, sandspits and islets in or around coastal or near-coastal lagoons and other wetlands, occasionally roosting in dunes during very high tides and sometimes in saltmarsh (Higgins & Davies 1996). | Unlikely. The species is known from the Northwest Cape region however there is no habitat present in the survey area | Unlikely. The species is known from the Northwest Cape region however there is no habitat present in the survey area | |
| Little Curlew (*Numenius minutus)* | IA | MI,MA | In Australia, the Little Curlew is a bird of the coastal and inland plains of the north, where it often occurs around wetlands and flooded ground, as well as in open grassy areas, including farmland, playing fields and airstrips. They often form large flocks, occasionally comprising thousands of birds, and sometimes associate with other insectivorous migratory shorebirds, such as Oriental Pratincoles and Oriental Plovers. When foraging, they walk in small groups, picking insects from the surface of the ground or probing their bills into the soil along the way (Geering et al. 2007). | Highly unlikely. Little Curlews generally spend the non-breeding season in northern Australia from Port Hedland in WA to the Queensland coast. No habitat present for the species | Highly unlikely. Little Curlews generally spend the non-breeding season in northern Australia from Port Hedland in WA to the Queensland coast. No habitat present for the species | |

| Common Name | Status BC Act/ DBCA | Status EPBC Act | Description and habitat requirements | LOO within survey area (pre-survey) | LOO within survey area (post-survey) | Comment |
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| Grey-tailed Tattler (*Tringa brevipes)* | P4 | MI,MA | The Grey-tailed Tattler is often found on sheltered coasts with reefs and rock platforms or with intertidal mudflats. It can also be found at intertidal rocky, coral or stony reefs as well as platforms and islets that are exposed at low tide. It has been found around shores of rock, shingle, gravel or shells and also on intertidal mudflats in embayment's, estuaries and coastal lagoons, especially fringed with mangroves. It is less often on open flat sandy beaches or sandbanks, especially around seaweed or isolated clumps of dead coral. It is occasionally found around near-coastal wetlands, such as lagoons and lakes and ponds in sewage farms and saltworks. Inland records are rare with sightings on river banks and the edges of rock pools (Higgins & Davies 1996). | Unlikely.<br>Suitable foraging habitat was not identified within the survey area. | Unlikely.<br>Suitable foraging habitat was not identified within the survey area. | |
| Whimbrel (*Numenius phaeopus)* | IA | MI,MA | The Whimbrel is a regular migrant to Australia and New Zealand, with a primarily coastal distribution. There are also scattered inland records of Whimbrels in all regions. It is found in all states but is more common in the north (Bamford et al. 2008). | Unlikely. Although common around the Shark Bay archipelago, the Whimbrel is typically absent from the Exmouth Peninsula. | Unlikely. Although common around the Shark Bay archipelago, the Whimbrel is typically absent from the Exmouth Peninsula. | |
| Terek Sandpiper (*Xenus cinereus)* | IA | MI, MA | In Australia, the Terek Sandpiper has a primarily coastal distribution, with occasional records inland. It is more widespread and common in northern and eastern Australia than southern Australia. In Western Australia (WA), the Terek Sandpiper is rarely seen on the south coast: occasionally around Eyre and several records around Albany. On the Swan River plain, it has been recorded between Bunbury and the mouth of the Moore River. The species is widespread in the Pilbara region and Kimberley Division, from Dampier to Wyndham, with occasional records around Shark Bay (Marchant & Higgins 1993). | Highly Unlikely. Although occasionally seen in the Shark Bay archipelago and south-west, the Terek Sandpiper is typically absent from the Exmouth Peninsula. | Highly Unlikely. Although occasionally seen in the Shark Bay archipelago and south-west, the Terek Sandpiper is typically absent from the Exmouth Peninsula. | |
| Australian Painted Snipe (*Rostratula australis*) | EN | EN | The Australian Painted Snipe is rarely seen as it is extremely secretive, keeping to dense vegetation of swamps, emerging only in subdued light of dawn and dusk. The preferred habitat of this species includes surrounds and shallows of wetlands that are well vegetated with dense low cover (Morcombe 2004). | Unlikely. Suitable foraging habitat was not identified within the survey area. | Unlikely. Suitable foraging habitat was not identified within the survey area. | |

| Common Name | Status BC Act/ DBCA | Status EPBC Act | Description and habitat requirements | LOO within survey area (pre-survey) | LOO within survey area (post-survey) | Comment |
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| Ruddy Turnstone (*Arenaria interpres*) | IA | MI, MA | The Ruddy Turnstone is widespread within Australia during its non-breeding period of the year (Bamford et al. 2008), including from Tasmania in the south to Darwin in the north and many coastal areas in between. It is found in most coastal regions, with occasional records of inland populations (Higgins & Davies 1996). It strongly prefers rocky shores or beaches where there are large deposits of rotting seaweed (C.D.T. Minton, 2002). | Highly Unlikely. Although occasionally seen in the Shark Bay archipelago and south-west, the Ruddy Turnstone is typically absent from the Exmouth Peninsula. | Highly Unlikely. Although occasionally seen in the Shark Bay archipelago and south-west, the Ruddy Turnstone is typically absent from the Exmouth Peninsula | |
| Fork-tailed Swift (*Apus pacificus*) | IA | MI, MA | Fork-tailed Swift are widespread in coastal and sub-coastal areas between Augusta and Carnarvon, including some on nearshore and offshore islands. This species is almost exclusively aerial, flying 1 to 300 m above ground. This species is considered rare and a vagrant (DSEWPaC 2013). | Unlikely. Suitable foraging habitat was not identified within the survey area. | Unlikely. Suitable foraging habitat was not identified within the survey area. | |
| Grey Wagtail (*Motacilla cinerea)* | Mi | MI | The migratory species is widely distributed across the Palearctic region with several well marked populations. The nominate form is from western Europe including the Scandinavia, Mediterranean and British Isles regions. Another race breeds in eastern Europe and central Asia mainly along the mountain chains of the Urals, Tien Shan and along the Himalayas. They winter in Africa and Asia and sometimes end up in Australia as a vagrant. The third race breeds along the northeastern parts of Asia in Siberia extending to Korea and Japan. These winter in Southeast Asia and also can be a vagrant in Australia (Voelker, 2002). | Highly unlikely. This species is usually confined to Europe, their presence in Australia is considered vagrant. | Highly unlikely. This species is usually confined to Europe, their presence in Australia is considered vagrant. | |
| Yellow Wagtail (*Motacilla flava)* | MI | MI | The Yellow Wagtail (*Motacilla flava*) is a small passerine in the wagtail family Motacillidae, which also includes the pipits and longclaws. This species breeds in much of temperate Europe and Asia. It is resident in the milder parts of its range, such as western Europe, but northern and eastern populations migrate to Africa and south Asia. The species is a rare vagrant to Australia. | Highly unlikely. This species is usually confined to Europe, Africa and Asia and is a rare vagrant in Australia. | Highly unlikely. This species is usually confined to Europe, Africa and Asia and is a rare vagrant in Australia. | |

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| Barn Swallow (*Hirundo rustica)* | IA | MI, MA | In Australia, the Barn Swallow is recorded in open country in coastal lowlands, often near water, towns, and cities. Birds are often sighted perched on overhead wires, and also in or over freshwater wetlands, paperbark Melaleuca woodland, mesophyll shrub thickets and tussock grassland. | Unlikely. The Barn Swallow occurs only patchily along the north coast of the mainland Pilbara, WA. It is unlikely to occur within the survey area. | Unlikely. The Barn Swallow occurs only patchily along the north coast of the mainland Pilbara, WA. It is unlikely to occur within the survey area. | |
| Pectoral Sandpiper (*Calidris melanotos)* | IA | MI, MA | In Australasia, the Pectoral Sandpiper prefers shallow fresh to saline wetlands. The species is found at coastal lagoons, estuaries, bays, swamps, lakes, inundated grasslands, saltmarshes, river pools, creeks, floodplains, and artificial wetlands. The species is usually found in coastal or near coastal habitat but occasionally found further inland. It prefers wetlands that have open fringing mudflats and low, emergent, or fringing vegetation, such as grass or samphire. The species has also been recorded in swamp overgrown with lignum. They forage in shallow water or soft mud at the edge of wetlands (Higgins & Davies 1996). | Unlikely. Suitable foraging habitat was not identified within the survey area. | Unlikely. Suitable foraging habitat was not identified within the survey area. | |
| Red Knot (*Calidris canutus)* | EN | EN | In Australasia, the Red Knot mainly inhabit intertidal mudflats, sandflats and sandy beaches of sheltered coasts, in estuaries, bays, inlets, lagoons and harbors; sometimes on sandy ocean beaches or shallow pools on exposed wave-cut rock platforms or coral reefs. They are occasionally seen on terrestrial saline wetlands near the coast, such as lakes, lagoons, pools and pans, and recorded on sewage ponds and saltworks, but rarely use freshwater swamps. They rarely use inland lakes or swamps (DotE 2017). | Unlikely. Suitable foraging habitat was not identified within the survey area. | Unlikely. Suitable foraging habitat was not identified within the survey area. | |

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| Great knot (*Calidris tenuirostris)* | IA | MI, MA | The Great Knot has been recorded around the entirety of the Australian coast, with a few scattered records inland. It is now absent from some sites along the south coast where it used to be a regular visitor (Garnett et al. 2011). The greatest numbers are found in northern Australia; where the species is common on the coasts of the Pilbara and Kimberley, from the Dampier Archipelago to the Northern Territory border, and in the Northern Territory from Darwin and Melville Island, through Arnhem Land to the south-east Gulf of Carpentaria. Other important sites include the Broad Sound-Shoalwater Bay area, the Mackay region and Moreton Bay in Queensland. The species is much less common in south-west Australia, South Australia, Victoria, and Tasmania (Higgins & Davies 1996). | Highly unlikely. In Western Australia, the species is more commonly observed on the coasts of the northern Pilbara and Kimberley, from the Dampier Archipelago to the Northern Territory border. | Highly unlikely. In Western Australia, the species is more commonly observed on the coasts of the northern Pilbara and Kimberley, from the Dampier Archipelago to the Northern Territory border. | |
| Broad-billed Sandpiper (*Limicola falcinellus)* | IA | MI, MA | In Australia, the Broad-billed Sandpiper is most common on the north and north-west coasts and occur regularly at scattered localities in southern Australia, where they are usually seen singly. In Western Australia, few records occur in the south-west, but the Broad-billed Sandpiper may be regular in small numbers at scattered locations. They mostly occur on the coasts of the Pilbara and Kimberley between Onslow and Broome but are also recorded north to the mouth of Lawley River, and inland at Lake Daley. In the Northern Territory, they are an irregular and uncommon visitor near Darwin, though previously considered common at times. They are also recorded on Melville Island (Higgins & Davies 1996). | Highly unlikely. In Western Australia, the Broad-billed Sandpiper largely occurs on the coasts of the Pilbara and Kimberley between Onslow and Broome. | Highly unlikely. In Western Australia, the Broad-billed Sandpiper largely occurs on the coasts of the Pilbara and Kimberley between Onslow and Broome. | |

| Common Name | Status BC Act/ DBCA | Status EPBC Act | Description and habitat requirements | LOO within survey area (pre-survey) | LOO within survey area (post-survey) | Comment |
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| Red-necked Stint (*Calidris ruficollis)* | MI | MI | In Australasia, the Red-necked Stint is mostly found in coastal areas, including in sheltered inlets, bays, lagoons, and estuaries with intertidal mudflats, often near spits, islets and banks and, sometimes, on protected sandy or coralline shores. Occasionally they have been recorded on exposed or ocean beaches, and sometimes on stony or rocky shores, reefs, or shoals. They also occur in saltworks and sewage farms; saltmarsh; ephemeral or permanent shallow wetlands near the coast or inland, including lagoons, lakes, swamps, riverbanks, waterholes, bore drains, dams, soaks, and pools in saltflats. They sometimes use flooded paddocks or damp grasslands. They have occasionally been recorded on dry gibber plains, with little or no perennial vegetation (Higgins & Davies 1996). | Highly unlikely. The species is known from the Northwest Cape region however there is no habitat present in the survey area | Highly unlikely. The species is known from the Northwest Cape region however there is no habitat present in the survey area | |
| Sanderling (*Calidris alba)* | IA | MI, MA | The Sanderling occurs in coastal areas around Australia. Inland records have occurred in most states of singles or small groups, birds probably on migration in Western Australia the species occur on most of the coast from Eyre to Derby, and also around Wyndham. They are more often recorded on the south and southwest coasts, north to around southern Shark Bay, with more sparsely scattered records further north in Gascoyne and Pilbara Regions and the Kimberley Division (Higgins & Davis 1996). | Highly unlikely. Species not known from the region and no habitat present | Highly unlikely. Species not known from the region and no habitat present | |
| Greater Sand Plover (*Charadrius leschenaultia)* | VU | VU | In Australia, the Greater Sand Plover occurs in coastal areas in all states, though the greatest numbers occur in northern Australia, especially the north-west (Marchant & Higgins 1993; Minton et al. 2006). In northern Australia, the species is especially widespread between Northwest Cape and Roebuck Bay in Western Australia (Barrett et al. 2003. | Unlikely. The species is known from the Northwest Cape region however there is no habitat present in the survey area | Unlikely. The species is known from the Northwest Cape region however there is no habitat present in the survey area | |
| Oriental Plover, Oriental Dotterel (*Charadrius veredus)* | MI | MI | Immediately after arriving in non-breeding grounds in northern Australia, Oriental Plovers spend a few weeks in coastal habitats such as estuarine mudflats and sandbanks, on sandy or rocky ocean beaches or nearby reefs, or in near-coastal grasslands, before dispersing further inland. Thereafter they usually inhabit flat, open, semi-arid or arid grasslands, where the grass is short and sparse, and interspersed with hard, bare ground, such as claypans, dry paddocks, playing fields, lawns cattle camps or open areas that have been recently burnt (Storr, 1980). | Likely. Suitable foraging habitat may occur within the survey area. | Likely. Suitable foraging habitat was identified within the survey area. On the sandy plain | |

| Common Name | Status BC Act/ DBCA | Status EPBC Act | Description and habitat requirements | LOO within survey area (pre-survey) | LOO within survey area (post-survey) | Comment |
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| Lesser Sand Plover (*Charadrius mongolus*) | EN | EN | Within Australia, the Lesser Sand-Plover is widespread in coastal regions and has been recorded in all states. It mainly occurs in northern and eastern Australia, in south-eastern parts of the Gulf of Carpentaria, western Cape York Peninsula and islands in Torres Strait, and along the entire east coast, though it occasionally also occurs inland. It is most numerous in Queensland and NSW (Barrett et al. 2003; Blakers et al. 1984; Marchant & Higgins 1993; Milton & Driscoll 2006; Minton et al. 2006; Watkins 1993). The species has also been recorded on Lord Howe Island, Norfolk Island and Christmas Island, Indian Ocean (Marchant & Higgins 1993; McAllan et al. 2004; Moore 1981; van Tets 1983). | Highly unlikely. The nearest records of this species to the survey site are Port Headland, Eighty Mile Beach, and Roebuck Bay, | Highly unlikely. The nearest records of this species to the survey site are Port Headland, Eighty Mile Beach, and Roebuck Bay, | |
| Pacific Golden Plover (*Pluvialis fulva)* | IA | MI, MA | Within Australia, the Pacific Golden Plover is widespread in coastal regions, though there are also a number of inland records (in all states), sometimes far inland and usually along major river systems, especially the Murray and Darling Rivers and their tributaries. Most Pacific Golden Plovers occur along the east coast and are especially widespread along the Queensland and NSW coastlines. In Western Australia, the species is seldom recorded along the southern or south-western coasts but is more widespread along the Pilbara and Kimberley coasts between North-West Cape and the Northern Territory border (Marchant & Higgins 1993). | Unlikely. In WA, the species is widespread along the Pilbara and Kimberley coasts between North-West Cape and the Northern Territory border. | Unlikely. In WA, the species is widespread along the Pilbara and Kimberley coasts between North-West Cape and the Northern Territory border. | |
| Grey Plover (*Pluvialis squatarola)* | IA | MI, MA | In Australia, the Grey Plover has been recorded in all states, where it is found along the coasts, and it especially abundant on the western and southern coastlines, mainly between The Coorong and western beaches of the Eyre Peninsula in South Australia, and the coast of Western Australia between Albany and the northern Kimberley coast (Barrett et al. 2003; Blakers et al. 1984; Lane 1987). In the Northern Territory, small numbers of Grey Plovers are regularly recorded in the Top End, and in Queensland, large numbers have been recorded in the south-eastern Gulf of Carpentaria, but records elsewhere are at sparsely scattered sites along the east coast (Marchant & Higgins 1993). | Highly unlikely. The Grey Plover is found intermittently along the Western Australia coast between Albany and the northern Kimberley. The species is rarely seen in on the Exmouth gulf. | Highly unlikely. The Grey Plover is found intermittently along the Western Australia coast between Albany and the northern Kimberley. The species is rarely seen in on the Exmouth gulf. | |

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| Oriental Pratincole (*Glareola maldivarum)* | IA | MI, MA | The Oriental Pratincole is native to the warmer parts of South and Southeast Asia, breeding from North Pakistan and the Kashmir region across into China and southwest. It is migratory and winters in both India and Pakistan, Indonesia and Australasia. In 2004, 2.5 million oriental pratincoles were recorded on Eighty Mile Beach on Western Australia's north-west by the Australasian Wader Studies Group. There had previously been no records of this magnitude and it is supposed that weather conditions caused much of the world's population of this species to congregate in one area (Burns, 1993). | Highly unlikely. In Western Australia, the species is restricted to the coasts of the Pilbara Region and the Kimberley Division in Western Australia. | Highly unlikely. In Western Australia, the species is restricted to the coasts of the Pilbara Region and the Kimberley Division in Western Australia. | |
| Osprey (*Pandion haliaetus)* | MI | MI | Eastern Ospreys occur in littoral and coastal habitats and terrestrial wetlands of tropical and temperate Australia and offshore islands. They are mostly found in coastal areas but occasionally travel inland along major rivers, particularly in northern Australia. They require extensive areas of open fresh, brackish or saline water for foraging (Marchant & Higgins 1993). They frequent a variety of wetland habitats including inshore waters, reefs, bays, coastal cliffs, beaches, estuaries, mangrove swamps, broad rivers, reservoirs and large lakes and waterholes. They exhibit a preference for coastal cliffs and elevated islands in some parts of their range, but may also occur on low sandy, muddy or rocky shores and over coral cays (Marchant & Higgins 1993). | Unlikely. Marine adjacent areas of the survey area provide favorable habitat for the species, use maybe opportunistic. | Unlikely. Marine adjacent areas of the survey area provide favorable habitat for the species, use maybe opportunistic. | |

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